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- Footprint: 61" x 31"
- Dust ports: 10
- Max. board width: 43"
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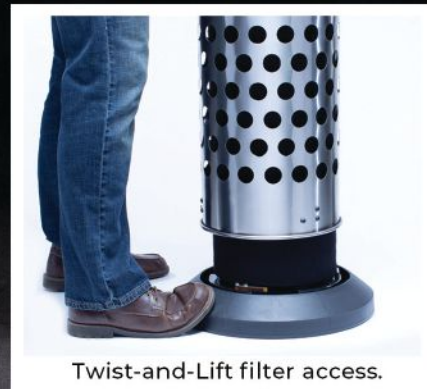
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BLOGS



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Tariffs pose a threat to U.S. hardwood industry

The trade war with China, and possible tariffs against Mexico, has drawn sharp rebukes from the U.S. hardwood industry.

The industry has a heavy reliance on export markets for its survival and is being devastated by the ongoing trade dispute with China, according to the Hardwood Federation that represents 26 U.S. hardwood-focused trade associations, state forestry and lumbermen organizations.

"The hardwood industry is a fully integrated industry, from logging to manufacturing finished consumer goods like flooring, cabinetry, moldings, railway ties and many other products," Dana Lere Cole, the federation's executive director, said in a statement. "The ongoing trade dispute with China and the declared tariffs on U.S. hardwood products are serious threats to the viability of the industry, and the people it employs."

In 2018, U.S. hardwood producers shipped products worth \$3.9 billion to global markets; \$1.9 billion to Greater China, including Hong Kong and Macau. As a result of the impacts of tariffs imposed in the fall of 2018, the U.S. had a trade surplus of \$1.293 billion in hardwood lumber, down from \$1.475 billion in 2017.

Over the last three quarters, hardwood exporters lost \$153 million per quarter, as a result of the 10 percent tariffs imposed by China. When the current tariffs increase to 25 percent, a steep acceleration of losses is expected, according to the federation.

"If these tariffs continue in this current application our logging and sawmill produc-

tion will disappear as an industry sector, and the secondary jobs and manufacturing companies depending on loggers and sawmill operations will quickly follow," said Cole.

In a May 16 article published in the Washington Post, Michael Snow, executive director of the American Hardwood Export Council, said the industry is looking for alternative markets. "But at the end of the day, there really are no other markets out there that can absorb anywhere near the volume that China was taking in," Snow said. "If this continues for several months, I think there's no question that we'll see mill closures and layoffs in the industry."

Cindy Squires, executive director of the International Wood Products Association, said the threatened tariff against Mexico will be felt from the border to the checkout line.

"Tariffs paid by U.S. importers, manufacturers, and ultimately consumers are not the way to address the crisis at the border. The initial five percent tariff proposed on Mexican imports will have negative repercussions across our industry and the costs will only increase if the tariffs continue to escalate as the President has proposed," Squires said in a statement.

"Like all businesses, the wood products industry depends on economic stability and predictability to make critical investments and hiring decisions that contribute to economic growth in our communities. I am concerned that these escalating tariffs could undo much of the recent economic boom created in part by the Trump Administration's tax cuts, deregulatory initiatives, and other business-friendly policies." **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

Studio furniture maker wins \$15,000 fellowship

By Jennifer Hicks

Brendan Barrett, a recent graduate of the Minneapolis College of Art and Design, has received a \$15,000 Windgate Fellowship from the Center for Craft to help start his career.

"This first year out of school seems to me like a real 'make or break' moment when recent graduates are at risk of losing the momentum they've built up and sacrificing their plans because of financial burdens. Receiving the fellowship allowed me to relax, worry a little less about crushing debt, rent and thousand-dollar tools, and really put my head down and focus on the hard work of building my furniture practice on my own terms," says Barrett, who plans to remain in Minneapolis.

Each year, the Windgate Fellowship identifies 10 graduating college seniors with \$15,000 for demonstrating exemplary skill in craft. Now in its 14th year, the center's fellowship

program has awarded a total of \$2.1 million to 140 emerging craft artists.

This year, four panelists reviewed a national pool of 109 applicants based on artistic merit and their potential to make significant contributions to their field of craft.



Brendan Barrett

"The Windgate Fellowship is an exciting opportunity for art students who are between college and graduate school or life as a working artist," says Stephanie Moore, the center's executive director. "The fellowship instills confidence and encourages innovative risk-taking at a critical period in the students' career."

Barrett's design process employs wooden furniture as a structure to present a specific form or material, calling attention to its individual characteristics, personality and significance, according to his application statement. He plans to connect with others who are just as committed and passionate to



Barrett's "Cement Board" credenza (top) and "Sawdust Brick Bench".



the world of craft and continue his education.

"With the support of the Windgate Foundation and the Center for Craft, I plan to travel to Haystack Mountain College in Maine this summer and join a woodcarving class with sculptor Julian Watts. Carving appeals to me as a way in which I can continue to work with wood on a smaller scale while going through the process of acquiring shop space, machinery, and tools," says Barrett.

"The financial support of the fellowship is going to allow me to purchase essential shop tools, allowing me to smoothly transition from the school environment to my own studio. I've worked in multiple shops during my education and am excited to start the design and building of my own wood shop as my next big project."

For more information, visit Barrett's website at www.brendan-barrett.com and www.centerforcraft.org. [W](#)

NAHB studies labor shortage in remodeling industry

By Jennifer Hicks

As part of National Home Remodeling Month in May, the National Association of Homebuilders Remodelers released results to a survey designed to address the availability of labor and subcontractors. They indicate that an overwhelming labor shortage continues to impact the remodeling industry.

"The labor shortage continues to be one of the top concerns for remodelers across the

country," Tim Ellis, chair of the NAHB Remodelers Committee, said in a statement.

"An ongoing challenge for remodelers is keeping their prices competitive while dealing with the increasing costs of labor."

The survey notes a significant shortage of rough and finish carpenters, framers, masons and electricians.

The labor shortages are hurting remodelers in terms of completing projects on time,

formulating competitive bids, and taking on new work.

"Working in the remodeling industry provides job security and high wages," said Ellis. "NAHB is attempting to change the stigma of working in the trades by increasing awareness to teens and parents and providing them with education and the skills they need to succeed."

For more information, visit www.nahb.org/remodel. [W](#)



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The Furniture Society honors Tom Loeser

By Jennifer Hicks

The Furniture Society presented furniture maker Tom Loeser with its coveted 2019 Award of Distinction at its annual conference, "FS19: Groundwork", June 19-22 in Milwaukee.

The award recognizes outstanding achievement and long-standing commitment to the advancement of the art of furniture building.

Jurors Rosanne Somerson, Mia Hall, Laura May and Wendy Maruyama concluded in their assessment that they were searching for "those individuals that changed the course of how the field evolved, and their nurturing of younger and less experienced makers, bringing them into the field through various routes."

In a statement, the jurors said they selected Loeser due to his "significant contributions across the areas that make up the field of furniture design; skill and inventiveness as a maker; leadership in the field outside of



Tom Loeser



Loeser's "Scythe by Scythe" bench.

making; educator, and leadership through contributions to the discourse of craft and furniture design."

Loeser, from Madison, Wisc., chaired the University of Wisconsin's Department of Art from 2009-2014 and has been head of the university's wood/furniture area since 1991.

Loeser designs and builds one-of-a-kind functional and dysfunctional objects that are often carved and painted and always draw inspiration from the history of design and object making. In addition to producing studio furniture, he has also worked on a number of public commissions and site-specific installations including for the Madison Children's Museum and the city's new public library.

Loeser's work has been featured in many national and international exhibitions. It can be found in museum collections, including the Renwick Gallery, Brooklyn Museum, Fuller Craft Museum, Museum of Arts and Design, Racine Art Museum, Rhode Island School of Design Museum of Art, Cooper-Hewitt National Design Museum, and Yale University Art Gallery.

His solo exhibition, "Please, Please, Please", is currently traveling to three venues in California and Texas. He was elected to the American Craft Council College of Fellows in 2012.

For more, visit www.furnsoc.org. [W](#)



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WCMA holding event in Kentucky

Registration is open for the Wood Component Manufacturers Association's 2019 one-day regional plant tour event, hosted by Eagle Machinery & Supply, on June 20-21 in Lexington, Ky.

The event includes tours of Powell Valley Millwork and the Woodford Reserve Distillery.

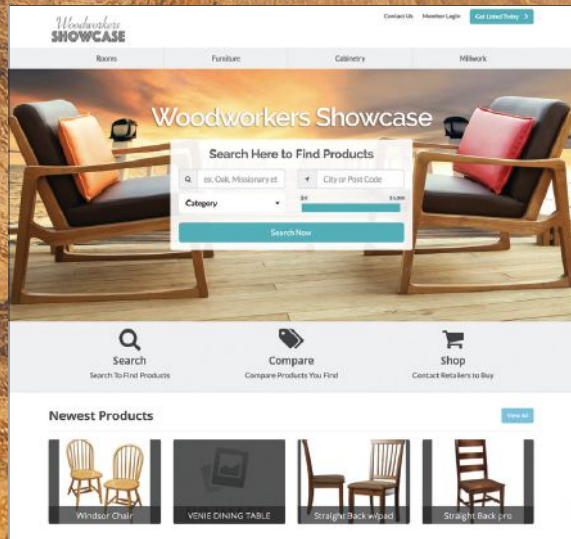
Timothy Hughes, senior trade advisor with the Kentucky Department of Agriculture, is scheduled to address the group.

For more, visit www.wcma.com.

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Thomas Hillstead (left) discusses edge quality with student Holly Soldner.

St. Paul College emerges as a go-to labor source

By Richard Christianson

In an era when wood product companies of all sizes, types and locales are hard-pressed to find employees, it comes as no surprise that St. Paul College's Cabinetmaking Diploma program boasts 100 percent placement of its graduates.

"Those who want woodworking jobs are able to get jobs," says Thomas Hillstead, instructor of the one-year program that is an EDUcation member of the Woodwork Career Alliance of North America. "Demand is high right now. I have more companies calling me than I have students to fill their positions."

One of St. Paul's regular recruiters is O'Keefe Millwork of River Falls, Wis., about a half-hour drive from St. Paul. O'Keefe, a member of the Architectural Woodwork Institute, employs nearly 60 people to manufacture architectural millwork, cabinetry and custom fixtures.

"I'd hire Tom's entire class if I could," says Jeff Stanway, plant manager of O'Keefe. "We're always looking for employees. We could do more work right now if we could get more of the right people."

An inside look

The average age of students enrolled in the St. Paul College Cabinetmaking program is 29. "We get some right out of high school and



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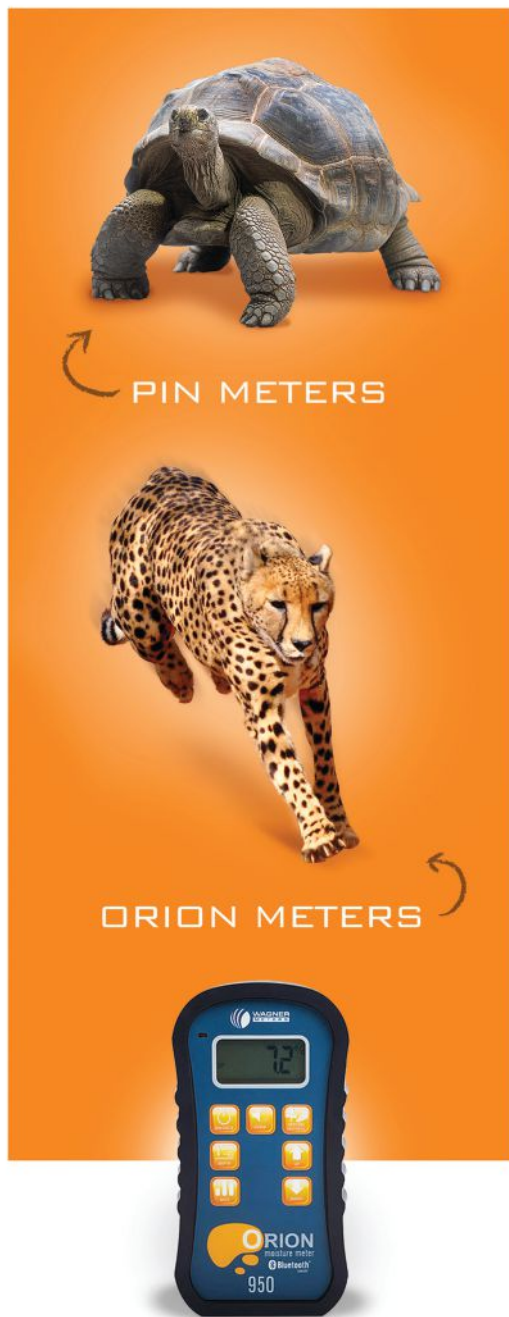
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St. Paul College student Ulysses Yang operates the school's CNC router.

some retirees who are just looking to hone their woodworking skills, not to find employment," Hillstead says. "Most of my students have been in the workforce. Many of them have a four-year college degree, but few took woodworking courses in high school. They come here looking to go in a different direction."

The St. Paul cabinetmaking program is designed to expose students to a wide-range of tools and equipment used by cabinet manufacturers, including portable power tools, table saws, edgebanders and CNC routers.

"We walk a fine line between what I call modern cabinetmaking and traditional cabinetmaking," Hillstead says. "O'Keefe is an example of a shop with a lot of technology. They move a lot of products through their plant. Some of the other shops that hire my students are more traditional. They may be a two- or three-person maker's-type shop where they make custom furniture pieces, and things like that. My goal is that students leave here with enough skill sets to succeed in both of those environments."

"When it comes to hands-on skills, I want to teach them about safety but I want them to be comfortable and know their limitations, too. We also work on the soft skills that will make them a good employee."

Stanway says O'Keefe currently employs at least five graduates of Hillstead's program. "They arrived easier to train than most of the people we hire off the street," Stanway

says. "They have chosen woodworking as a career and have gotten a good, well-rounded introduction to what the wood industry is all about. They've learned everything from how to read a tape measure all the way to being introduced to CNC."

Stanway cites a couple of examples of O'Keefe employees who have more quickly advanced through the ranks because of the skills they learned at St. Paul College. "One started out in 2013 in cabinet assembly, but soon moved into custom assembly and is now a lead builder. Another started in 2016 and now works in our custom department. We put in a new Homag wide-belt sander a year-and-a-half ago and he's one of the operators. He's doing a great job," Stanway says.

The WCA connection

Hillstead has been a WCA accredited skill evaluator since 2012. Since then, he has evolved his curriculum by integrating the WCA Skills Standards and credentialing program.

"This school year we've redesigned the program to fully use the WCA Skill Standards as the basis for everything that the students learn. As they learn to run a boring machine, let's say, I print out the sheets from the WCA Skill Standards on boring machines so that they can see exactly what's expected to operate them."

Hillstead says each student is required to purchase a WCA Passport membership at the



St. Paul grad Andrew Hilby (left) with Jeff Stanway, plant manager of O'Keefe Millwork.

start of the Fall semester. "They get tested to earn their Sawblade certificate in the fall on things like measurement, layout, (using) the table saw, jointer and drill press, and sanding. They can be evaluated on more, but I don't make it a requirement."

The Spring semester includes a class called Industrial Machining Methods. "This is where we get into some of the non-traditional equipment like edgebanders, CNC routers and the dowel insertion machine. Toward the end of the semester, a student can request to be evaluated on particular machine operations to earn additional tool stamps. I tell my students that their WCA credentials will give them a leg up in the job market," Hillstead says.

"I think the WCA is a great program, for sure," says Stanway, who is a member of the St. Paul College cabinetmaking program advisory board. "We need more plant managers and department supervisors in the future and this program offers a great start."

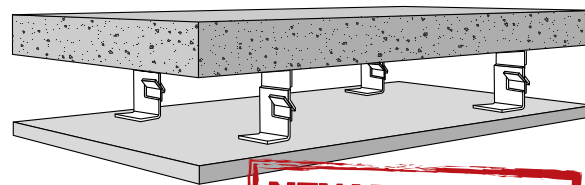
"O'Keefe is only one of the shops that we deal with, but they've been an awesome partner. They've been very supportive of our program including donating sheet goods and other materials, and organizing tours of their shop for our students," Hillstead says. "Through his involvement on our advisory board, Jeff has helped guide our program to what the industry needs, and he's also been a great advocate of our program and our involvement with the WCA." **W**



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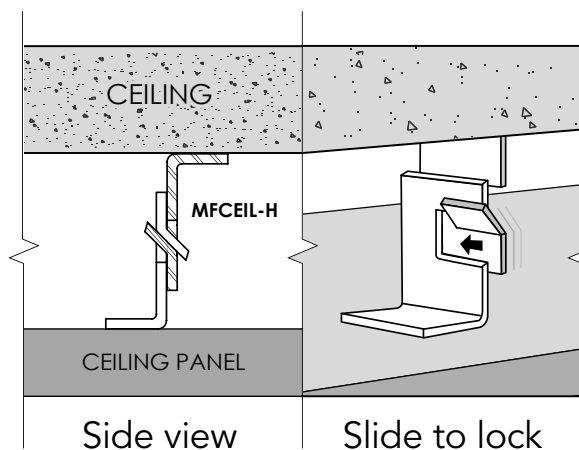
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Barrel industry vies for supplies of white oak

By Jennifer Hicks

The demand for rift-sawn white oak is currently outpacing the supply, a trend that's keeping hardwood dealers on their toes trying to replenish their inventories.

"All the big jobs are rift. The customers don't want the quartered, they want the rift. When you get the smaller jobs, they want the flake, but most of the big jobs they want the straight vertical grain rift. That's where their money is and that's what's moving,"

says Sam Talarico of Talarico Hardwoods in Mohnton, Pa.

"Plainsawn white and quartered white are still in demand and we've not had any issues with keeping a good supply of those. But with the rift, the popularity is just through the roof, so we have had some issues with some of our mills getting behind," adds Chad Muterspaw of C.R. Muterspaw Lumber Co. in Xenia, Ohio.

"We've seen a lot of the larger cabinet shops and millwork companies go for the rift. It's

just that straight grain and that color tone of white oak right now is just extremely popular. People are using a lot of clear finishes and not changing the natural color of it at all."

Barrel makers also have a thirst for white oak.

"Worldwide, the barrel industry is where most of the competition for real good rift white oak logs is coming from and most people don't know that. They need good diameter and good growth for wine, whisky and other hard liquors which are all made in oak barrels," says Talarico.

"We talked to one of our loggers, and one thing they mentioned was that the barrel industry used to pay very minimal amounts for white oak logs, and now, because of their demand and they need it, they're paying a higher price and basically snatching up logs that would probably otherwise go into more of what we do in the furniture industry," says Muterspaw.

Slow tree growth is particularly important for the unique texture of white oak (*Quercus alba*). Trees that get too much sunlight grow fast and unevenly, resulting in low-grade saw logs.

"The dimensions of the lumber are small in width and the texture is poor because they're grown faster, and the color is all over the place," says Talarico. "What the production mills are running for rift and quartered lumber leaves a whole lot to be desired when you're looking for real good material for special jobs."

Prices for 4/4 rift- and quarter-sawn white oak start at about \$5/bf. Larger widths and thicknesses were quoted from \$16-\$25/bf. **W**

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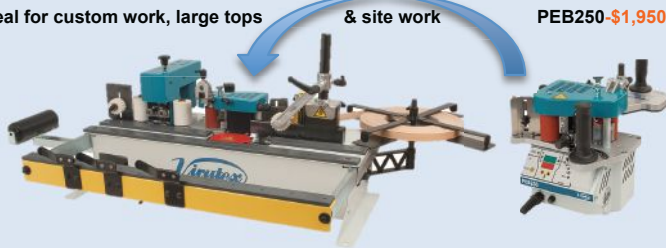


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TOOLS & TECHNIQUES

Maksiwa's CBC Flex takes a different tack

By Jennifer Hicks

Maksiwa introduces the CBC Flex for bonding edge tapes to straight and concave or convex curved pieces.

Suitable for mobile or stationary use, the contour edgebander works with tapes from 0.3mm (1/64") to 1mm (5/16"). It weighs just

21 lbs. to reduce operator fatigue, according to the company.

Dan St. Germain, vice president of sales for Maksiwa, says the CBC Flex stands out from the competition.

"Our glue goes on the substrate first, versus others on the banding first. When glue is ap-



The CBC Flex applies the glue to the substrate.

plied to the substrate first there is less concern with damaging the banding. Glue is applied where it is needed, reducing waste and preventing trim bits from becoming gummed up. The Flex is a more efficient method of banding on a contour version," says St. Germain.

The Flex uses low temperature (130 to 170 C) pellet glue. "When you use a banding process that allows for glue pellets versus a pre-glued system, the banding color options are limitless. Species and color options are very limited for pre-glued banding," adds St. Germain.

The machine takes about 15 minutes to warm up. It has a digital temperature control and variable feed speed.

The CBC Flex sells for \$1,699 as a bare tool. A kit version, priced at \$1,799, includes hardware for stationary use.

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CNC Factory presents new Python XPR

By Jennifer Hicks

CNC Factory's new Python XPR does the heavy lifting and decision making for the end-user, according to the manufacturer. The CNC machine features automated loading and unloading, robotic material alignment, and more.

Company owner Chris Corrales says he designed the machine for profitability, speed, and ease of use.

"With only 15 minutes of safety training you are ready to go and as the parts come out, they tell you exactly what needs to happen with them. The learning curve of two months and having a dedicated operator that needs specific knowledge for operation is now a thing of the past for this third-generation machine," says Corrales.

The new Python XPR has a long list of grow-as-you-grow features including a 12-hp HSD air-cooled spindle, 12-tool rotary tool changer, direct helical rack-and-pinion gearing, and dual layer, high flow vacuum system.

"The Python conquers long, complex, multi-tool tasks efficiently from one to 50 sheets with just one push of a button. It's user friendly and needs only one operator to run in either robotic or manual mode," Corrales adds.

The new Python XPR with a 4' x 8' table sells for a base price of \$74,900. Larger and custom table sizes are available. All sales include training and life-long customer support.

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Fine Furnishings returning to 2018 venue

The 24th annual Fine Furnishings Show will return to the WaterFire Arts Center in Providence, R.I. this fall.

"It is a spectacular building and it was the perfect venue for the show," says producer Karla Little. "We were able to expand the show and include more exhibitors. The building location and amenities, especially all the free parking, made it easy to get to."

www.finefurnishingsshows.com.

Ingersoll Rand adds to new compressor line

By Jennifer Hicks

Ingersoll Rand has added two compressors, models RS11-22kW and RS15-22kW, to its new Next Generation R-Series. Designed for small shops, the versatile compressors can be used to power blowers and pneumatic tools, hold material to vacuum tables, and more, according to the company.

Product manager Andy Nemcek says both compressors give shop owners best-in-class performance and the reliability to meet all of their current and potential needs.

"These are the continuation of the multi-year project our company has undertaken to refresh their entire portfolio from 5- to 500-hp machines with new high efficiency air compressors," says Nemcek.

The RS15-22kW has a new design that produces 20 percent more airflow compared to the company's previous compressors of this capacity, resulting in more energy savings. The RS11-22kW houses a redesigned cooling system and increases energy efficiency up to 12 percent, according to the company.

"This new launch provides a full range of options and features within the 11-22kw range to match the unique needs of a customer's application. This flexibility ensures owners get the best performance at the best value," the company said.

For more, visit www.ingersollrandproducts.com. 





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THE CUTTING EDGE

with R.W. LEE

An introduction to Lights Out Manufacturing

Imagine your shop running seven days a week, 20 hours a day, with only a few employees. It's possible.

Light's Out Manufacturing is a viable concept that exists with today's technology. It's a fully automated system with robots and digital fabrication machinery churning out products with most of the staff tucked away in their beds. It's often hailed as the next big step to greater productivity and profits in the woodworking industry.

It's a massive undertaking, often beginning with major structural and infrastructural improvements. There are numerous details to consider, but as long as we're still dreaming, let's explore the process.

If it we're me, I'd spend a lot of time devising a business plan that starts with how long I anticipate being in business relative to the amount of capital and time required to partially or fully implement Lights Out Manufacturing. Then I'd have a succession plan in place.

Not every shop would have to start from scratch. Shops with a CNC router should be familiar with projecting profits against production forecasts. They have crossed the threshold of thinking about the business in terms of cash flow, rather than simply building cabinets or furniture.

I'd also start by investigating the purchase of a multi-axis CNC router with more than one spindle and at least one drill head. The

idea behind this type of machine is to be able to perform as many machining tasks as possible on a given piece of material without removing or refixturing.

Having a multi-axis CNC router will give you and your employees, both on the shop floor and the CAD and CAM operators, experience with such a machine. This will allow everyone to envision how to produce parts more efficiently, and how to be able to make parts that had previously not been able to be made in your shop, which is a way to expand your customer base and spread the cost of the new hardware and its installation, new software, and employee training over a wider variety of customers and products.

Options for automated material handling range from software that controls a vacuum lift to a 9-axis robot capable of loading and unloading two machines. A furniture manufacturer might start with a 6-axis robot in a work cell configuration.

It's not an all or nothing proposition. There are ways to ease into Lights Out Manufacturing that augments a shop's current work flow, not completely take it over. This allows the shop's personnel, specifically its CAD and CAM operators, to gain experience and hopefully realize new opportunities. [W](#)

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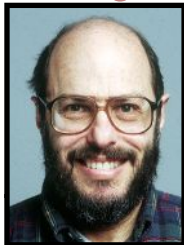
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FINISHING

with BOB FLEXNER

All conservators are not the same

About 20 years ago, at the turn of the 20th century, I was editing *Professional Refinishing*, a trade magazine that was mailed free to refinishing shops around the country. (Unfortunately, the magazine was dissolved in 2003 because there weren't enough possibilities for advertising to support it; by far, the primary cost in these shops is labor, not supplies.)

One of the trends I noticed among the readership was a tendency to inflate what they called themselves from "refinisher" to "restorer" and from "restorer" to "conservator." Conservator seemed to occupy the position at the top of the pack. So, what exactly is a conservator?

Before explaining this term, I want to point out that there are actually two large categories

of conservator: one type is employed by museums; the other works in private practice for clients. It has its own sub-organization within the American Institute for Conservation of Historic & Artistic Works (AIC). This sub-group is called Conservators in Private Practice.

Though there is some crossover, of course, conservators in private practice work for clients – that is, they aren't employed directly by museums (or they are employed by museums and work for clients on the side).

So a conservator in private practice differs from a restorer primarily by the standards he or she keeps, or at least tries to keep. This is not always easy because in the end both conservators and restorers try to please their clients by giving them what they want.

Background

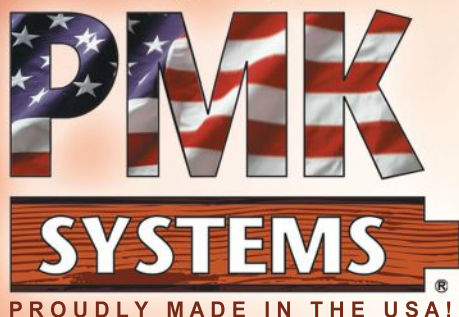
The field of museum conservation has changed in the last century or two. This has occurred partly because of the improved conditions in museums, primarily temperature and humidity control, and partly because conservators have created standards to be followed with the goal of preserving the history of the furniture, paintings, textiles, or whatever.

In the 19th and early 20th centuries, the curator (often called a "keeper") was in total charge of researching, acquiring and exhibiting the objects in the museum's collection. Sometimes, the curator felt accomplished enough to correct any damage to the objects. Other times, the objects were sent to someone who had the skills. Decisions for what to do were made by how easy the repairs were and by the appearance. "If it looks good, it is good" was the standard.

The problem was that this approach led to the removal of much of the history of the object. And as time went on, preserving the history rose in importance. This led to the establishment of AIC in 1972 with only a few members to begin with, but now totaling over 3500 worldwide. It also led to the eventual creation of a code of ethics. You can read this code at www.culturalheritage.com.

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Conservation

What this code did was make conservation professionals much more scientific in determining what should be done. They started paying attention to the chemical interaction between the original materials and the restoration materials being used. The techniques of microscopic examination and chemical analysis could be used on a cross-section of finish layers to determine what the original finish was.

With this information they could decide whether or not to try removing the added layers to get back to the original finish. This is commonly done by painting conservators, but there is a caveat. The original painting materials were usually oil paints, and later materials were most often shellac or some similar alcohol-soluble coating. This could be removed with alcohol without disturbing the original.

But the order in furniture was most commonly the opposite. The original was an alcohol soluble resin, and the added might be a varnish or even a catalyzed finish if done more recently. It's much more difficult to remove these coatings without also removing the original.

As you would expect with the increased emphasis on chemical analysis, there are now several universities in the U.S. and other coun-

tries that offer degrees in conservation. They usually begin with a knowledge of organic chemistry. The goal is to preserve as much of the history of the object as possible, along with long-term stability.

Restoration

There has always been a tension between the object as history and the object as functional. When the object will be preserved in a museum, the history can take priority. But when it is in the possession of individuals, the functional part usually takes priority. The owner usually wants to use the object and to love it for its beauty.

Some years ago, on several trips to New York and New England, I made an effort to visit many of the leading antique dealers. The one thing I found most striking was that almost all of the furniture had been fairly recently refinished. The old finish had been removed and a new one applied. As a refinisher myself, I recognized this immediately.

This was soon after the Antiques Roadshow had become a popular TV show on public television. The message of this show when it comes to furniture was clearly, "Don't refinish. You'll destroy the value." So I asked the owners of these galleries if this show wasn't causing them problems with

sales. Quite to the contrary, each dealer explained, people in the market for this quality of antique furniture knew better. They wanted beautiful, functional objects, and keeping the "crusty craze" of original finishes didn't sell. So these dealers were simply responding to the marketplace.

Where the tension between preserving the history vs. making the object functional becomes evident is with conservators in private practice, working for individual people or businesses rather than museums. In my experience (and I have known many of these conservators), they often, or maybe I should say "usually," break with the code, because keeping to it wouldn't give their clients what they want.

For the longest time I struggled with this because I thought of all conservators as the same, and I knew so many who didn't follow the code very tightly. It wasn't until I realized that conservators working for individuals rather than in museums needed to be thought of differently. In many cases they are more like restorers than conservators working in museums.

Bob Flexner is the author of "Understanding Wood Finishing," and "Wood Finishing 101."

W



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PRO SHOP

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What's the deal with finding skilled labor?

In a free economy, supply and demand are supposed to determine price. That doesn't seem to be happening right now as the woodworking industry evolves from primarily manual to more technical, automated processes. As we continue to replace cabinetmakers with CNCs and robotics, and consequently use our hands less, woodshops are not paying the new generation of 'woodworkers' at the same rate that other, competing industries pay skilled, high tech employees. Is this a problem?

What the government says

One of the lesser known reports published by the U.S. Department of Labor's Bureau of Labor Statistics (BLS) is on industry by industry productivity, which measures output per hour. Despite almost full employment in the U.S., there was a widespread decline in manufacturing labor productivity in 2018. Woodshop owners might be surprised to learn that they were part of that. Productivity in the wood products sector fell a significant 4.6 percent in 2018. That's a counterintuitive concept, because every shop owner in this industry watches robotics and automation grow daily.

If we have more machines and fewer people, then wouldn't we have a higher output per employee? If the numbers are true, they might in some regard explain why the industry struggles to pay skilled people a competitive wage.

But the answer may also lie in another set of statistics. According to the BLS, there are now only 12,150 cabinetmakers left in the country! But there are some 50,860 machine operators in the woodworking sector alone, and another 38,500 sawyers. One might venture a guess that the statisticians don't really understand the industry, or what its members do on a daily basis. And if they don't define the parameters realistically, then there is reason to doubt their conclusions. The government seemingly paints everyone from foresters to finishers with the same brush.

There is one BLS statistic, however, that

sounds like it might be somewhere in the ballpark of reality. Cabinetmakers and bench carpenters, according to BLS, earn \$32,170 (median) and \$34,460 (mean average) per annum. The median number is the middle (unweighted) number from a list of wages, while the mean is the average as most people understand it. That's where one adds up all the wages and then divides by the number of woodworkers. So, cabinetmakers nationwide are averaging a mean of \$17.23 an hour. Machine setters, operators and tenders (presumably, this includes people operating equipment such as CNCs, robots, edgebanders and beam saws) earn a little less, with a mean of \$30,850 annually, or \$15.43 an hour.

On Apr. 16, the BLS released its usual report on the earnings of wage and salary workers in the first quarter of this year, and the median wage of all of the nation's 116.1 million full-time employees was \$905 a week. That translates to \$47,060 annually (\$23.53 an hour), a statistic which says that woodworking pays only 73 percent of what the average employee in America makes. Just to give some perspective, Money magazine reported in May last year that the average salary for public school teachers, a sector that the majority of Americans feel is quite underpaid, was \$58,353 in 2016.

Let's face reality here. We're not going to attract a lot of skilled or talented young people at a median wage of \$17.23 an hour. And consider this: because of Industry 4.0, we're now asking many of them to spend a large part of their workday either programming computers or maintaining robotics. According to the BLS, the median annual wage for computer programmers in May 2018 was \$84,280, or 246 percent of what cabinetmakers made. If they're smart enough or skilled enough to program, why would they settle for so much less? In fact, even those with no computer-based aspirations and only a willingness to work with their hands still earn less in a woodshop than even an average construction job pays (\$38,890 in 2017).

It seems fairly obvious that the first step in finding (and keeping) skilled workers is to take a long, hard look at wages. If we're replacing people with machines so that shops can maintain production with fewer employees, does that create some room in the payroll budget?

What does skilled mean?

Defining this in the woodshop industry is a bit of a challenge. Does somebody who can work magic in a CAD program have more skill than someone who can spray a perfect topcoat? Who is more valuable to the company, or the bottom line? As tasks in the shop become more refined and exclusive, custom woodworking is seeing an evolution toward the production line model. That is, people are becoming less interchangeable throughout the process. There was a time when the shop owner would draw plans on paper, and then move to the table saw. As robotics and other aspects of Industry 4.0 are increasingly integrated, we're seeing more specialists and fewer unskilled, or strictly manually skilled jobs.

Training is one defining characteristic of skill. Employees who have a two- or perhaps four-year degree in various aspects of computers such as CAD, CAM or robotics are a completely different entity than somebody who arrives at the shop with a great attitude and physical abilities but needs to be trained in the shop. A big component here is that on-the-job training is no longer limited to subjects such as wood movement or staining. Now the new employee may also need to become well versed in such diverse skills as lean manufacturing practices, interactive screens and labeling software. This, of course, introduces an argument about the merits of skills derived from in-house training verses those purchased through college degrees. And, does somebody who was trained elsewhere bring more new skills to the shop than preconceived notions that might need to be tweaked?

As with any industry, a successful, long-term, skilled woodworker has a very specific core makeup. This is a person with a fairly unique combination of both intellectual and manual attributes, but there's also something less quantifiable here. A long-term, or indeed lifetime woodworker, must have some aspects of the soul of a craftsman. And herein lies one key, other than money, to attracting skilled labor. These are the kind of people who revel in building, making, and then running their hands over something that they have created. Beyond simple pride, it's almost an addiction. Yes, they are quite willing to spend a day reducing big sheets to smaller ones. But they will do so only with the promise of something

better and more creative tomorrow. Training, and the opportunity to grow and learn – these will attract skilled people, or people with the talent to acquire advanced skills – even more than money can.

So, where are the candidates?

Finding qualified applicants has a lot to do with how a woodshop defines ‘qualified’. Are you looking for people who already have some cabinetmaking skills and experience? If so, running an ad in the local newspaper might still be the best way to go.

Shops can also find good people through contacts made as members of trade organizations such as the Architectural Woodworking Institute, Cabinet Makers Association or Stairbuilders and Manufacturers Association. These groups have mechanisms in place that help shop owners and managers meet and talk with each other. In larger cities, a shop can often find a branch of a labor organization such as the United Brotherhood of Carpenters and Joiners that may have some viable candidates available.

Are you looking for people with CAD/CAM and operator training who know their way around a tablet and also have some industrial parts making or assembly skills? Then you may want to connect with local community colleges and universities. Many third-level schools in the hardwood belts (the Appalachians, New England, and several states along the Canadian border) or those associated with the furniture industry (the Carolinas, Georgia, Pennsylvania and California, for example) have strong wood programs that teach people traditional woodshop basics along with Industry 4.0 skills.

There are some private schools, both for-profit and non-profit, that teach short but intense courses in various aspects of woodworking, and these might be a fast track way to get somebody with an IT degree and no woodshop experience up to speed. These include the Center for Furniture Craftsmanship in Maine, William Ng School of Fine Woodworking in California, and the North Bennett Street School in Boston – all of which might have recent graduates who are looking for a job.

And conversely, there are ways to get a woodworker up to date on computer-related skills. Community colleges and universities, and even some CNC machine and software manufacturers, offer classes in CNC and related topics online. Offering to pay for a new employee’s continuing education is often a smart decision from both the woodworker’s and the woodshop’s point of view.

There’s a state-by-state listing of classes and schools at woodezine.com/education. 



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- Top cutting motor: 15 HP, 240V, 3-phase, 38.5A
- Feed motor: 2 HP, 240V, 3-phase, 6.1A
- Table elevation motor: 1/2 HP, 240V, 1.6A
- Table size: 18" x 102"
- Max. cutting width: 18"
- Max. stock thickness: 8"
- Max. cutting depth: 3/8"
- Min. stock thickness: 1/2"
- Min. stock length: 12"
- Feed rate: 26-72 FPM
- Cutterhead speed: 4000 RPM
- Cutterhead diameter: 5 1/2"
- Overall size: 106"L x 37"W x 67"H
- Footprint: 74 1/2"L x 27"W
- Approx. shipping weight: 6614 lbs.

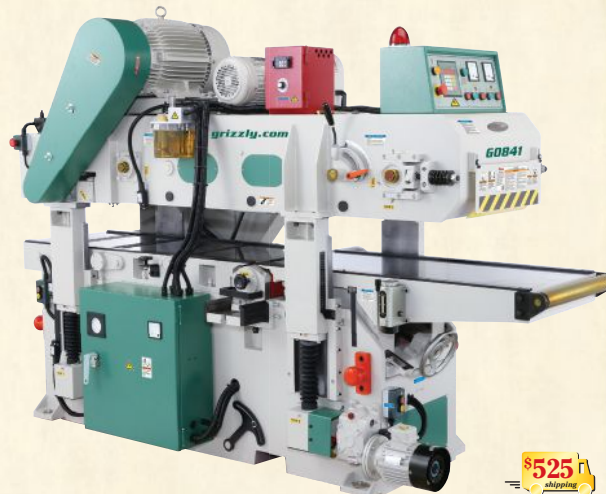
FEATURES:

- Table equipped with five rollers for greater feeding efficiency
- Motor employs Y-D start
- Feed chain is automatically lubricated
- Belts on bottom cutterhead are easily changed
- Spiral top and bottom cutterheads
- Table surface is chrome-plated and precision-ground for smooth feed and maximum wear-resistance
- Emergency stop buttons are provided at the front and back sides of the machine

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- Motor: 1 1/2 HP, 110V/220V, single-phase, TEFC, 1725 RPM, prewired 110V
- Amps: 14A at 110V, 7A at 220V
- Table size: 19" x 12 1/2"
- Vertical spindle travel: 9"
- Head vertical travel: 3"
- Table longitudinal travel: 14 1/2"
- Table cross travel: 3"
- Column tilt: ±30°
- Fence angle: 0-30°
- Chisel capacity: 1/4"-1 1/2"
- Maximum chisel stroke: 6 1/4"
- Maximum workpiece width: 9"
- Chuck capacity: 1/2"
- Collar size: 5/8" and 3/4"

- Spindle speed: 1725 RPM
- Overall size: 36"W x 24"D x 71"H
- Approximate shipping weight: 356 lbs.

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5 HP 21" SUPER HEAVY-DUTY BANDSAW WITH TILTING GEARED TABLE AND MOTOR BRAKE

- Motor: 5 HP, 230V, single-phase, 22A
- Throat capacity: 20"
- Height capacity: 14 1/4"
- Table size: 29 1/2" x 20 3/4" x 1 1/8"
- Table tilt: 5° L, 45° R
- Standard blade length: 165"
- Blade widths: 1/4"-1 3/8"
- Blade speed: 4600 FPM
- Quick-change blade release/tensioner
- Micro-adjusting rack & pinion table tilt
- Cast-iron wheels with polyurethane tires
- Includes 1" blade
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- Approx. shipping weight: 684 lbs.

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G0531B \$2,450⁰⁰ Sale \$2,195⁰⁰

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10 HP INDUSTRIAL DUST COLLECTOR

- Motor: 10 HP, 220V/440V*, 3-phase, TEFC
- Amps: 30A at 220V, 15A at 440V
- Air suction capacity: 5360 CFM
- Static pressure: 17.9"
- Intake port with manifold: 4" x (5) holes
- Intake port without manifold: 10"
- Impeller: 17" balanced steel, radial fin
- Upper bag size (x 4): 23 3/8" x 70"
- Lower bag size (x 4): 23 3/8" x 54"
- Collection bag capacity: 48 cubic feet
- Bag filtration: 2.5 micron
- Number of collection bags: 4
- Overall dimensions: 61" W x 61" D x 134" H
- Approx. shipping weight: 472 lbs.

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PROFESSIONAL SPINDLE SHAPERS

Z-SERIES

- Motor: 5 HP, 220V, single-phase, TEFC (G5912Z) or 7 1/2 HP, 220V/ 440V*, 3-phase, TEFC (G7214Z)
- Table size: 35 1/2" x 28"
- Spindle sizes: 3/4", 1", 1 1/4"
- Spindle speeds: 3600, 5100, 8000, 10,000 RPM
- Spindle travel: 3/4"
- Max. cutter dia.: 5 1/8"
- Approx. shipping weight: 604 lbs (G5912Z), 613 lbs. (G7214Z)

G5912Z
SHOWN



5 HP, SINGLE-PHASE

G5912Z \$2,995⁰⁰ Sale \$2,695⁰⁰

7 1/2 HP, 3-PHASE

G7214Z \$2,995⁰⁰ Sale \$2,595⁰⁰

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Power 40 motor

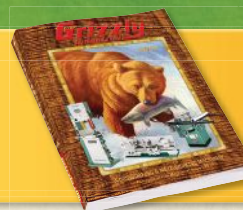
*To maintain machine warranty, 440V operation requires additional conversion time and a \$250 fee. Please contact technical service for complete information before ordering.

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- Motor: 5 HP, 220V, single-phase, 25A
- Sliding table: 35½" W x 13¼" D
- Sliding table travel: 21½"
- Table fence: 39½" extruded aluminum with adjustable stop
- Cast iron miter gauge with 60° angle capability in two directions
- All other specifications same as the G5912Z
- Approx. shipping weight: 757 lbs.



G8621 ~~\$3695.00~~ Sale **\$3295.00**



14" SLIDING TABLE SAW WITH DIGITAL FENCE

- Main motor: 10 HP, 220V/440V*, 3-phase, 26A/13A
- Scoring motor: 1 HP
- Main blade size: 14"
- Main blade tilt: 0-45°
- Depth of cut at 90°: 4"
- Depth of cut at 45°: 2¾"
- Main blade speed: 3000, 4000, 5000 RPM
- Main blade arbor: 1"
- Scoring blade size: 120mm (4¾")
- Scoring blade arbor: 20mm
- Scoring blade speed: 8000 RPM
- Scoring blade tilt: 0-45°
- Sliding table size: 15½" x 126"
- Maximum rip capacity: 51½"
- Length of crosscut: 126"
- Overall size: 132" W x 155¾" D x 65¼" H
- Approx. shipping weight: 2176 lbs.

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G0853 Only **\$12,500.00**



AUTOMATIC EDGE BANDER

- Required power supply: 30A, 220V, single-phase, 60 Hz
- Feed motor: ¾ HP
- Glue spindle motor: ½ HP
- Flush trim motor: ¾ HP
- Heating element: 1135W
- Table size: 10½" W x 69¼" L
- Min. panel dimensions: 4¾" W x 11" L
- Panel thickness: ½" - 1¾"
- Tape thickness: 0.5mm - 2.0mm
- Air requirement: 6 SCFM @ 100 PSI
- Glue pot capacity: 34 oz.
- Edgebanding coil capacity: 31½"
- Panel feed speed: 16 FPM
- Approx. shipping weight: 770 lbs.



G0854 Only **\$7500.00**



12" SLIDING TABLE SAW WITH SCORING BLADE MOTOR

- Main motor: 7½ HP TEFC, 220V/440V*, 3-phase, prewired for 220V
- Scoring motor: 1 HP TEFC, 220V/440V*, 3-phase
- Main table size: 35¼" x 21½"
- Main blade size: 12", Arbor: 1", Tilt: 0-45°
- Depth of cut @ 90°: 3½", @ 45°: 2¾"
- Scoring blade size: 4¾", Arbor: 20mm, Speed: 8000 RPM
- Scoring blade tilt: 0-45°
- Sliding table size: 126" x 14"
- Approx. shipping weight: 1468 lbs.



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THE ULTIMATE 16" JOINTERS

- Motor: 5 HP, 220V, single-phase, 25A (G9953ZX); 5 HP, 220V/440V*, 3-phase, 14A/7A (G9953ZXF)
- Precision-ground cast iron table size: 16¼" x 99¼"
- Cutterhead speed: 5000 RPM
- Max. depth of cut: ¾"
- Bevel jointing: 0-45° L/R
- Center mounted fence: 6¾" x 43¼"
- Approx. shipping weight: 1742 lbs. (G9953ZXF), 1719 lbs. (G9953ZX)



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G9953ZX ~~\$7995.00~~ Sale **\$6995.00**



25" EXTREME-DUTY PLANER WITH SPIRAL CUTTERHEAD

- Cutterhead motor: 15 HP, 230V/460V*, 3-phase, 37A/18.5A
- Table elevation motor: ½ HP, TEFC, 2.4A/1.2A
- Max. cutting width: 25"
- Max. cutting depth: ¼"
- Max. stock thickness: 9"
- Min. stock thickness: ¼"
- Feed rate: 20, 25, 30 FPM
- Speed: 4900 RPM
- Min. stock length: 10"
- Approx. shipping weight: 2054 lbs.



SPIRAL CUTTERHEAD WITH 15° ROTATED INSERTS AND SEGMENTED CHIP BREAKER



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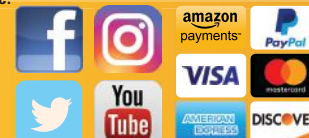
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WHERE EVERY



DAY IS MONDAY

After more than 30 years in business, the owner of
Exquisite Custom Cabinets still has something to prove

BY JENNIFER HICKS





Jim Shuffler (white shirt, opposite page) and members of his team at his shop in Portsmouth, Va.





PHOTOS: JOHN TROHAREDEX PLUS



Jim Shuffler, owner of Exquisite Custom Cabinets in Portsmouth, Va., has always focused on his reputation, first and foremost, since the inception of his business in 1985.

"It's all about integrity. You only get one chance in life to prove your name. You have to live up to all the expectations they have of you when the customers come in," he says.

Shuffler has put an enormous amount of sweat equity into his company over the past 34 years. He currently operates out of his fourth shop, a 14,000-sq.-ft. facility manned by 10 employees, which he purchased in February 2018. The shop is equipped with state-of-the-art machinery for precision and efficiency.

The shop enjoys a six- to eight-month backlog of mostly residential projects including kitchens, baths, closets, studies, entertainment centers, bars, wine cellars and more.

Eager to succeed

Shuffler was born and raised in Virginia Beach, Va. After graduation from vocational school in 1979, he went to work for three different cabinet shops. In 1984, a contractor suggested he start his own business to help him with several upcoming projects. At 24, Shuffler opened Exquisite with a big assist from his mom.

"My mom put her house up for collateral and I started my business on a \$20,000 loan. I paid that loan off the first year," says Shuffler.

Photos of his previous shops hang in his office, providing a timeline for customers to see how the business has progressed. He started in a 2,500-sq.-ft. space in Norfolk, Va. That had a short commute.

"I was working in that first shop from 7 a.m. to as late as 1 a.m., seven days a week. I had a couch with a pull-out bed in the shop. I would get up and go to work, shower, sleep then start all over again. I was religious

about starting at 7 a.m. and I did that for seven months before I bought my first house."

He hired his brother-in-law less than two years in and continued to pound the pavement.

"Every day was a Monday. I had the drive and the passion and did not want to fail."

He moved to a 5,000-sq.-ft shop, also in Norfolk, in 1992 as the business began taking off.

The pivotal moment

From the beginning, Shuffler pursued residential projects – and other opportunities – to make money and get his name out. His mantra, from day one, was to treat each day like his first day on a new job and represent. He humbly reflects on his mother's support, and how it helped him get his foot in the door.

"My mom raised my sister and I alone. I just wanted to be successful. I was out to prove to her and everybody else I was going to amount to something and build something good. I would bring her to jobsites, and she marveled at the work."

While his contractor acquaintance continued to feed him work, he started to get other offers, big ones at that, which led to an increase in his pricing structure.

"When I first started, I was working on \$6,000 to \$7,000 kitchens that were in \$130,000 homes. It was a middle-class market. I didn't know what I was getting into or what I wanted to get into.

"The biggest break that opened up the floodgates was with my first really wealthy client I met through a contractor that hired me for about \$20,000 worth of kitchen cabinetry. That was a pivotal moment. From that job I saw the domino effect of referrals by word of mouth in an upper echelon of work."

While most of the shop's current work is in southern Virginia, Shuffler's willingness to travel has led to several projects in New York City and elsewhere.



"We've had some wonderful opportunities because of the kind of workmanship we produce. There's a huge market in this area," he says.

In 2007, Shuffler moved to his third Norfolk shop just before the Great Recession. The 8,500-sq.-ft. shop offered plenty of space but needed electrical upgrades and other improvements. Shuffler filled the space with his first CNC purchase and an edgebander before the financial crisis began.

"I moved in there right at the height of the market and then the economy crashed," says Shuffler. "There had been talk about a possible

market crash. I had six to seven months of work lined up, so I thought I'd get through it. Then in 2008 it was just like walking off a cliff. I had 15 employees and I went down to my top three guys and struggled until 2010.

"Now we are back to 10 employees. I would hire more but it's hard finding good help. We're busy and it hurts us because we're turning down work. We put ads out but it's hard finding qualified cabinetmakers."

Burning bright

The shop produces traditional and contemporary cabinetry. Demand is highest for the European style, according to Shuffler.

"We do a lot of painted kitchens with glaze applications. We also do stained cabinets with glaze applications. We're starting to do more work from repurposed barnwood."

Recently, the shop has completed high-end restaurant jobs in Virginia Beach and Norfolk.

"Commercial work is not my forte," says Shuffler. "I love doing residential work but there are no limitations on what we will do.

"I hope the next couple of years are good, solid years like they were coming into this building. The economy's good right now."

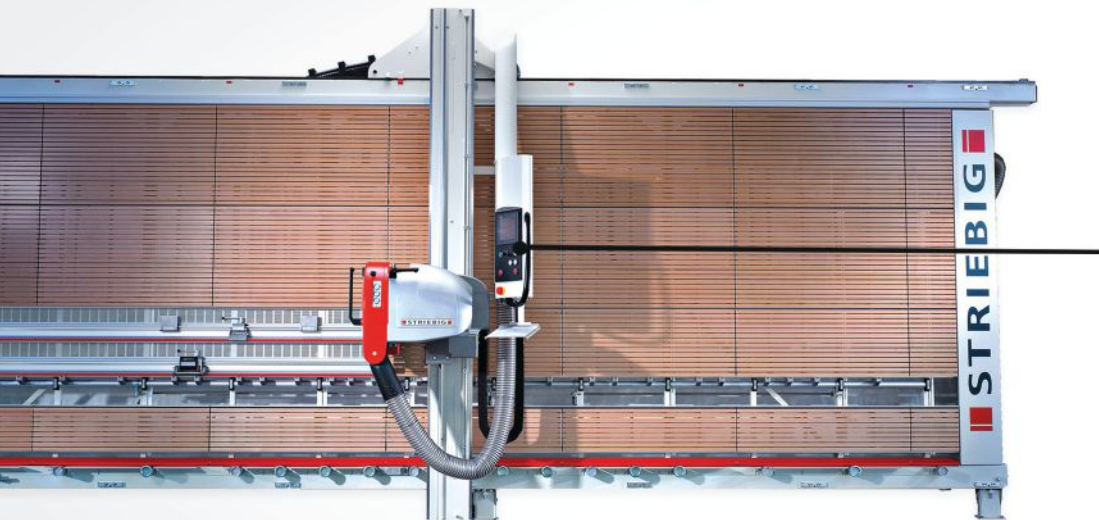
Shuffler says he still has a passion for success.

"I'm blessed to work with the clientele that I have," he says. "I love coming to work every day. And I'm blessed to have a good staff. You can't have a company without a good staff. I still have people that have been with me 28 years. This day and age it's huge to have someone committed through all of the ups and downs."

Contact: Exquisite Custom Cabinets, 807 Florida Ave., Portsmouth, VA 23707. Tel: 757-625-5622. www.exquisitecabinets.com 

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THE MARKET FOR HIDDEN FASTENERS AND CONNECTORS CONTINUES
TO EXPAND WITH LOTS OF GREAT CHOICES

BY JOHN ENGLISH

Building boxes takes time, and lots of training. Hidden fasteners and connectors can reduce the shop floor time during assembly, and also during milling. That's because it's a lot faster to tool and cut a slot or mortise for a fastener than a series of full-length dados and grooves for a glued joint. Fasteners can make RTA installs go a lot faster too, because once a crew gets familiar with a system, they can assemble a flat packed kitchen onsite with just a few tools. And because adding a little metal or plastic to the wood makes such a tangible difference to the bottom line, most shops now incorporate some kind of hardware in their process.

The problem is choosing which type, as there are so many well-engineered options.

Familiar names

One of the oldest manufacturers in this arena is Lamello AG, which is located in Bubendorf, Switzerland. Its products are distributed in the U.S. by Colonial Saw, which can be found online at csaw.com/lamello or at physical locations in both Massachusetts and California. The Lamello catalog offers several hidden fastener options including the newest one, Cabineo. This is a time-saving RTA cabinet connector that works without edge drilling and offers very high clamping force. It's a great solution for shops using nested-based CNCs, because the toolpath can

be machined with a standard straight-shank router bit without any tool changes. Cabineo fasteners can be covered with caps, or the parts can be inverted to allow for a completely invisible application.

Lamello's other popular option, the P System, uses an arc-shaped T-slot, and this too can be integrated into CNC production. P connectors include the Tenso P-14 which is an invisible, self-clamping connector with a pre-load function; the detachable and self-clamping Clamex that looks like two halves of a biscuit; and the Divario that is a perfect solution for attaching fixed shelves on the jobsite. The complete Lamello system includes glue systems, specialty machines and a range of dedicated cutters.

Kentucky-based Fastenlink's invisible connection system is made up of two components, and it can be found online at fastenlink.com. One of these is the link itself, which is essentially a plastic dowel with specially shaped ends. The other is a ramped pocket that receives the link and creates a very strong connection. The system only requires standard equipment such as a CNC router and horizontal boring machine. One end of the dowel goes in a hole, and the other slips into the ramped slot. Slide the parts, and they lock together. All that's required is a bottle of glue and a rubber mallet – there's no clamping or cure time. It's fast, easy to get into, economical, and above all simple. Installers can assemble RTA casework on the jobsite with the mallet. For



(From top) Richelieu Hardware's Drive-n-Lock expansion dowel; Lamello's Divario P-18, Clamex P-14, Tenso P-14 and Cabineo fasteners.

CNC applications, it is supported by Cabinet Vision, Microvellum, WoodCAD/CAM and KCD software.

Häfele America (hafele.com/us/en) is headquartered in North Carolina, and the company has a global reach with more than 200,000 products on the market. Many of those combine the best of both U.S. and German engineering, including several clever RTA connectors. Among them is the Ixconnect SC 8/25, a concealed and permanent plastic connector for smaller parts over 5/8" thick. It's installed in 8mm holes without tools, and it's a pressure fit where gluing is optional. This is essentially two ramped sleeves that expand as they are pressed together. A larger, more robust plastic and zinc alloy version, the SC 8/60, is better suited for larger parts in MDF and chipboard. That connector expands with a tightening screw, so there are a couple of small (6mm) holes in the inside of the cabinet where an Allen key is used to draw the joint together. These are then plugged with a small plastic cap, to hide the connection.

Häfele also makes the Maxifix connector system, which is particularly well suited to joinery that is permanently subjected to high loads such as cabinets, beds, counters and post furniture. This is a steel bolt with a patented head that connects with a cam that fits in a 35mm hole.

More German engineering

North Carolina is home to Hoffman USA (hoffmann-usa.com), whose parent company Hoffmann GmbH is in Bruchsal, Germany. The North American subsidiary has been supplying woodshops with the company's familiar dovetail keys since 1990. What began as a simple piece of plastic has grown into a complete and comprehensive joinery system with various sized dovetail-shaped keys in both plastics and hardwoods, and all the machines and tooling needed to install them. The company even manufactures double miter saws that cut perfect corners for casework face frames, doors, picture frames and similar four-part products. This is a well thought out, complete joinery system. For example, the company's MS35SF machine cuts both miters and then routs dovetail grooves for the hidden dovetail keys, all in a single set-up.

Hoffman also has a unique system for making beaded face frames, which are an elegant upgrade to traditional profiles. Depending on a shop's joinery needs, the company can supply the machines and hidden connectors for everything from a one-man custom shop to a large production facility.

Another German innovator, Festool (festoolusa.com), has invested heavily in hidden connectors of late. It began with the intro-

duction of the Domino joinery tools – the basic DF 500, and later on the XL DF 700. Designed to update traditional mortise and tenon joinery, they make a flawless mortise that houses a rotation-proof tenon that is far stronger than either biscuits or dowels. The floating wood tenon also has a large gluing surface area, for extra strength. The original machine is perfect for small to medium sized wood joinery, while the larger XL offers a maximum tenon size of about five and a half inches. And to complement the beechwood original tenon material, the company has added a complete family of mechanical metal and plastic hidden connectors that offer impressive strength and versatility. These include both corner and center panel connectors, and they let a woodworker quickly and easily assemble, separate, and reassemble cabinet and furniture components. All a shop needs to get started is the basic DF 500 machine and a handful of connectors, some of which are designed to work with standard shelf pin holes.

CNC solutions

Lockdowel (lockdowel.com), a California manufacturer, has gone from a boutique fastener that was inserted by hand to fully-automated operations. Of late, both Laguna Tools and CNC Factory have introduced dedicated CNCs that mill for and insert Lockdowel hidden fasteners. The company's H-Clips are the core ingredients in a no-glue, RTA cabinet assembly system. The one-piece, simple fasteners snap into routed slots, so no tools are needed and assembly is quick and easy. Think



Hafele America's Ixconnect SC 8/25 connector.

of them as a pair of barbed nylon or metal (zinc aluminum alloy) dowels of various dimensions, that are joined together by a strong base. The dowels are inserted into one cabinet part, and the base is a clip that slides into a special slot in the other part and then locks in place. That double-dowel configuration offers incredible strength and zero potential for rotation. Lockdowel also offers the Channel Lock system, which uses keyhole shaped slots made on a nested base router to house barbed fasteners. And the company also offers drawer slides that simply lock into the same keyhole slots.

OVVO (ovvotech.com) introduced its clip-together hidden fastener system to the U.S. cabinet industry at IWF 2016. The connector is relatively simple. Imagine a spring-loaded plastic dovetail that pops into a receiver and then slides sideways to lock or unlock. The newest OVVO innovation, the V-1230 connector, is well-suited to use in high grade chipboard, high pressure laminates, composite materials including solid surface, and of course solid wood.

Knapp USA (knappconnectors.com) parented its first self-tightening furniture connector, the Mobi-Champ, in 1983. It is compatible with the Lamello system and is still in production. The Champ connector is like two halves of a No. 20 plastic biscuit that are glued into components and just snap together. A later addition to the line, the Fast biscuit is a No. 20 self-tightening, non-visible plastic snap-in connector where the two halves are simply knocked into biscuit slot with a hammer. Patented cutting edges hold the connector in the slot, with no glue required.



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Simply snap the male into the female part to carry out the assembly. Another product, the Klick connector, is an invisible snap-together solution for components with small dimensions, such as moldings and trim. And Knapp's Chico is a precision connector made of aluminum die-cast zinc, which can also be used in solid surface materials as well as wood. The halves of the connector are screwed into a groove and joined by sliding them together. As they slide, the joint tightens up and is immediately load bearing. An integrated stop allows assembly and disconnection in one direction.

Pocket screws

This is a hidden joinery solution that can work for both small and large woodshops. It eliminates clamping, is easy to train people for, and is relatively inexpensive to get up and going.

Kreg Tool Co. (kregtool.com) offers five production machines ranging from a benchtop model at \$3,800 to a panel boring machine with five heads at \$12,000. The latter, model DK5100, drills multiple pocket holes across parts such as cabinet sides, shelving, stairs, or window or door extensions. Its five spindles are spaced 6" on-center, and a tap of the foot pedal will create five uniform pocket holes in less than two seconds. For woodshops building face frames, Kreg's DK3100 (\$5,000) has three spindles that drill two pocket holes across rails of varying widths in one machine cycle, and the holes can be spaced at 3/4", 1" or 1-3/4". It can also operate as a single head machine.

Castle USA (castleusa.com) also offers pocket screw machines and has recently introduced Torx panhead screws for a better grip. The company's low-angle Castle 100 machine also has a new home online at castle100.com.

For small shops with occasional pocket screw joinery needs, Armor

Tool in San Diego (armor-tool.com) has developed the Auto-Jig, which automatically sets the drill guide block and drill bit collar based on the thickness of the workpiece. That means no more manual setting, measuring, or adjusting.

Dowel updates

The Beadlock Pro system from Rockler Woodworking and Hardware (rockler.com) was designed for small scale, very strong hidden joinery in wood furniture. It's essentially a take on mortise and tenon joinery. A jig uses a standard drill bit to create a series of holes that connect together to form a uniquely shaped mortise. Then the company supplies hardwood, ribbed, floating tenon stock that matches that shape, or sells a router bit that woodworkers can use to make their own tenons.

While not a hidden fastener, one other product from Rockler bears mentioning when it comes to joinery. The company's lock miter bits (GRP40073) delivers a self-aligning, very tight mitered corner on furniture frames and drawers.

The new Dowelling Jig Master Kit from JessEm Tool Co. (jessem.com) lets a woodworker create 1/4", 3/8" and 1/2" dowel holes on the end or face of a workpiece. The locations of the dowels can be pre-set in 1/8" increments, which is perfect for creating multiple dowel hole configurations.

Excel Dowel (exceldowel.com) supplies pre-glued wooden dowels in both metric and fractional diameters, and in a broad choice of lengths. They come in fluted and spiral options, and are coated with a Type 3 PVA wood glue that is water activated.

For shops looking for an alternative to wooden dowels, Bainbridge Manufacturing in Waterville, Wash. (bainbridgemfg.com) offers a very inexpensive plastic, double-ended ribbed dowel pin (item 1979) that's 8mm in diameter and 1-1/2" long. And Richelieu Hardware's Drive-

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n-Lock expansion dowel (richelieu.com/us/en) is made of a proprietary nylon material that expands into a bored hole, giving it superior holding power without the need for glue. It also remains unaffected by humidity. The product codes are 6830 (1-3/16" long) and 6835 (1-3/8" long).

Other solutions

The Striplox Pro 23 and Pro 55 are hidden mounting systems from the Australian company Joinlox (joinlox.com). They are widely available in the U.S. through specialty hardware distributors. The plastic, face-screwed, clip-together connectors can be surface mounted or located in a mortise, and orientated vertically or horizontally to provide a hidden joint. They are an option for flat-packing, RTA onsite assembly.

Cabinotch is a patented cabinet box system that uses a clever interlocking joint. The company (cabinotch.us) has locations in Kentucky and Oregon, and it delivers all-wood, custom-sized casework to the woodshop, including the face frame, sides, backs, bottoms, tops and shelves. The shop then finishes and assembles the box parts, and completes the cabinet with doors, drawers and hardware.

Raptor Nails (raptornails.com) offers a complete line of composite (plastic polymer) staples, nails and specialty fasteners can be cut and sanded without damaging router bits, saw blades or sanding belts, and also provide complete corrosion resistance. The company also supplies the pneumatic guns to deliver the fasteners.

Glaser Bolt (glaserbolt.com) distributes a line of interlocking connectors from the Australian manufacturer Torpedo CSIS.

The Slovenian manufacturer Titus+ (titusplus.com/int/en) offers several cabinet connectors for RTA furniture and casework, and its products are widely distributed in the U.S. Among its latest offerings is the

Quickfit TL5, also known as the Full Metal Jacket. It's a metal dowel and cam solution that provides optimal strength and effective performance in MDF, chipboard and solid wood.

Stafast Products Inc. (shop.stafast.com) carries a broad array of hidden fasteners.

Deerwood Fasteners is a division of Pan American Screw (panamericanscrew.com) and distributes the Conformat connecting screw system for RTA and knockdown (KD) furniture and casework. The screws come with or without a Snap-On cover to conceal the head. They have also been updated to a Type-B thread style.

Lee Valley & Veritas (leevalley.com) has a pretty good selection of hidden fasteners, and the company also carries the Playwood line that allows a furniture designer to build prototypes without permanently fastening parts together.

D&T Online (dtonline.org) offers a large selection of metal and polyethylene knockdown fittings including cross dowels and cam fittings.

Mod-eez (mod-eez.com) is based in Fruitport, Mich. and the company's fastening system uses a spring steel declining ramp and a large collared shoulder screw as the two mating elements. It's an ideal solution for joining parts where one or both are subject to movement and need to flex.

Rampa Tech Inc. (rampa.com/ca/en) supplies a comprehensive selection of threaded sleeves, threaded inserts, screw-in nuts and pan-head screws. The company also offers hidden fasteners for plastic and metal materials.

Zipbolt (zipbolt.com.au) is an Australian manufacturer with wide U.S. distribution, and a number of interesting knock-down connectors and fasteners. The company will perhaps be more familiar to countertop installers and stair builders than cabinetmakers, but the new generation of Fastfit KD connectors is definitely worth a look. [**W**](#)

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MODERN FAMILIES NEED MODERN KITCHENS

BY JOHN ENGLISH

The bread aisle moved.

Our local Walmart store was revamped this spring, and the manager explained that it was done primarily to address a change in customers' buying habits. What has that got to do with casework design? Well, it seems people are not only buying food differently, but they're also cooking, eating and storing it in new ways. And that means changes in kitchen layouts, appliances, workflow and cabinet size. Unfortunately, everyone isn't going in the same direction in the kitchen, so design is getting a little more complicated.

Perhaps the most noticeable change is that people are becoming busier and less likely to cook at home. More and more families are ordering groceries online or using apps to order take-out meals or delivery. Some need to store more fresh fruits and vegetables. But most of us are going in the other direction and buying more convenience foods that are quick and easy to prepare, while we're simultaneously cooking fewer sit-down meals.

Another very real consideration is family demographics. The traditional roles are shifting, and different people are using the kitchen. For the most part, they're a bit shorter as kids buy into the toaster and microwave culture and fend more for themselves. Families don't sit down together in the evenings as much anymore, and many meals are consumed standing, on the run, or even in the car. Many Dads have become much more involved in the kitchen and laundry duties too, and this has a subtle effect on storage. These generally taller people like to find the things that they need most in upper cabinets, rather than bending down to search base units. And the mechanics of having two adults in the kitchen at the same time is pretty much the same one that led to double vanities in bathrooms. No, we're not heading toward duplicate dishwashers, but we do need to respect both people's spaces, and design around them for good traffic flow.

Cellphones, tablets and laptops have also entered the kitchen, and now need their own charging, storage and usage spaces. That means more in-drawer outlets, counter-top wireless charging, and eye-level shelves so that cooks in a hurry can watch videos and follow directions. Guests like Siri and Alexa need a place to be, too.

Changing habits

Many changes in lifestyle percolate and evolve in densely populated places, and then transform somewhat as they spread across the country, or indeed around the world. On a recent visit to Paris, we observed a number of stores where absolutely everything on sale was frozen. Customers arrived with soft-sided coolers, and light jackets. The aisles were lined with upright, glass-fronted freezers, and banks of open-top units.



All of the 'modern' kitchens that accompany this article were produced by CDC Woodworking in Pensacola Fla.

There was no fresh bread aisle.

Interestingly, much of the local Walmart update was also devoted to more freezers. Plus, the amount of floor space dedicated to fresh produce was reduced. A trend toward organic foods doesn't seem to be making up the losses there.

The net effect of this trend on design is different than historic ones. For example, during the 1970s and 80s, a number of retail chains developed the bulk buying concept where consumers purchased case lots of dry goods and canned products. These were easy to store in a basement or closet. As the popularity of freezer stores evolves, kitchen designers are going to be dealing with the need to build in appropriate levels of cold storage, and appliance manufacturers are most likely going to accommodate the trend by creating more built-in options. Column fridge and freezer units are especially hot right now. Unlike traditional top-and-bottom or side-by-side combination units, these are separate, tall cabinet-like units that can be mixed and matched, and even located in different parts of the room. A family may want a single refrigerator column, a couple of freezer units and maybe a wine cooler column, all tall and narrow and built into custom cabinetry.

In a way, the evolution toward frozen food is understandable. Fresh food takes up more space than frozen or boxed items, and people have to be at home a lot to use it all up, or even have the time to cook it. Families that are running to soccer games or going on business trips simply don't have the luxury anymore of making home-cooked meals every day, especially if there's only one parent in the house.

Here's a sobering statistic. According to the office of the chief economist at the U.S. Department of Agriculture, food waste is now estimated at an astonishing 30 to 40 percent of the entire food supply. Kitchen designers can help a little bit in combating that by providing more appropriate storage, but unfortunately the real answers lie elsewhere in our cultural conscience.

Countertops are changing, too. More microwaves are being built in while there are fewer mixers or bread machines as people bake less.

And the ubiquitous one-cup coffee machine has taken up residence and needs to be garaged or disguised, along with a large stash of disposable pods. Microwaves are also doing more work, so they need to be larger, more centrally located and at a more convenient height.

In those kitchens where people cook to entertain rather than out of necessity, there's a trend toward more and bigger bottles that contain such vagaries as flavored olive oils and custom coffee additives. And when they bake, they often do so with prepared kits now, rather than baking from scratch. All of these small changes require a wiser, more personalized approach to storage. Even bread can be a challenge. No longer content with white sliced and hot-dog buns, families that have embraced the convenience of sandwiches now buy a wide assortment of pita breads, multi-grain loaves and flat wraps, and they need a storage system that allows them to easily find and retrieve their favorites. The base cabinet drawer that once was a bread bin with a sliding top is no longer adequate. Designers need to have meaningful conversations about these issues with their clients and create accordingly.

It's ironic that, in an industry that's rapidly transforming itself into an outsourced, assembly line model, the end users' needs are becoming ever more customized.

Material choices

As any custom cabinetmaker knows, natural wood doors and drawers are not as popular as they once were. A minimalist look with European post-war roots has gained significant ground over the last decade or so, as customers tell us that they prefer to clean foil or painted surfaces rather than clear coated fibers. But it's not always stark – a painted or plastic palate on traditional farmhouse features is also appealing to folks in a hurry.

As the need for the warmth of wood has in large part been satisfied by a revolution in hardwood lookalike flooring, countertops are changing, too. While doors become increasingly monotone, customers are picking up color in the counters. Manmade quartz is especially hot

right now, in part because it has no voids and isn't porous like marble or Travertine, but primarily because of the color options. Veined granite is gaining ground, too, as speckled patterns fade. There's a feeling that stone with natural veins is more organic (and ritzy) than busy patterns that are either manmade or seem like they might be. As designers get more adventurous with color in tops, this compensates for the diminishing lack of grain and color in the casework.

Designers can also integrate color in the baked finishes on appliances, or just in appliance panels. Blues and greens seem to be most popular this year.

Technology is now a design component. Some appliances can now sense what's being cooked and alter their times and temperatures to deliver the best results. Apps can turn on appliances when the cook leaves work. One of the emerging trends in design is related to a concept called aging in place, which means that older people are staying in their homes longer. This includes designing for potential disabilities, loss of flexibility, restricted movement or a lack of physical strength. Think automatic drawer opening, safer flooring choices, touch-free faucets and voice recognition to control appliances and lighting.

Hardware is becoming a larger component in design, too. Remember the bread box drawer? It's becoming a large, full-extension, heavy-duty base drawer with a foot activated sensor and soft close. Dedicated use cabinets have come into their own as hardware manufacturers design and offer more and more ways to organize. The hardware includes custom utensil storage, bottom and side-mount pullouts, units dedicated to cleaning supplies or recycling, shelving that slide out and others that pull down from wall units so shorter people can access them. Knives, spices and even bathroom vanities have all benefited from new ways to store, organize and access items.

Designers can access the websites of companies such as Rev-A-Shelf, Blum, Grass, Hettich America, Salice, Accuride, Doug Mockett, Hafele and Hardware Resources to see what's new. [W](#)



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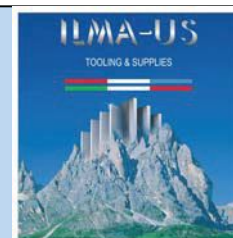
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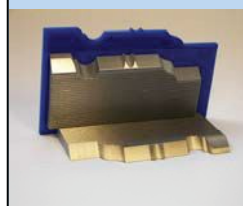
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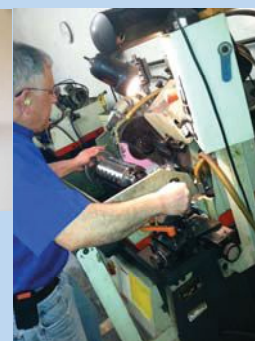
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▶▶ **VORTEX** has new tooling for softer plastics. The new Series 9900 Double Edge "O" Flute Upcut Spiral tooling from Vortex Tool Co. is ideal for increased finishes on softer plastics such as HDPE, ABS, UHMW, solid surface, polycarbonate and similar materials, according to the company. For more, visit www.vortextool.com.

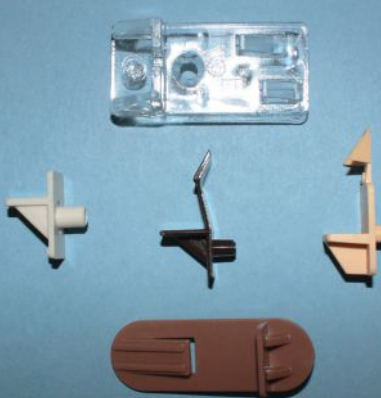


▶▶ **STILETTO** is growing its product lineup with the addition of two new TiBone hammers built with titanium construction to reduce user fatigue and harmful recoil shock vibrations. They feature a new anti-rotational face, durable grip and redesigned magnetic nailset, according to the company. The new hammers will be available with a milled or smooth face. For more, visit www.stiletto.com.




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Midcentury modern furniture on display at Winterthur

By Jennifer Hicks

Delaware's Winterthur Museum presents "Unity by Design: Mid-century Modernism", a collection of midcentury modern furniture, scattered throughout offices, storage rooms and libraries of the museum's campus, through July 28.

"Unity by Design explores the perceived juxtaposition of midcentury modernism at an institution rooted in traditional Americana. This lived collection of approximately 150 objects provides an opportunity to both evaluate how American design operates in a cross-generational context and explore how midcentury modernism was and is experienced," the museum explained in a statement.

"Visitors get the chance to be situated in a midcentury modern interior as they explore the evolution of this distinctly American design movement. They can take an in-depth look at the construction of midcentury modern furniture to better understand how industri-

alization and technical innovation influenced the design of these objects."

For more, visit www.winterthur.org.

At the Saco

"Craft and Comfort: Furniture for the Saco Home" opened May 18 and will run through Sept. 1 at the Saco Museum in Saco, Maine. The exhibit features highlights from the museum's collection of late 18th- and early 19th-century furniture.

"The exhibition includes fine examples from the (Joshua) Cumston and (David) Buckminster furniture shop, locally owned pieces made by emigre craftsmen John and Thomas Seymour, as well as other furniture produced by cabinetmakers in both York County and Massachusetts, some of which relate directly to printed design sources," the museum announced.

"It also features several pieces of seating furniture that retain their original under-up-



holstery, providing visitors with the rare opportunity to view the underpinnings of early 19th-century furniture. Period construction techniques will be explored."

For more, visit www.sacomuseum.org. [W](#)



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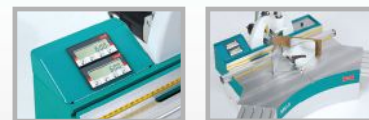
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An Eames chair (left page) in the “Unity by Design” exhibit (top right) and highboys in the “Craft and Comfort” exhibit (bottom right).

PHOTOS: JAMES SCHNECK (UNITY BY DESIGN)

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CALENDAR

CALIFORNIA

Monthly — Society of Wood Manufacturing, a chapter of AWFS consisting of educators, manufacturers, hardware and industrial suppliers, and machinery dealers, meets during the second week of each month. For location and dates, visit www.awcla.com.

LOUISIANA

Sept. 23-26 — Wood Components Manufacturers Association Fall Conference. Location: Astor Crowne Plaza, New Orleans. For more, visit www.wcma.com.

MASSACHUSETTS

Sept. 30 – Oct. 2 — Woodworking Machinery Manufacturers of America (WMMA) Regional Networking Meeting in Boston. For more, visit www.wmma.org.

NEVADA

July 17-20 — AWFS Fair featuring new and innovative woodworking equipment and technology, hardware, materials and more for custom shops of all sizes, as well as dozens of industry-related educational

seminars. Location: Las Vegas Convention Center. For registration and travel information, visit www.awfs.org.

NEW YORK

Monthly — The Woodworkers of Central New York hold meetings on the first Thursday of each month at 6:30 p.m. at the Belgium Cold Springs Fire Department in Baldwinsville. For more information, visit www.woodcny.org.

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

NORTH CAROLINA

Monthly — Triangle Woodworkers Association meetings held on the third Tuesday of each month at 7 p.m. at Klingspor's Woodworking Shop in MacGregor Village in Cary. For more information, visit www.trianglewoodworkers.com.

Oct. 19-23 — High Point Market Fall Market. Furnishings industry trade show featuring over 2,000 exhibitors with thousands of new products in over 180 buildings throughout High Point. For more, visit www.highpointmarket.org.

PENNSYLVANIA

Oct. 4-6 — Philadelphia Furniture Show. Featuring over 50 exhibitors of handcrafted furniture and furnishings. Location: 23rd St. Armory in Philadelphia. For more, visit www.philadelphiafurnitureshow.com.

RHODE ISLAND

Nov. 8-10 — 24th Annual Fine Furnishings Show. Offering handmade furniture, accessories and fine art. Location: WaterFire Arts Center in Providence. For more information, visit www.finefurnishingsshows.com.

TENNESSEE

Nov. 10-12 — Specialty Tools and Distributors Assoc. (STAFDA) 43rd annual convention and trade show featuring top companies and leaders in the construction industrial supply chain. Location: Music City Center, Nashville. For more information, visit www.stafda.org.

WYOMING

Sept. 5-8 — Western Design Conference. Annual exhibition and sale featuring handmade western style furniture, fashion and home accessories. Location: Snow King Center in Jackson. For more information, visit www.westerndesignconference.com. **W**

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Jory Bringham (left) and John Malecki; the desk that will be made during the three-day training class, and the sweepstakes winner, Bruce Kuveke.

Nevada veteran wins sweepstakes

Bruce Kuveke, a retired veteran and former postal worker from Boulder City, Nev., is the lucky grand-prize winner in the “Build It! With Jory and John Sweepstakes,” sponsored by Woodcraft, Jory Bringham Design Studio and SawStop.

Kuveke, selected randomly from over 26,000 entries, will receive a prize package worth about \$10,000. It includes a three-day training class at Bringham Design Workshop and Training Center in Paso Robles, Calif. for Kuveke and a companion, the custom wood and metal bench made during the class, and a SawStop Professional table saw.

Kuveke served 21 years in the Air Force and retired from a 22-year career with U.S. Postal Service.

Kuveke describes his woodworking experience so far as “rough carpentry,” which he says means building the family’s 3,200-sq.-ft. cabin in the mountains of central Utah and making boxes used to transport items for his target shooting hobby. Now he wants to learn to build furniture.

“I have a rocking chair that my Dad made and it is one of my most prized possessions,” Kuveke said in a statement. “I would love to be able to make something similar that will bring memories of me to my children.”

For more, visit woodcraft.com

60 Grit

Rough humor by Steve Spiro



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The screenshot shows the Woodshop News Resource Guide website. At the top, the logo "WOODSHOP NEWS" is displayed with the tagline "Shaping the Successful Shop". To the right, there are advertisements for ShopBot (Affordable CNC digital fabrication, ShopBotTools.com) and AWFS (Booth #7909). Below the header is a navigation bar with links: Home, Listings, Events, Classifieds, Articles, Deals, Advertise With Us, Contact Us, and Woodshop News. The main content area features a search bar with fields for "Keyword" (type a keyword), "Where" (Address, City, State or Zip Code), "Match" (radio buttons for exact match, any word, all words), "Category" (Select a Category), "Location" (Select a Country), and "Zipcode" (Miles of, Zipcode). A "Search" button and a link to "Advanced Search" are also present. Below the search bar, there are sections for "Browse by Category" (listing various categories with item counts), "Featured Listings" (highlighting MultiCam, Inc. and ShopBot Tools, Inc.), and a "Sign in" section with fields for E-mail and Password, and a checkbox for "Sign me in automatically".

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