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- Overall size: 28½"W x 30"D x 48½"H
- Footprint: 15"W x 18"D
- Approx. shipping weight: 121 lbs.



T27577 ~~\$695⁰⁰~~ **SALE \$650⁰⁰**



SLIDING TABLE SHAPER

- Motor: 5 HP, 220V, single-phase
- Spindle travel: 3¼"
- Spindle sizes: ¾", 1" & 1½"
- Spindle capacity: 5½" (1½" spindle)
- Spindle speeds: 3600, 5100, 8000, & 10,000 RPM
- Max. cutter diameter: 5½"
- Sliding table: 35½"W x 13¼"D
- Table travel: 21½"
- Table fence: 39½" extruded aluminum w/ adjustable stop
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- Cast iron miter gauge w/ 60° angle capability in two directions
- Lever actuated stock hold-down
- Approx. shipping weight: 757 lbs.



G8621 ~~\$3395⁰⁰~~ **SALE \$3095⁰⁰**



16½" DOVETAIL MACHINE

- Motor: 1 HP, 110V/220V, single-phase, prewired 220V
- Table size: 24" x 7¾"
- Floor-to-table height: 46½"
- Number of spindles: 1
- Spindle speed: 18,500 RPM
- Dovetail bit size: 10° angle x ⅝"L
- Dovetail shank diameter: ½"(12mm)
- Max. dovetail height: ¾"
- Minimum dovetail height: ⅜"
- Max. thickness: 2½"
- Minimum thickness: 1½"
- Max. stock size: 59"L x 16½"W
- Minimum stock size: 7½"L x 2½"W
- Overall size: 38½" W x 26½" D x 56½" H
- Approx. shipping weight: 539 lbs.

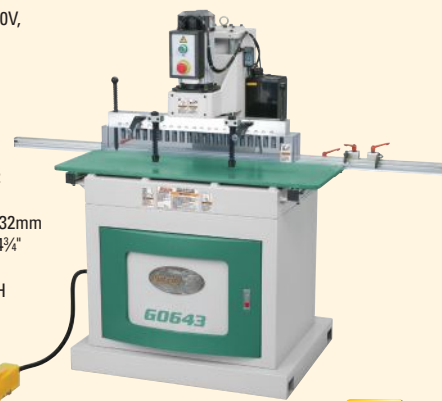


G0611X ~~\$3550⁰⁰~~ **SALE \$3350⁰⁰**



21-BIT LINE BORING MACHINE

- Motor: 2 HP, 110V/220V, prewired 220V, single-phase, 20.8A/10.4A
- Air requirement: 70 PSI
- Table size: 43½"W x 15¼"D
- Floor-to-table height: 33¼"
- Spindle travel: 3½"
- Max. stock width: 8"
- Number of spindles on boring head: 21 (10 left and 11 right)
- Distance between spindle centers: 32mm
- Shank size: 10mm • Fence length: 74¾"
- Stroke operation: Pneumatic
- Overall size: 75" W x 28½" D x 58½" H
- Footprint: 36¼" x 28½"
- Approx. shipping weight: 514 lbs.



G0643 ~~\$3795⁰⁰~~ **SALE \$3450⁰⁰**



5 HP OVERARM ROUTER

- Motor: 5 HP, 220V, 3-phase, 2-speed, 25A
- Table size: 30" x 23½"
- Throat clearance: 25½"
- Spindle speeds: 10,000, 20,000 RPM
- Swing: 51"
- Floor-to-table height: 36½"–42¼"
- Spindle stroke: 4"
- Table travel: 6¼"
- Pneumatic cylinder: 1½"
- Max. distance spindle to table: 9½"
- Table tilt: 45°
- Overall size: 30" W x 50½" D x 61½" H
- Approx. shipping weight: 915 lbs.



G9981 ~~\$4095⁰⁰~~ **SALE \$3895⁰⁰**



THREE SPINDLE SHAPER

- Motor: 3 HP, 220V, single-phase, TEFC (Includes 3 motors)
- Amps: 18A per motor
- Precision-ground cast iron table size (each side): 17"W x 32"D x 13½"H
- Floor-to-table height: 35"
- Spindle travel: 4"
- Spindle size: 1¼" (¾" and ½" spindles available as an option)
- Spindle speeds: 7000, 10,000 RPM
- Max. cutter diameter: 6"
- Exposed spindle length: 4"
- Bearing type: Shielded and lubricated
- Approx. shipping weight: 1260 lbs.



G9933 ~~\$4850⁰⁰~~ **SALE \$4650⁰⁰**



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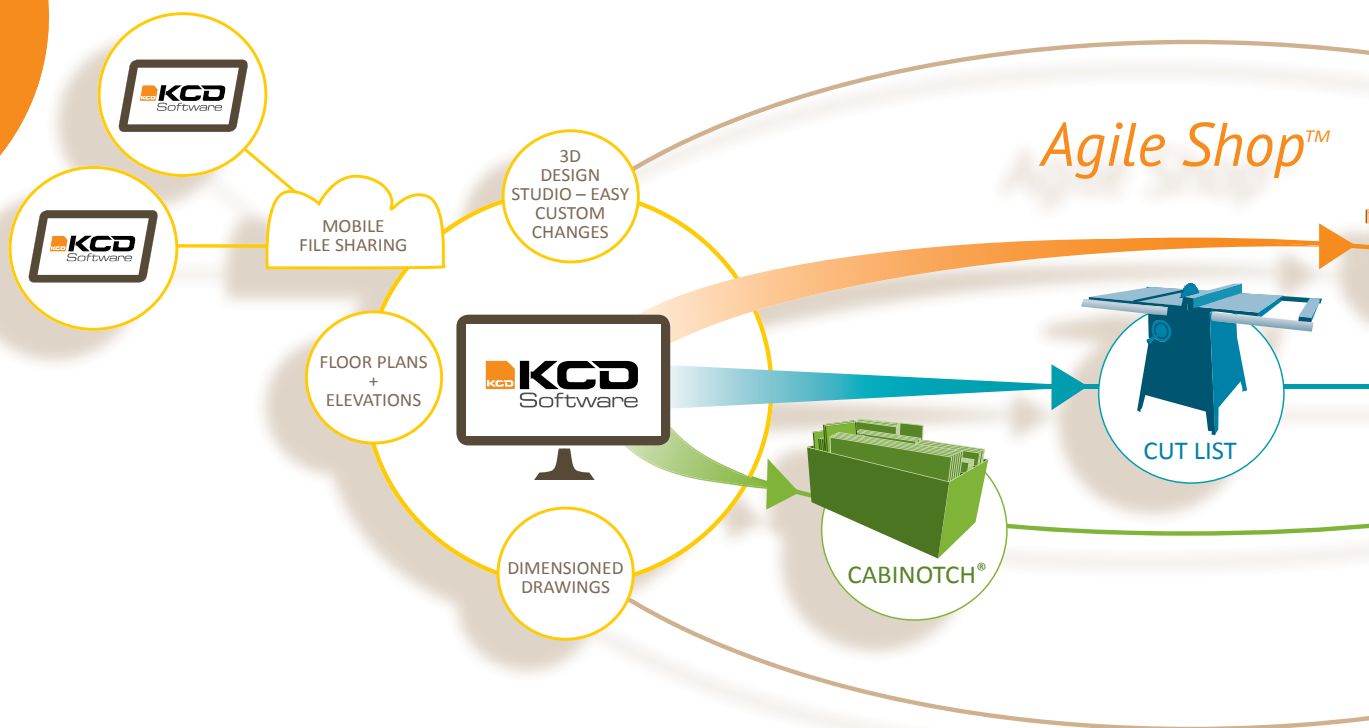


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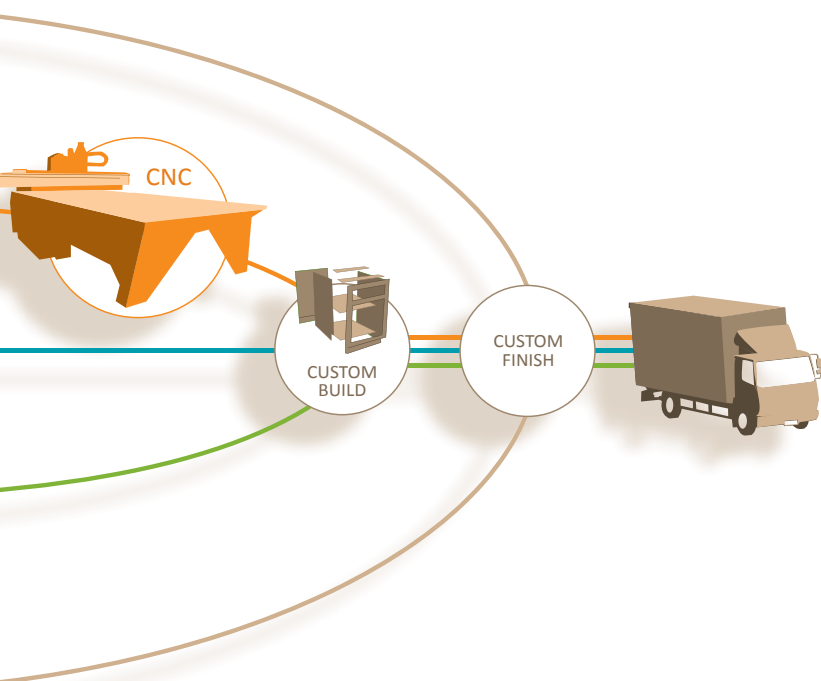
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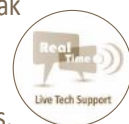
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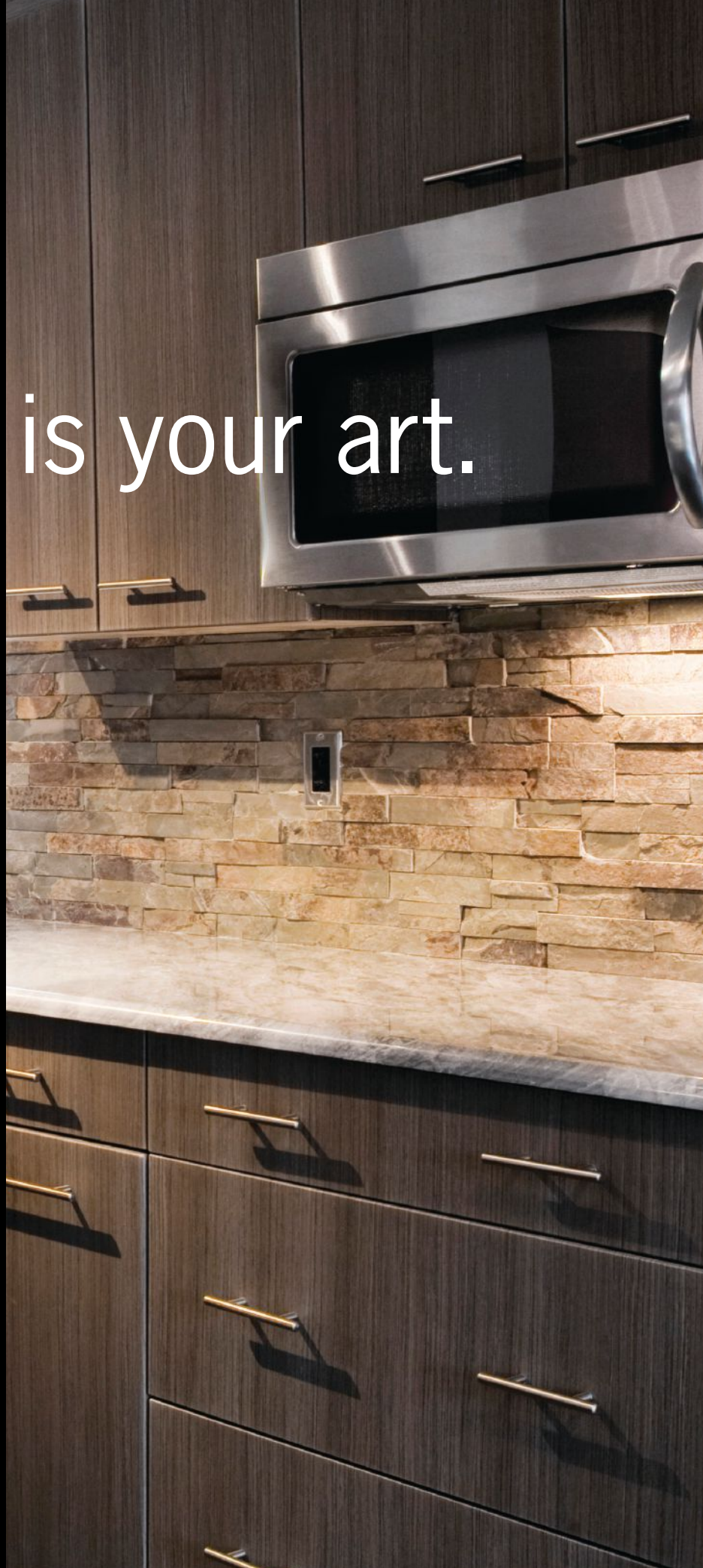
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BLOGS



Over the Workbench

Talkin' shop with former editor A.J. Hamler



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Canada Post Return Address undeliverable to:
APC-PLI, PO. Box 503, RPO West Beaver Creek,
Richmond Hill, ON L4B 4R6.

Canada Post Publication Mail Agreement No. 40624074.

E-MAIL: circulation@woodshopnews.com.

Please include name, address, and phone number on any inquiries.

Woodshop News, (ISSN 0894-5403, U.S.P.S. 000-966),
Vol. XXXI, No. 1, is published monthly by Cruz Bay Publishing, Inc., an Active Interest Media
company. The known office of publication is: 10 Bokum Road, Essex, CT 06426. \$21.95 for
one year; \$35.95 for two years (Canadian subscribers add \$12 per year for postage; U.S.
funds, foreign subscribers add \$14 per year for postage; U.S. funds). Periodicals postage
paid at Essex, CT, and additional mailing offices. Postmaster: Send address changes to
WOODSHOP NEWS, PO Box 433212, Palm Coast, FL 32143-3212. Printed in the U.S.A.



TAKING STOCK

with TOD RIGGIO

In 30 years, we've seen a lot and we're just getting started

It's official. Woodshop News is 30 years old. I write this on the morning Donald Trump was elected president, so it seems rather trivial. But it's certainly a milestone moment for my staff and co-workers. Thirty years is a long time to do anything and, to succeed in the publishing industry during that span, in my opinion, is rather remarkable.

So cheers to all who've helped make it happen and that includes our loyal readers. We've endured and prospered because of you and all I can really add is a heartfelt thanks. We'll continue to do what we do and see if we can't reach more milestones.

I'm not going to comment on the presidential election except to say that its time to rally behind our next leader. We need to get stuff done. There are a number of wood industry-related issues weaving their way through our great bureaucracy and, while I can't recall either major candidate addressing them specifically, decisions will be made by the next sitting administration and legislature.

We're supposed to have a final rule forthcoming on formaldehyde emission standards from the Environmental Protection Agency, for example.

On July 7, 2010, President Obama signed the Formaldehyde Standards for Composite Wood Products Act into law. This legislation, which added Title VI to the Toxic Substances Control Act, established limits for formaldehyde emissions from composite wood products: hard-wood plywood, MDF and particleboard.

The national emissions standards in the law are designed to reduce exposures to formaldehyde, avoid harmful health effects and mirror standards previously established by the California Air Resources Board for products sold, offered for sale, supplied, used or manufactured for sale in California. Congress tasked the EPA with devel-

oping regulations to implement this Act.

Specifically, the EPA says the final rule will:

- Limit formaldehyde emissions from composite wood products that are sold, manufactured, or imported in the United States. Formaldehyde is found in the adhesives used in a wide range of composite wood products.
- Level the playing field for domestic manufacturers who have a high rate of compliance with the California standard and will ensure that imported products not subject to California's requirements will meet the new standard.
- Require labeling these wood products as TSCA Title VI compliant one year after the rule is published.
- Set testing requirements to ensure that products comply with those standards.
- Establish a third-party certification program to ensure that composite wood panel producers comply with the new emissions limits.
- Establish requirements for accreditation bodies to be recognized by EPA that will accredit the third-party certifiers.
- Include exemptions from some testing and recordkeeping requirements for products made with ultra low-emitting and no-added formaldehyde resins.

The deadline for public comment on this rule ended on Nov. 7, so a final version is expected soon. We'll keep you posted.

In other news, the 17th Convention on the International Trade in Endangered Species (CITES) agreed to new trade controls for the entire Dalbergia genus, a group of approximately 300 species that grow across the tropical regions of Central and South America, Africa, Madagascar and southern Asia. This includes the commercial group known as rosewood.

The new protections enter into force in 90 days, but need action by individual nations to have an impact. **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

Iraq vet opens Carolina shop with his wife

By Jennifer Hicks

In 2015, after 15 years of service and four deployments with the U.S. Marines, Gunnery Sergeant Michael “Brien” Kirkpatrick of Swansboro, N.C., retired from the military to turn his woodworking hobby into a business. He and his wife opened Build it Right Woodworking and began selling niche items such as handcrafted cutting boards made from exotic woods, flag cases and other memorabilia.

“We’re just small-town people. The cool thing about this is I can spend a lot more time with my family. And who doesn’t like woodworking? I get to partake in making the types of things that are thousands of years old and I’m lucky enough to have people purchase them and put them in their homes. I’m just elated to be able to do it,” Kirkpatrick says.

He’s recently added kitchen islands, home remodels and boat furniture to his product offerings, thanks to a generous machinery donation from Hope For the Warriors, a non-profit for post-military personnel who have sustained physical or psychological wounds in the line of duty. In 2005, while deployed to Fallujah, Iraq, Kirkpatrick was riding in a Humvee attacked with an improvised explosive device. The blast caused the vehicle to split in half.

At first, Kirkpatrick declined help from the program, believing there were other candidates with bigger needs. But his desire to make a living from woodworking prevailed, netting about \$15,000 worth of tools and machinery, including a Grizzly sliding table saw, jointer, sander, lathe, dust collector and more.

Kirkpatrick says he’s very thankful for the generosity. But as a proud business owner, he prefers to divert attention from his injuries and focus on his woodworking skills.

“I try to stay away from discussing PTSD and all of the stigmas with veterans. I don’t want to be seen as a victim and I don’t want people to feel sorry for me. I want them to buy my work because of the craftsmanship



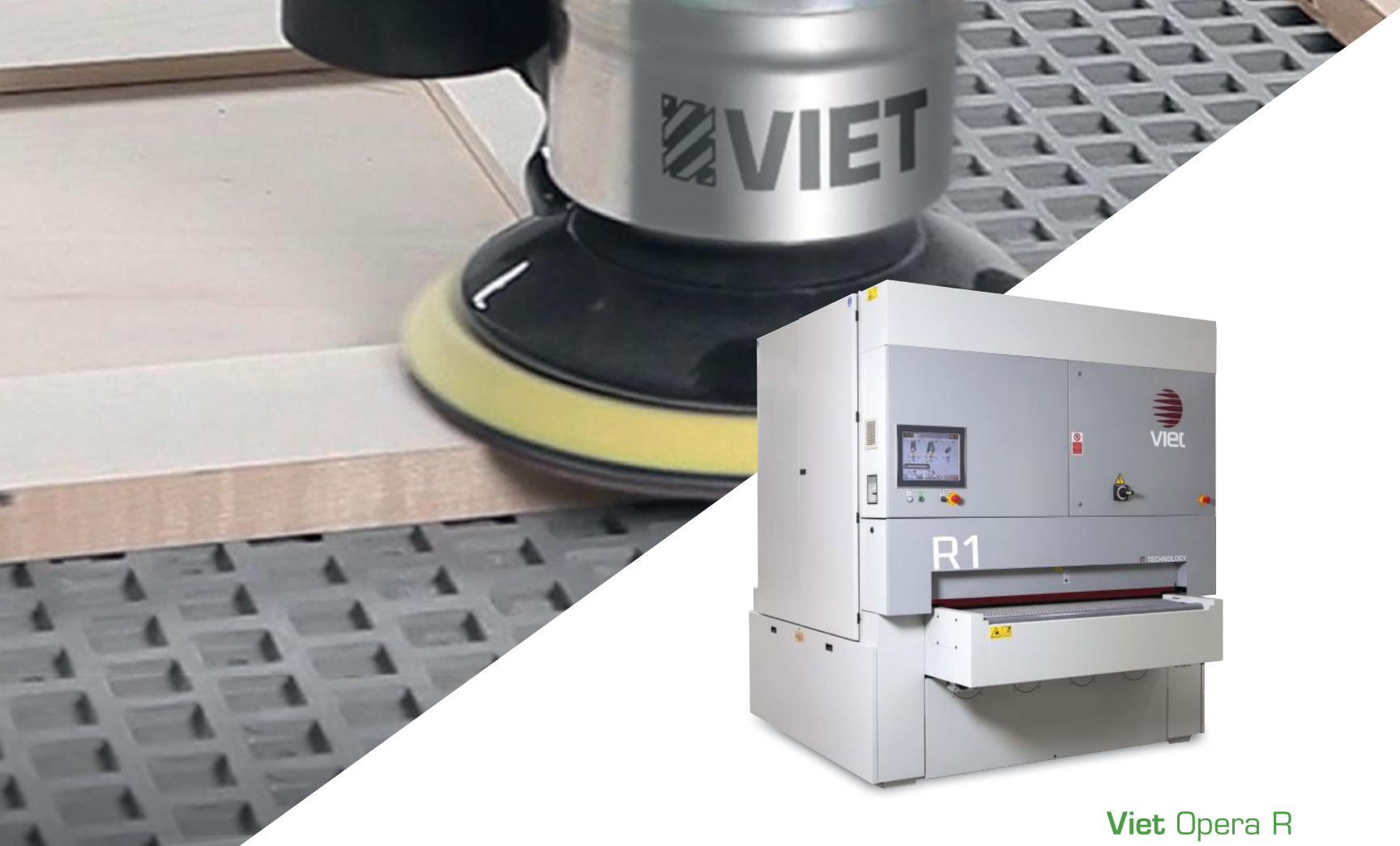
and authenticity behind it. That is what makes sense,” Kirkpatrick says.

Kirkpatrick was raised in Oklahoma and helped his dad with woodworking projects for their home. He never imagined building on those skills as a career.

“This was never in the cards,” he says. “This new equipment opened up new capabilities to

do certain things. Without it, I would never have been able to take on a lot of the jobs that I have right now because I wouldn’t have had the capability. The generosity of [Hope for the Warriors] bringing this to help us has made the transition to civilian life much easier, for sure.”

For more about Kirkpatrick’s business, visit www.builditrightwoodworking.com. [W](#)



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Boston woodworking student honored with \$1,000 scholarship

By Jennifer Hicks

Grant Burger, a student at the North Bennet Street School in Boston, is the recipient of the Alden Artisan Advancement Award, which includes a \$1,000 scholarship toward the development and promotion of his rocking settee design.

The annual award is bestowed by the New Hampshire Furniture Masters Association in conjunction with the American Furniture Makers Institute, its non-profit arm. It was

created to support an aspiring student or apprentice in furthering his or her career as a professional furniture designer/maker.

Burger is originally from Warren, Ohio, and is currently living in Somerville, Mass. He is a veteran of the U.S. Marine Corps. He learned about the New Hampshire Furniture Masters Association through his mentor, Matt Wajda, a North Bennet Street School alumni, and his department instructor Dan Faia encouraged him to apply for the award.

"I had the design idea for the rocking set-

tee after doing similar single rockers. This is a piece of furniture that I've wanted to build for a very long time. I have been inspired by the work of the American Shakers since I first became interested in woodworking. My idea is to combine the building techniques of the Shakers with the capabilities of modern woodworkers. Specifically, the ability to sculpt and shape wood more efficiently," Burger says.

Burger states that his design goal was to have a comfortable rocking seat that can be shared between loved ones. It will be constructed using turned and shaped posts, bent laminated and shaped rockers, shaped ladder-back slats and crest rail, and a slip seat upholstered with leather.

New Hampshire Furniture Masters Association member Greg Brown of Bedford, N.H., originated the idea of the Alden Award and named it in honor of his grandfather Alden Hobart. At 33, Brown is currently the youngest association member and is eager to assist other emerging artists.

"The [New Hampshire Furniture Masters Association] are all about preserving the art of fine-furniture making for the next generation. Each of the [members] has learned skills from their own mentors and reach out a hand to instruct others. I have benefited enormously through the critical review of my work, learned about how to market my furniture and gained experience in connecting with patrons at our exhibits. I proposed the Alden Award to offer that same opportunity to other makers and I am delighted Grant Burger will share this experience as he begins his own furniture making career," Brown says.

Burger's settee will be exhibited at the New Hampshire Furniture Masters Association's annual exhibit next fall.

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

WCA updates skill standards

The Woodwork Career Alliance of North America released the 2016 Woodwork Manufacturing Skill Standards, calling it the most significant update to the industry-accepted skill standards since they debuted in 2011.

The WCA also released a redesigned "passport," the personal record of a woodworker's skill standard credential achievements.

"The release of the new WCA skill standards cumulates hundreds of man hours of writing and editing work," WCA president Scott Nelson said in a statement. "We can't thank enough the many volunteers who contributed

to helping expand and improve all of the skill standards contained in the new edition."

WCA developed the skill standards to support the woodworking industry's ability to train productive woodworkers. The standards include a voluntary assessment program that allows woodworkers to demonstrate their competency in woodworking skills and earn credentials recognized throughout the United States and Canada.

The new skill standards expand upon the original manual. Whereas the 2011 standards debuted with a little more than 50 machines and tools, the 2016 version covers nearly 100

machines and tools categorized in 12 sections ranging from layout to finishing. Newly added skill standards include performance criteria for operating vertical panel saws, horizontal spindle molders, double end tenoners, laminate trimmers, hollow chisel mortises, roll coaters and more.

The skill standards are used by WCA accredited skill evaluators to observe and document a passport holder's competency of a particular skill standard. A woodworker who passes the evaluation has a credit for that skill added to his or her passport. Each passport holder's skill standard accomplishments are stored in a cloud-based registry and can be accessed at anytime from anywhere.

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



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Cabinet Vision presents training options

Cabinet Vision has released its 2017 U.S. customer-training schedule, which includes classroom and online learning options.

Cabinet Vision offers classroom-style training courses for one person to groups of up to 15 in four of its seven U.S. offices, or in hotel meeting rooms strategically scheduled throughout the country. It also offers one-on-one classes at its offices, or at the customer's place of business, according to the company.

Cabinet Vision's long-distance training options include receiving live instruction over the Internet with a certified trainer, or receiving instruction from a training booklet and a series of self-help interactive movies.

For more, visit www.cabinetvision.com/training.

Zuani, Rekord merger forms Targeted Working Tools

Italian tool manufactures Zuani and Rekord have agreed to an equal merger to create a new, privately-owned company, Targeted Working Tools.

Targeted Working Tools is a tooling supplier for solid wood window and door producers. It

operates at the Zuani facility in Rovereto, Italy.

In North America, TWT's products are sold through Rangate.

"This is a strategic merger," Filippo Pellitteri, president of TWT, said in a statement. "Rekford/Garniga and Zuani would have both been able to continue to stand on our own, despite recent economic challenges. To give us the ability to further the value we deliver to our customers, we decided to combine our efforts together both with our knowledge and physical assets. One factor which helped the decision was that our companies were actually complimentary in market geography."

For more, visit <http://rangate.com>.

Rehau expands modern surfaces range

Rehau has expanded its range of modern surfaces encompassing high-gloss, polymer glass, matte and natural textured woodgrain materials that are all available through the company's custom cabinet door program.

More than 50 finishes in seven collections allow designers to easily achieve the look of mixed materials as well as high-end lacquered, solid wood and back-painted glass cabinetry in manufacturing-friendly lami-

nates, according to the company.

"We're seeing a strong trend toward frameless slab doors in modern interiors, which look amazing with contemporary materials," Jesse Collins, senior marketing specialist with Rehau's furniture solutions division, said in a statement. "High-gloss, glass and matte surfaces also work well when mixed with materials such as wood and brick to create an industrial or loft-style design."

For more, visit www.na.rehau.com/surfaces.

Oakwood Veneer adds Echo Wood

Oakwood Veneer has started distributing Echo Wood, a line of reconstituted real wood veneer especially suitable for architects and designers.

Echo Wood uses computer-aided design technology to consistently reproduce the appearance of many different domestic, exotic, and rare species. Each product has the benefit of being fully color and grain matched across unlimited sheets, as well as being defect-free, according to the company. Echo Wood includes most of the popular domestic species and features lesser known grain patterns such as Napa, Monterrey and Champagne. For more, visit www.oakwoodveneer.com. 

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Price of cherry drops with low demand

By Jennifer Hicks

Cherry sales have been in a lull for about six months, taking a back seat to walnut and oak, according to hardwood dealers interviewed by

Woodshop News. But there's no better time to buy cherry as the diminished demand has dropped the price and flooded the market with premium stock.

"Cherry is at a very low price right now," says Rory Wood of Rare Woods USA, a retail-

er and wholesaler in Mexico, Maine. "With the demand at an all-time low, this has resulted in it coming in at a very high quality. It's probably at a 40-year high in terms of quality. The grades are getting better and better. For cabinetmakers, it's really the best time in history to buy cherry, which is one of the premium hardwoods in America.

"I'd say over the whole year it's been one of the top five, but recently it hasn't moved as well as it normally does," says Clinton Dillon of Steve Wall Lumber Co, a retailer in Mayodan, N.C. "It's not booming for any particular project. If anything, I think people are just backing off from cherry a little bit. Three or four years ago, a lot of people were buying cherry and it seems like walnut has stayed hot and the oaks have come back a little bit, too.

"The quality is still the same. It's still good-quality cherry. We have a lot of cherry from North Carolina, so it's a little bit richer in color, but we also do some Pennsylvania cherry, too. Quality is still fine and price is holding steady."

Doug Grove of Groff and Groff Lumber in Quarryville, Pa., says cherry sales are way down, except for the occasional request for figured or curly cherry. He promotes it as an exceptional deal for the current market price.

"I think it's just the trend, especially, it seems like everybody's still buying walnut. Cherry's been down for years. For every 100 board feet we sell of walnut, we might sell one board foot of cherry. The figured cherry slabs with the natural edge on them seem to sell for tabletops.

"[Cherry] has good working properties. It ages well. It doesn't bleach out as it gets darker. It's hard. Nothing looks better than a nice cherry kitchen. I feel like some of the other woods like walnut just bleaches out and it just doesn't look good after a couple of years. Cherry gets better with time."

Prices for 4/4 FAS cherry were quoted at \$5.25 to \$7/bf. **W**

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TOOLS & TECHNIQUES

AcromaPro debuts 'whole package' of new finishes

By Jennifer Hicks

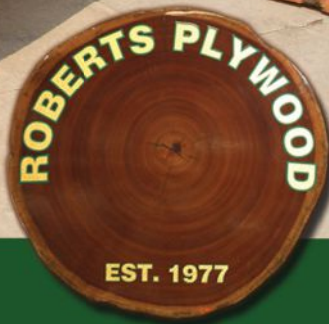
AcrromaPro offers three new "next-generation" finishes: AccuStain, a solvent-based wood stain system; AkvaTopp 814, a waterborne white topcoat; and Laqva Prime Universal, a wood primer.



AccuStain delivers color consistency, according to the manufacturer.

AccuStain delivers color consistency with the option of a softer appearance in a spray-and-wipe application, according to AcromaPro sales director Joe Spencer.

"This is designed as a whole package for the end user to get fast, repeatable color development using a wide color palette to correct color quickly in fewer steps. The clarity of the stain on various



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Laqva Prime Universal lends to an opaque appearance.



AkvaTopp 814 offers a fast dry time.

substrates, specifically maple or birch, enhances the uniformity without the blotchiness. You have batch-to-batch consistency," Spencer says.

Laqva Prime Universal is a low VOC, single-component alternative to catalyzed solvent-based wood primers for finishers of opaque kitchen cabinets, residential furniture and architectural millwork. The primer can be used to prepare indoor wood and MDF surfaces for water-based topcoats, nitrocellulose lacquers, catalyzed varnishes and catalyzed polyurethanes.

"This is a unique primer designed for multiple substrates, whether it's solid wood or MDF and the beauty part about this particular primer is that it's water-based, low VOC, however you can use multiple chemistries of topcoats on top of this primer, meaning you can go with another water-based topcoat or a solvent-based topcoat," Spencer says.

AkvaTopp 814 is a single component acrylic/polyurethane coating for use on interior wood products. It can be applied as a self-sealing system on wood or over the new Laqva Prime Universal on wood or MDF. It has high-build properties and provides a finish with very good hardness capabilities that can't be obtained with acrylic latex and nitrocellulose finishes, according to Spencer.

"This is a European technology from Italy that is being manufactured in North America, an acrylic polyurethane system that comes in multiple sheens. It can be tinted to any color. It's for kitchen cabinetry or furniture in any type of surface whether it's MDF or solid wood or veneer," Spencer says.

The topcoat offers chemical resistance and is also available in custom colors and gloss ranges.

AcromaPro products are sold through a network of authorized coatings distributors across the U.S. and Canada and can be found at www.acromapro.com. [W](#)

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Nova offers four Chuck Accessory Bundles.

Teknatool adds to Nova lathe accessories

By Jennifer Hicks

Nova, a brand of woodturning and woodworking products made by Teknatool USA, expanded its line of lathe accessories with 23 new offerings, including interchangeable tool rests, mobile bases and chuck bundles.

"Our turning category continues to grow, so we want to make sure our customers have the ability to support the Nova brand and keep everything in their shop Nova," Teknatool USA vice president of sales and marketing Craig Wells says.

New accessories include the Modular Toolrest System, a collection of bars and posts to create a custom tool rest. It features 4", 6" and 12" rests, made from cast iron and stainless steel, and three threaded posts (5/8" x 3-1/4"; 1" x 5" and 1" x 8").

"The thinking behind the Modular Toolrest System is that a lot of people start with a benchtop lathe and when they progress with their skills, they move on to a bigger lathe. But most of the time they end up keeping the benchtop lathe. So instead of having to buy two or three tool rests for each, this system can work with both lathes in a number of post combinations and is much more economical," Wells explains.

Four new Chuck Accessory Bundles offer

compatible accessories grouped in one simple package to cover the needs of every turner from the novice to the professional.

"What we're trying to do is make it easier, especially if you're getting into woodturning. All of these bundles are made up of our existing chucks and jaws that have been around forever, so they're not new, but we've packaged them to make it easier for the end user," Wells says.



Create a custom tool rest with Nova's bars and threaded posts.

Nova now has a "small" mobile base for lathes up to 400 lbs. and a "large" version for up to 800 lbs.

Other products include Cole Jaw accessories, 14" and 20" dust collection bags and a worklight with a magnetic base.

For information, visit www.novatoolsusa.com. **W**



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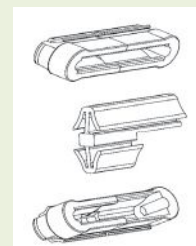
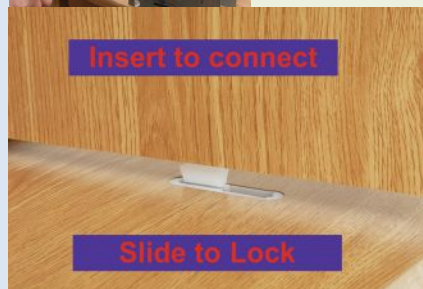


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The Python XPR with loading and unloading tables (left); and the manual setup.



Python XPR CNC lightens the load on the operator

By Jennifer Hicks

Offering robotic capabilities for loading and unloading material, the new Python XPR CNC machine from CNC Factory increases pro-

duction by reducing operator time and fatigue, according to the company.

The Python features a hydraulically assisted loading table that can accommodate up to 40 sheets of 3/4" stock, and a laser-guided unloading table.

"This is a huge production booster," CNC Factory president Chris Corrales says. "There is less fatigue for the user, less back pain and injuries. If you need to use 30 or so pieces of material for a kitchen job, you just put the load right on the loading table with a forklift. At that point, the machine will do all the lifting for them. It will pick up that material, it will load it in for them much faster than if two people will manually load it and it will automatically cut it. When it's done, it will automatically unload the parts and it will clean and sweep the spoilboard at the same time it's loading in another piece."

"The Python can perform as a stand-alone machine that can be operated in the traditional manner with manual loading and unloading. It can accept single piecework coordinates and the loading and unloading tables can be removed and stored elsewhere while not in use."

The Python features a 12-hp HSD spindle; 12-tool Rapid Rotary tool changer; 2,000"/min of rapid travel; Delta direct helical rack-and-pinion servos; dual layer high-flow vacuum table; automatic positioning pins, and automatic dust collection channeling. It also includes posts for Cabinet Vision, KCD, Mozaik, 2020 and Autodesk software, and is compatible with any CAD/CAM program via G-Code. It can be customized to include drill banks and appropriate table sizes, according to the company.

The Python XPR with a 4' x 8' bed sells for about \$69,900.

For more, visit www.cncfactory.com. 

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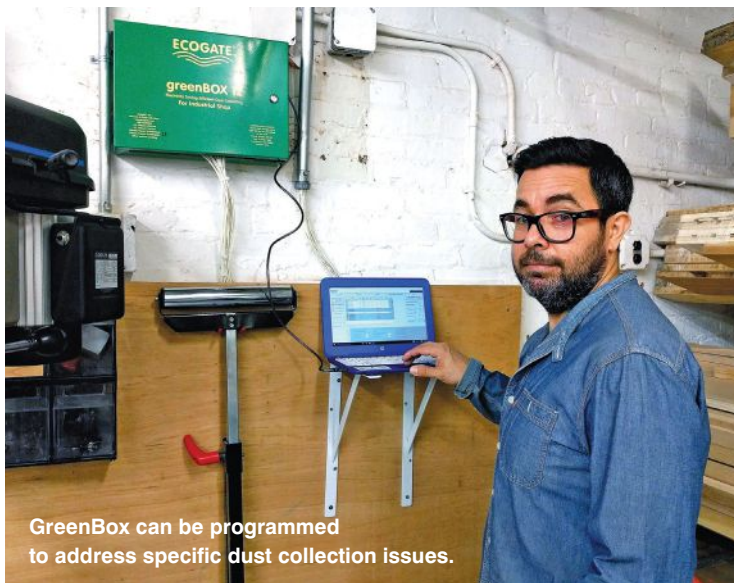
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Laguna Tools partners with private equity firm

Laguna Tools announced an investment from Hudson Ferry Capital, a New York-based private equity firm.

Terms of the transaction were not disclosed, but Laguna says its management team has retained "a significant equity ownership in the company."



Ecogate's GreenBox serves as a gatekeeper

By Jennifer Hicks

Ecogate, a manufacturer of electronic controls for dust collection systems, offers GreenBox control units for shops of all sizes that sense when machines are in use and delivers the required air flow.

"A sensor is attached to each individual machine or workstation in a shop," Ecogate vice president of business development Matthew Rodriguez says. "Once a machine is in use, the sensor notifies the GreenBox, which opens blast gates to active workstations and closes inactive ones."

"As soon as a saw or other machine is activated to create dust, the system may open three or four gates for the time of the cut, exhaust the dust, then the fans slow back down for power consumption. The GreenBox does it all for you. It's completely programmed to whatever time intervals you want for opening and closing. So if a machine makes a lot of chips, you can have it stay open longer."

Electronic blast gates are another important component to the system, Rodriguez adds.

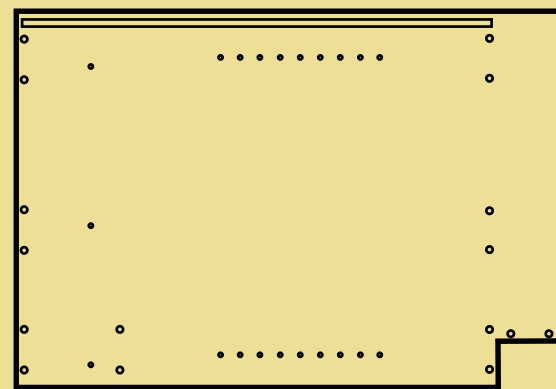
"Gates have evolved from that guillotine-looking apparatus in the duct that is physically pushed open and closed. The reality is someone is not going to open and close the gate throughout the day if they have a lot to do. Also, the opening and closing does more damage to the overall system because it can't properly support the pressure," he says.

Ecogate's offerings include a package of five to eight gates with a basic controller. More advanced solutions include gates that can constantly measure air volume, velocity and pressure.

Other packages include GreenBox 12, which monitors up to 12 gates and sells for \$1,499; GreenBox NXT, a 32-machine setup for \$5,999, and the premium GreenBox Master.

"With the GreenBox NXT or GreenBox master, you can read their stats remotely on your smartphone and open and close gates and address issues if you're out. You have total access of the system," Rodriguez says.

For more, visit www.ecogate.com. [!\[\]\(4357da5774a535f14721252e44f724ba_img.jpg\)](#)



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Suddenly sharp

Keeping small tools smooth as a razor's edge just got easier with these recent advances and products

By John English

The edge on cutting tools has an awful lot to do with the quality of work that a shop produces. Whether it's a table saw blade or a mortising chisel, the same rules apply. Sharp edges are faster, cleaner and safer.

Maintaining sharp edges on small tools at the workbench or on a job site got a little easier this fall with Rockler's new Shop Block. This is a simple, plastic, half-hexagon shaped box with two compartments that are lined with densely packed flex-rod plastic bristles. These let a woodworker drop in tools, bits and blades with hardly a sideways glance. On the job site, they hold things such as router bits, drill bits and jigsaw blades neatly in an upright and very accessible position. Three small compartments below accommodate small tooling items such as setscrews and bearings. Beneath each open tray is a recess for adhering a rare earth magnet, which helps to keep hardware from spilling. The tray can also be mounted to the wall with the two keyhole slots. Built-in dovetail tracks let the user join two Shop Blocks together and the company offers this item as an individual part or a set of two (rockler.com).



Woodworkers who need to touch up an edge in a hurry will appreciate the new Eze-Fold double-sided ceramic and diamond sharpener being offered by Eagle America (eagleamerica.com).

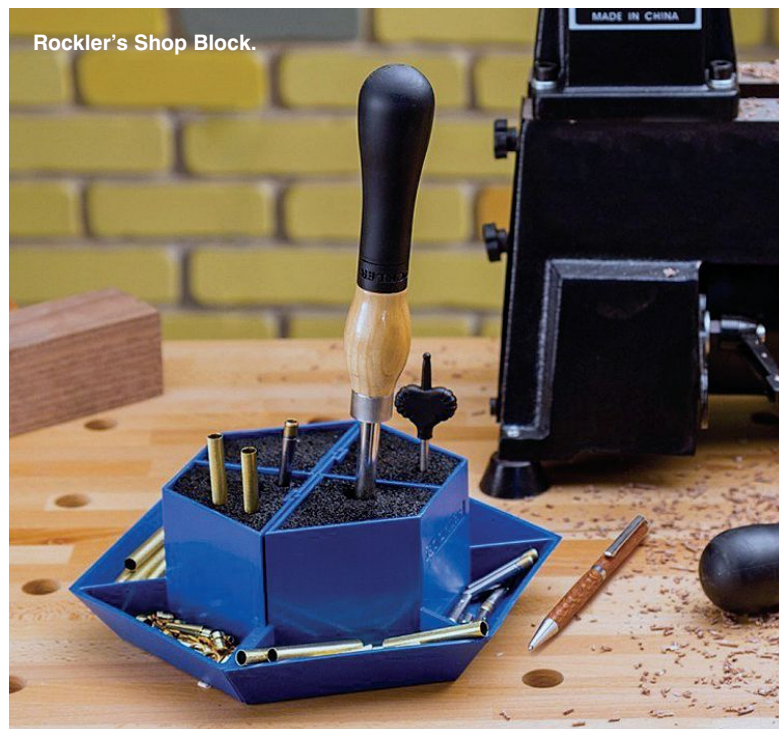
This is a super-fine diamond and ceramic two-sided combination finishing stone that pops in an apron pocket or a tool bag. The handle on each sharpener becomes a carrying case, protecting the surfaces when not in use. Diamonds are the longest lasting and most durable sharpening tools available and, while they won't quite deliver the edge that a superfine water stone offers (even though they're a lot faster), the ceramic stone will. These folding models are a quick,

easy and fairly inexpensive (\$33.94) way to sharpen tools on the job or at the bench. Eagle America is now also carrying a number of M Power diamond stones including an 8" bench model and a couple designed specifically for touching up carbide router bits.

For hand tool and lathe enthusiasts, DMT Diamond Machining Technology (dmtsharp.com) has a new sharpening kit that features four diamond products in fine grit (600 mesh, 25 micron). These are large, medium and small honing cones and a credit card-sized sharpener.

And when it comes to new ideas, MLCS (mlcswoodworking.com) introduced a number of new bits and blades this fall including a laminate trimming bit with a square bearing. Yes, square. This is a Euro brand Teflon bearing that the manufacturer says will do the same work as a round bearing in less time. It slides along clean laminate edges, won't scratch Corian or other solid-surface man-made materials and also resists glue. MLCS also offers a new glue-relief flush-trim bit that the company says will "eliminate glue buildup on ball bearings, resulting in a smoother cut and improved production results."

Colt Tools (colt-tools.com) has come up with a new shaft design for Forstner bits that the company calls RotaStop. It's designed to be a





New HSK cutterheads are available from Charles G.G. Schmidt & Co; Eze-Fold shapeners (right) from Eagle America.

dramatic improvement on both the traditional round shank and the fairly common shank with three flat facets milled along its length. Instead, RotaStop bits have wave-shaped contours along the shaft. RotaStop literally stops the risk of rotation in the chuck and also obviates the need for Allen screws when working with an extension rod.

Irwin Tools (irwin.com) now carries Marples Forstner drill bits, while Techniks (techniksusa.com) has just come out with new SlimLine shrink-fit tool holders for tight clearance applications that let a CNC machine in some very tight spots. They are available for CAT40, HSK63A and HSK40E spindles.

On the cutting edge

Amana Tool (amanatool.com) recently came out with a couple of new brad point Ditec dowel drills. Item No. 215005 is a right-hand 5mm diameter cutter, 57.5mm long with a 10 x 30mm shank. And item No. 215008 is the same in all dimensions except it has an 8mm cutting diameter. Both bits feature a special solid-carbide flute for long-lasting performance. Amana's industrial brad point boring bits are coated with a non-stick polytetrafluoroethylene (PTFE) coating for longer-lasting cutting edge and tool life. In cases where the carbide-tip cutting edges are coated, there is no need to sand the coating off before use. Once the tool starts drilling, the coating is cleared off the needed cutting edge right away. The coating has been applied at a temperature of 570 degrees and it reduces friction between the chip and the body inside the flute. This helps clear chips out of the hole during the drilling, creating a cooler drilling area with no burning and thus a longer-lasting cutting edge.

Forrest Mfg. Co. (forrestblades.com) recently introduced a couple of new dado sets, the first of which is a two-piece setup for clean-cutting 3/16" grooves in cabinetmaking. It was designed for cutting grooves for backer boards or drawer bottoms. This set is comprised of two 24-tooth outside saw blades and shims for minor adjustments so a shop can respond

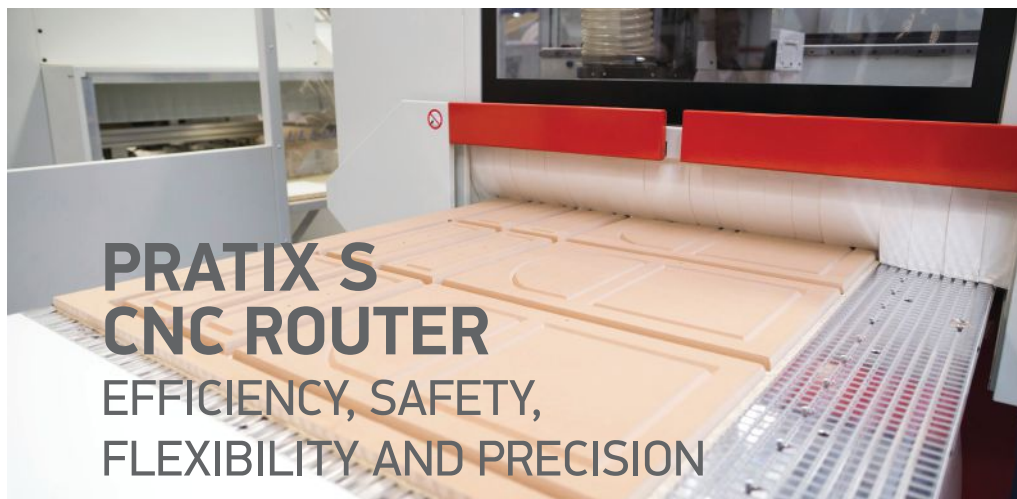


to varying plywood thicknesses. The second is a three-piece set for cutting 3/16" to 1/4" grooves and it adds a 1/16", four-tooth chip-

per to the first setup. Bore options include 5/8", 3/4", 1", 1-1/8", 1-1/4", 20mm, 30mm, 32mm and the 30mm plus two pinholes for Felder saws.

Freud (freudtools.com) introduced the "next generation" Premier Fusion general-purpose saw-blade. It features the company's Fusion Trio tooth design that refers to a special grind for the top, sides and face of each tooth. The one-of-a-kind tooth geometry includes a 30-degree Hi-ATB, a double grind design and an axial shear-face grind. The blade is designed for laminates, melamine, veneered plywood, hardwoods, softwoods and thick stock lumber.

Shopping for band-saw blades? Laguna Tools (lagunatools.com) has a very nice interac-



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From left, Forrest offers two new dado sets; Forstner bits from Colt Tools feature a new shaft design, and Ditec dowel drills from Amana Tool.

tive tool online that allows a woodworker to find just about any length of blade and sort the search results by both name and price. The company offers superior, but still affordable, Proforce brand blades from Sweden. Every blade is hand-welded and individually in-

spected for quality control and then backed by a one-year manufacturer's warranty. Another great source for all things band saw, including blades, is Carter Products Co. (carterproducts.com) in Grand Rapids, Mich.

Are you dealing with magnetic panels?

These are laminated panels with a chip or fiberboard core and a thin layer of iron foil just below the surface. Leuco (leucotool.com) introduced a new spark-reducing 350mm circular saw blade that was developed specifically for use with magnetic plates.

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This Laguna CNC is perfect for the small cabinet or woodworking shop looking to move into CNC automation. The machine comes equipped with a powerful 3HP industrial spindle and is manufactured with a heavy-duty one-piece welded tubular steel frame.

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Laguna Tools has added an online tool for buying band-saw blades; Freud's latest general-purpose sawblade (below) features the company's Fusion Trio tooth design.

Sharp ideas

Many manufacturers offer sharpening services and some suppliers specialize in both sharpening and repair. For example, Connecticut Saw & Tool (ctsaw.com) has a mail-in service for the entire country and offers pickup and delivery in certain areas from Massachusetts to New Jersey. There are also about 40 drop-off locations at local hardware stores along the East Coast from Staten Island to Rhode Island.

Other sharpeners include Burn's Power Tools (burnstools.com), Pro Cut Saw & Tool (procutsaw.com) and Total Saw Solutions (totalsawsolutions.com).

Nap Gladu (napgladu.com) offers a range of services from simple tooth sharpening to extensive tool repair, while GDP/Guhdo (guhdo.com) sharpens carbide and diamond saw blades, insert knives, solid carbide router bits and PCD (polycrystalline diamond) tooling.

Carbide Processors (carbideprocessors.com) offers a unique line of blades that combine ceramic and carbide in the tips. The result is exceptional heat control and long life. Well worth a look.

Oshlun (oshlun.com) manufactures circular saw blades that feature a fully hardened surface ground and hand-tensioned steel-alloy plate, as well as application-specific carbide grades designed to ensure a long cutting life.

Hendrick (hendrickmanufacturing.com), which is known primarily for its panel saws and CNC routers, also carries a large selection of Kanefusa industrial saw blades, LMT Onsrud CNC tooling and Techniks tool holders.

Esta USA (dispozablade.com) makes

the Disposable line. This is a planer and jointer knife system where anyone can change knives accurately, quickly and economically.

Charles G. G. Schmidt & Co. (cggschmidt.com) recently added a number of profiles to its tooling lines for milling floors. The company offers a number of styles, depending on the type of machine a shop is using — shaper, planer or molder — and also now offers HSK heads for standard corrugated back knives, plus its own proprietary Schure-Lock carbide knife system. Schmidt can also manufacture dedicated insert

heads for the side heads of almost any machine in either 12- or 20-degree cutting angles. (Woodshops placing orders will need to specify the desired cutting angle and also whether the head is for the top-, bottom-, left- or right-side spindles.) The entire catalog of cutters is now available online in a new, interactive and easy-to-use format.

Several manufacturers also offer custom designed bits and blades. Among these are Hickory Saw and Tool (hickorysawandtool.com); Weinig USA (weinigusa.com); Vortex Tool Co. (vortextool.com); Active Tooling (activetooling.com); Com-Surge (comsurge.com); Leitz (leitztooling.com) and Freeborn Tool Co. (freeborn-tool.com). And MoldingKnives.com makes knives to fit virtually every brand of molder and shaper.

Integra Precision Tooling (ipgandm.com) makes solid-carbide CNC spirals and spiral compression router bits and circular saw blades. The company also sharpens spirals, router bits, saw blades and shaper cutters and offers custom tooling. www.w



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THE CUTTING EDGE

with R.W. LEE

3-D modeling programs add a new dimension

When woodworkers hear "CNC," they usually think of a large 3-axis machine zipping back and forth cutting sheet goods into parts. In their mind, most machining is at 90 degrees in the vertical and horizontal planes.

A modern CNC 3-axis router can move in the X, Y and Z direction simultaneously. Therefore, it is not limited to cutting out cabinet parts. Combining modern 3-D CAD and CAM software with appropriate tooling significantly expands its capabilities.

Thinking and designing in 3-D usually starts with thinking in 2-D — the X and Y

planes, or what you would see on a set of floor plans. From there, you can start thinking about height, or the Z plane, of the curves and contours of an object, say the rope twist on a column. While most woodworkers have no problem doing a drawing in the X and Y planes, accurately drawing a column with a rope twist is another matter.

That is where 3-D CAD software comes in. Commercial modeling programs include SketchUp (sketchup.com), Rhinoceros (rhino3d.com) and Silo (nevercenter.com/silo). Open-source 3-D modeling programs include Blender (blender.org), Gmax (turbosquid.com/gmax)

and TrueSpace (truespace.en.softonic.com).

For those making their first entry into 3-D modeling, SketchUp Make is the easiest and least expensive way to proceed.

The next step is to transfer the 3-D model into G-code, computer language that sets the toolpath and ultimately makes the part. There are a number of capable 3-D CAM programs, including MeshCAM (grzsoftware.com) and CAMBam (cambam.co.uk).

For those with the time and disposition, choosing a separate CAD and CAM program is one way to go. Another approach is to use a program where the drawing and toolpath capabilities are integrated into one program. There are two companies that offer such programs, both based in England: Vectric and ArtCAM.

Vectric offers two levels of programs, while ArtCAM offers three.

Vectric is associated with ShopBot and Laguna CNC. Its two main products are VCarve and Aspire. Both can do many operations that most woodworkers are familiar with: designing and machining in 2-D and 2.5-D; 2.5-D engraving and carving with V-bits; milling profiles and pockets, drilling, nesting to maximize the material yield. It can also perform image tracing and wrapped rotary toolpaths to cut raised letters and images, flutes and textures.



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VCarve and Aspire can import files from the most popular 3-D design programs and generate toolpaths to route the 3-D object in a variety of operations, such as single- and multi-sided machining, and model slicing, which is breaking a thick 3-D object into various layers so it can be machined on a CNC router irrespective of the Z-axis capabilities.

But with Aspire, a 3-D object can be designed within the program. This is a significant capability and reflected in the price (\$1,995) compared to VCarve Pro (\$699). However, upgrading from VCarve to Aspire costs only the difference in the price of the two programs.

ArtCAM has three options: ArtCAM Express, ArtCAM Insignia, and ArtCAM Pro. They all have the same user interface and layout, but the design and machining capabilities increase with each program.

ArtCAM Express is the basic program. It has many features to design and create toolpaths in 2-D as well as import 3-D designs from other programs. It can also generate G-code from photographs and scanned images and perform typical CNC operations.

The capabilities of ArtCAM Express can be expanded though the use of optional modules for designing and machining. This allows

a user to purchase the appropriate amount of capability for their design and machining needs. These range from modules to import files that can be combined to create logos and custom fonts or modify a library of about 300 fonts. Machining modules are also available.

ArtCAM Express sells for \$149, while each module ranges in price from \$149 to \$799.

ArtCAM Insignia has a wider range of tools for designing and machining 2-D and 3-D objects. Optional modules include a library of more than 600 clip-art entries. Insignia provides the user with open vectors for creating unique edges and contours, highly detailed relief carvings and machining on surfaces that are not parallel to the CNC router's table. Art-

CAM Insignia sells for \$2,500.

ArtCAM Pro can design and machine more complex designs in higher detail than either Express or Insignia. It can be used with 3-axis routers, vertical machining mills for metalworking, and CNCs with rotary axes. ArtCAM Pro is a custom designed CAD/CAM software package that is only available through regional distributors.

Learning to use all these various pieces of software to design and machine 3-D objects is challenging. Combining SketchUp and CAM-Bam, for example, is best suited for someone with previous software experience. For newbies, V-Carve, Aspire and the ArtCAM offerings might be easier to grasp. **W**

Dieter Brucklacher, Leitz pioneer, dies

Dieter Brucklacher, former CEO and long-standing chairman of the Leitz Group's management board, passed away on Sept. 27 after a short illness. He was 77.

"Dr. Brucklacher is known for making Leitz the organization it is today," the company said in a statement "He was the engineer of

many advanced woodworking technologies as well as being instrumental in showing the organization how to utilize existing capabilities to succeed in other markets."

He began his career with Leitz in 1975 and became CEO in 1982.

Leitz manufactures precision tooling and systems for machining wood, plastics and advanced composites.

For more, visit www.leitztooling.com.

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- Motor: 3 HP, 230V, single-phase
- Precision-ground cast iron table size: 83½" L x 12¼" W
- Floor-to-table height: 31½"
- Cutterhead speed: 4300 RPM
- Max. depth of cut: ¼"
- Max. rabbeting capacity: ¾"
- Approx. shipping weight: 1050 lbs.

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G0609X \$2795⁰⁰ SALE \$2650⁰⁰



10 HP INDUSTRIAL DUST COLLECTOR

- Motor: 10 HP, 220V/440V*, 3-phase, TEFC
- Amps: 30A at 220V, 15A at 440V
- Impeller: 17" welded, ¼" balanced steel, radial fin
- Airflow capacity: 5360 CFM
- Max. static pressure: 17.9"
- Max. capacity: 48 cubic feet
- Filtration rating: 2.5 micron
- Collection bags: 4
- Upper bag size (x 4): 23½" x 70"
- Lower bag size (x 4): 23½" x 54"
- Overall size: 61"W x 61"D x 134"H
- Approx. shipping weight: 472 lbs.

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G0673 \$1889⁰⁰ SALE \$1795⁰⁰

25" EXTREME-DUTY PLANER WITH SPIRAL CUTTERHEAD

- Cutterhead motor: 15 HP, 220V/440V*, prewired for 220V, 3-phase, 39.4A/19.7A
- Table elevation motor: ½ HP, 2.4A/1.2A
- Precision-ground cast iron table size: 25" x 57"
- Max. cut: 25"W, ¼"D, 9"H
- Min. stock length: 10"
- Feed rates: 20, 25, 30 FPM
- Cutterhead speed: 4900 RPM
- Approx. shipping weight: 2054 lbs.

Precision-Ground Super Heavy-Duty
Cast Iron Infeed & Outfeed Tables

15 HP!



EXTREME
SERIES

Digital
Readout
& Key
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G0603X \$999⁰⁰ SALE \$919⁰⁰

24" DRUM SANDER

- Motor: 5 HP, 220V, single-phase drum motor drives two 4" aluminum sanding drums
- ¼ HP conveyor motor provides 11 FPM feed rate
- Surface speed of drum: 2300 FPM
- Handles stock up to 23½"W and 4¼" thick
- Sandpaper installs easily onto the drums
- Sanding drum size: 6"
- All steel and ball bearing construction
- Two 4" dust ports for easy hook-up to a collection system
- State-of-the-art computer balanced drums
- Powder-coated paint
- Approx. shipping weight: 442 lbs.



G1066R \$1725⁰⁰ SALE \$1595⁰⁰

15" PLANERS

- Motor: 3 HP, 240V, single-phase, 12A
- Max. cut width: 15" • Max. stock thickness: 8"
- Min. stock thickness: ⅛"
- Min. stock length: 8" (G0453W), 6" (G0453ZW)
- Max. cut depth: ¼" • Feed rate: 16 and 20 FPM
- Cutterhead diameter: 3" • Cutterhead speed: 5000 RPM
- Table size: 41¾" x 16"
- Overall size: 38"W x 42"D x 42½"H
- Approx. shipping weight: 592 lbs. (G0453W), 602 lbs. (G0453ZW)



Z SERIES



G0453W \$1195⁰⁰ SALE \$1125⁰⁰

WITH SPIRAL CUTTERHEAD

G0453ZW \$1895⁰⁰ SALE \$1795⁰⁰



24" EXTREME-DUTY PLANERS

- Cutterhead motor: 10 HP, 440V*/220V, prewired 220V, 3-phase
- Feed motor: 1 HP
- Table elevation motor: ½ HP
- Precision-ground cast iron table size: 24" x 35½"
- Max. cut: 24"W, ⅛"D, 9"H
- Feed rate: 20–40 FPM
- Cutterhead speed: 5000 RPM
- Cutterhead dia.: 4½"
- Approx. shipping weight: 1935 lbs. (G9741), 2024 lbs. (G9961)

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EXTREME
SERIES

G9741 \$7995⁰⁰ SALE \$7650⁰⁰

SPIRAL CUTTERHEAD

G9961 \$9250⁰⁰ SALE \$8675⁰⁰



HEAVY-DUTY TILTING ARBOR SHAPER

- Motor: 7½ HP, 220V/440V*, 3-phase, 3450 RPM, 20A/10A
- Precision-ground cast iron table size: 47¼" x 35½"
- Spindle travel: 6½" • Spindle size: 1¼"W x 7"L
- Spindle speeds: 3900, 5000, 7200, 9400 RPM
- Spindle tilt: -5° to +45°
- Spindle capacity: 6"
- Max. cutter dia.: 10"
- Approx. shipping weight: 1096 lbs.

Includes Heavy-Duty Miter Gauge,
Spindle Spacers & Nuts, Hold-Down
Assemblies & Table Inserts



EXTREME
SERIES

G0608X \$4295⁰⁰ SALE \$4095⁰⁰



19" BANDSAWS

- Motor: 3 HP, 220V, single-phase, TEFC, 60 Hz, 12A
- Precision-ground cast iron table size: 26¾"W x 19"D x 1½"H
- Floor-to-table height: 37½"
- Cutting capacity/throat: 18¾"
- Max. cut height: 12"
- Blade size: 143"L
- Blade widths available: ¼"–1¼"
- 2 Blade speeds: 1700, 3500 FPM
- Overall size: 36"W x 32"D x 76"H
- Approx. shipping weight: 460 lbs. (G0514X), 512 lbs. (G0514X2B)

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EXTREME
SERIES



G0514X \$1475⁰⁰ SALE \$1375⁰⁰

MOTOR BRAKE

G0514X2B \$1755⁰⁰ SALE \$1675⁰⁰



*Prewired for 220V. If you require 440V operation, Grizzly must convert your machine at the time of purchase to maintain the machine's warranty. A \$250 non-refundable fee will be added to your order. Please allow extra shipping time for the conversion. If you need more information, please contact technical service.

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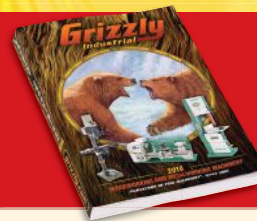
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10" HYBRID TABLE SAW WITH RIVING KNIFE

- Motor: 2 HP, 120V/240V, prewired 120V, single-phase, 60 Hz, 15A/7.5A
- Precision-ground cast iron table w/ wings: 40½"W x 27"D
- Floor-to-table height: 35½"H
- Footprint: 19½"W x 21"L
- Arbor: ¾"
- Arbor speed: 3450 RPM
- Rip capacity: 30" R, 15" L
- Overall size: 57¼"W x 37½"D x 35½"H
- Approx. shipping weight: 348 lbs.



FREE 10"
CARBIDE-
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Cast iron
TRUNNIONS

G0771 ~~\$795.00~~ **SALE \$655.00**



10" HYBRID TABLE SAW WITH RIVING KNIFE

- Motor: 2 HP, 110V/220V, single-phase, prewired to 220V, 16A/8A
- Precision-ground cast iron table w/ wings measures: 27"W x 40"D
- Arbor: ¾"
- Arbor speed: 3850 RPM
- Capacity: 3¼" @ 90°, 2¼" @ 45°
- Rip capacity: 30" R, 12"L
- Quick-change riving knife
- Cast iron trunnions
- Approx. shipping weight: 416 lbs.



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10" HEAVY-DUTY CABINET TABLE SAWS WITH RIVING KNIFE

- Motor: 3 HP, 220V, 13A, single-phase (G0651), 5 HP, 440V*, 12A/6A, 3-phase (G0652)
- Precision-ground cast iron table w/ extension: 27"W x 75¼"D x 34¾"H
- Arbor: 1" • Arbor speed: 3600 RPM
- Max. dado width: ¾"
- Capacity @ 90°: 3¼", @ 45°: 2¼"
- Max. rip capacity: 52" R, 18" L
- Approx. shipping weight: 702 lbs. (G0651), 716 lbs. (G0652)



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FREE 10"
CARBIDE-
TIPPED BLADE

3 HP, SINGLE-PHASE

G0651 ~~\$2050.00~~ **SALE \$1975.00**

5 HP, 3-PHASE

G0652 ~~\$2195.00~~ **SALE \$2095.00**



12" EXTREME TABLE SAWS

- Motor: 5 HP, 220V, single-phase, 18A (G0605X1), 7½ HP, 220V/440V*, 3-phase, 19.3A (G0606X1)
- Precision-ground cast iron table size w/ extension: 69½" x 78¾"
- Arbor: 1" • Arbor speed: 3600 RPM
- Max. dado width: ¾"
- Max. rip capacity: 52" R, 18"L
- Max. depth of cut: 4" @ 90°, 2¼" @ 45°
- Approx. shipping weight: 854 lbs.



CAST IRON
TRUNNIONS

5 HP, SINGLE-PHASE

G0605X1 ~~\$2550.00~~ **SALE \$2450.00**

7.5 HP, 3-PHASE

G0606X1 ~~\$2550.00~~ **SALE \$2450.00**



14" SLIDING TABLE SAW

- Main motor: 10 HP, 220V/440V*, 3-phase, 25A/12.5A
- Sliding table size: 15" x 126" • Main blade arbor: 1"
- Main blade speed: 3000, 4000, 5000, 6000 RPM
- Scoring blade motor: 1 HP, 3A/1.5A
- Scoring blade size: 4¾"
- Scoring blade arbor: 22mm
- Scoring blade speed: 8000 RPM
- Scoring blade tilt: 0–45°
- Depth of cut: 4" @ 90°, 2¼" @ 45°
- Max. rip capacity: 52½"
- Max. sheet capacity: 126" x 126"
- Approx. shipping weight: 2932 lbs.



126" LENGTH OF CROSS CUT

G0772 ~~\$11,250.00~~ **SALE \$10,750.00**



AUTOMATIC EDGE BANDER

- Required power supply: 30A, 220V, single-phase, 60 Hz
- Feed motor: ¾ HP
- Glue spindle motor: ½ HP
- End trim motor: ¼ HP
- Flush trim motor: ¼ HP
- Buffing motor: ¼ HP
- Heating element: 1455W
- Table size: 10½"W x 78¾" L
- Min. panel dimensions: 4¾"W x 9½" L
- Compressed air required: 100 PSI
- Glue pot capacity: 34 oz
- Roller width: 3¾" • Roller diameter: ¾"
- Edgebanding coil capacity: 31½"
- Approx. shipping weight: 875 lbs.



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G0774 ~~\$11,500.00~~ **SALE \$9695.00**



THE ULTIMATE 12" JOINTERS

- Motor: 3 HP, 220V, single-phase, TEFC
- Precision-ground cast iron table size: 12½" x 80"
- Max. depth of cut: ¾"
- Bevel jointing: 0–45°
- Cutterhead speed: 5900 RPM
- Center mounted fence: 4¾"H x 39¼"L
- Approx. shipping weight: 1265 lbs. (G9860), 1241 lbs. (G9860ZX)



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4-KNIFE CUTTERHEAD / CUTS PER MINUTE: 23,600

G9860 ~~\$3750.00~~ **SALE \$3595.00**

SPIRAL CUTTERHEAD / CUTS PER MINUTE: 35,400

G9860ZX ~~\$4850.00~~ **SALE \$4595.00**



THE ULTIMATE 8" JOINTER WITH EXCLUSIVE DIGITAL HEIGHT READOUT

- Motor: 3 HP, 220V, single-phase, TEFC, 3450 RPM, 15A
- Total table size: 8½" x 82½"
- Infeed table size: 8½" x 42"
- Cutterhead: 4-row spiral w/ 36 indexable, solid-carbide inserts
- Cutterhead speed: 7000 RPM
- Cutterhead diameter: 3¼"
- Floor-to-table height: 31"
- Fence stops: 45°, 90°, 135°
- Deluxe cast iron fence size: 1½"W x 38"D x 4¾"H
- Approx. shipping weight: 796 lbs.



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DISCOVER

Chris Recker operates the shop's Weeke ABD 050 automatic boring and doweler.





GROWTH SPURT

Boulder Mills has expanded by leaps and bounds in Colorado in only six years and now eyes a larger shop

By Jennifer Hicks

Boulder Mills is off to a fast start. Established in 2010, the seven-man cabinet and millwork shop in Lafayette, Colo., is generating about \$1.5 million in sales for the second straight year.

"We've actually doubled our growth every year for the first three years, but not this year because things were going too fast and got difficult to manage. We're striving to maintain quality," owner Sascha Ayad says.



Sasha Ayad

Ayad's journey began in Cairo, born to a German mother and an Egyptian father, a physician, who moved the family to Buffalo, N.Y., for his residency. The cold climate suited the younger Ayad, who developed an affinity for skiing, and after graduating Hobart College in Geneva, N.Y., he became a ski instructor in Steamboat Springs, Colo.

"Everyone else was putting on suits and ties in college and heading off to Boston or New York to find work. I moved to Steamboat and taught skiing for five years. Then one day I decided to take some pre-med classes at [the University of Colorado] to maybe follow my father's footsteps and go to medical school. But instead of studying organic chemistry or whatever, I was just building furniture all the time on the side," he says, pointing to an Adirondack chair in his office, one of his first creations.

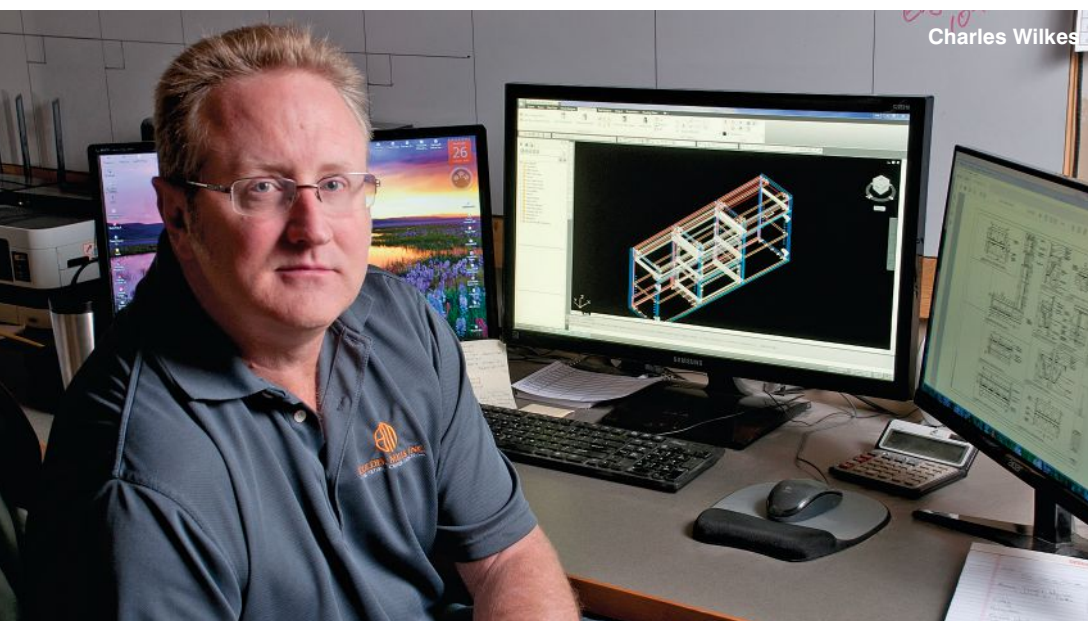
By the late 1990s, Ayad found work as an EMT with plans on applying to medical school, but he wanted to break away from constantly being around ill and injured people. He applied to High Country Millwork in Longmont, Colo., and says he only got the job because the company head was also captain of the local fire department and a fellow emergency responder.

"I walked in and thought I died and went to heaven. A couple of days in, I couldn't believe they got paid to do what they did. So, two weeks later, I realized I wanted to do this and not just on the weekends. I called my parents and my dad said I had to do what I had to do. He was very accepting."

High Country specialized in custom store fixtures. Ayad started out sweeping floors and then became a project manager. He was so intrigued by the business end that he decided to get his MBA. With a wife and two daughters at home, plus a full-time job, the only way that could happen was through an evening program at the University of Colorado. After a stint as a general manager at a Denver shop, Ayad earned his MBA in June 2009 and soon opened Boulder Mills.

Boulder Mills was created from an Internet-based woodworking business called Cubbies in a Box, Ayad says.

"The idea was to take advantage of the interactive nature of the Internet, so we developed a way for a customer to develop a custom product at a reasonable price for us to build. But sales weren't pouring in and I needed all sorts of search engine optimization done. I realized the need to get cash flow



Charles Wilkes

The shop's Weeke Vantage CNC router.



going, so I incorporated Boulder Mills."

Ayad hasn't given up on Cubbies in Box, which still basically pays for itself through monthly orders, and he believes it can be sold or franchised some day.

Back and forth

Boulder Mills started with residential work, but the focus has recently shifted to the commercial market. The shop completes about 20 projects per year. They've included renovation of an AMC Theater, country club, restaurants and retirement centers.

Ayad hopes to create a better balance with residential work to improve cash flow. "The business model of commercial work is pretty miserable," he says. "You can be done with a \$200,000 job for many months before ever seeing a dime. You essentially end up funding them and it becomes very irritating and expensive. You need a line

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Shannon McDonald runs the shop's CNC router.

of credit at the bank and it's risky. Residential work is more business-friendly, so with a combination of the two we can grow comfortably."

Boulder Mills is a 4,000-sq.-ft. shop located in an industrial park. At the drawing board is Charles Wilkes, Ayad's engineer, draftsman and righthand man. He's involved with every project from start to finish.

"We will get drawings from an architect and then resubmit shop drawings to the architect in a certain time frame. Our shop drawings are more detailed in how we perceive what their requirements are for the job. It shows them how we assemble our product and that we've interpreted their drawings correctly," Wilkes says.

Wilkes sees design trends accentuating natural wood grain with lots of dark finishes such as mocha and very few painted finishes. Materials can range from melamine and laminate to hardwoods like alder. It all depends on the specs. The company used to do its own finishing, but currently subs it out.

How Lamello Improved My Business

"The locking function of the Clamex fastener has greatly decreased production time during glue ups because we no longer have to fumble around with cumbersome bar clamps".

Jonathan & Michael Buell
Wright Architectural Millwork,
Northampton, MA



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Bursting at the seams

Ayad and his crew are huge proponents of automated machinery. It has enjoyed a strong relationship with Stiles, supplier of the shop's Weeke Vantage nested-based CNC router.

"There's no way we can produce all of our parts manually. We'd need an enormous number of guys to keep up with it and we don't have to worry about errors," Ayad says.

Other machinery includes a Weeke ABD 050 automatic boring and doweling machine, Brandt Ambition 1100 edge-bander, Holz-Her sliding table saw and Extrema 36" wide belt sander.

In 2015, Ayad had 12 employees working two shifts. In 2014, it was just Ayad, Wilkes and one full-time woodworker. Ayad says he's still trying to figure the correct employee-to-work ratio.

"The first of this year, we were down to four guys and now we're up to seven, so there's a little fluctuation. It's tough to maintain too many people in one shop for a single shift. I wouldn't want

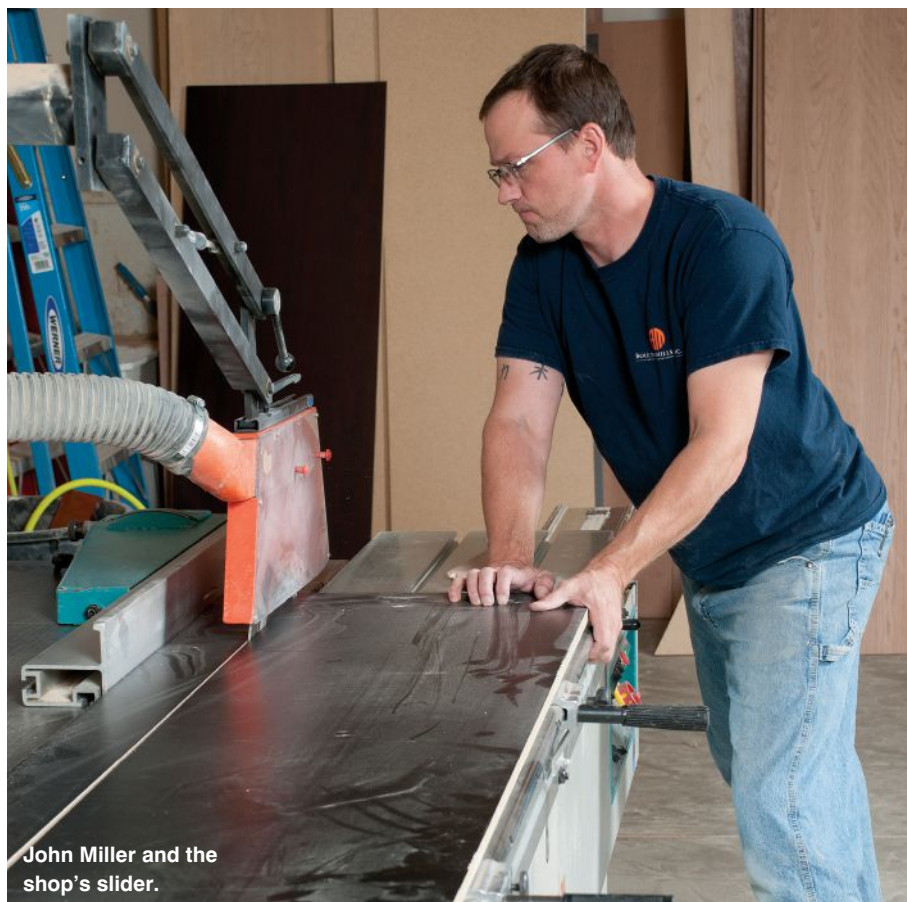
any more right now; there's not enough space. We're very heavily machined so that takes up a lot of space, but it also speeds up production so you don't need as many guys to produce."

Ayad is exploring the possibility of building a new shop to accommodate future needs, noting that owning a building would be more economical and convenient in the long run.

"A critical factor in our growth is getting the space we need. We are maxed out at 4,000 square feet. We'd fill 6,000 square feet in a blink of the eye and, if things work out, could easily double that."

Ayad recently opened a showroom in Steamboat Springs called Steamboat Mills. "We opened the retail outlet with hopes of capturing the residential market. There's opportunity up there. We have a number of personal contacts in Steamboat." **W**

Contact: Boulder Mills, 1214 Commerce Court, Suite 200, Lafayette, CO 80026. Tel: 720-221-7064. www.bouldermills.com



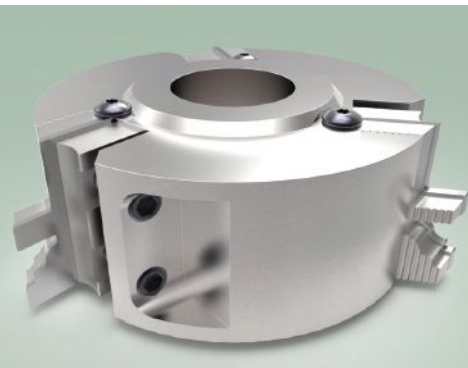
John Miller and the shop's slider.

PHOTOS: BRIAN PAYNE/REDUX PLUS

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THE VIEW FROM 30,000 FEET

The woodworking industry is undergoing a quickening transformation, both technologically and economically, and change is here to stay

By John English

It was a different year for the global woodworking industry in 2016. Both boom and gloom showed up in almost every market sector. While the economic recovery continues, it is uneven at best. Sales are good, but costs are rising. Challenges have emerged during the last few years from disparate and unpredictable sources. Woodshop owners have had to deal with issues as diverse as health care reform, volatile organic compound (VOC) emissions, advancing technology, labor shortages, foreign competition and even the recent uncertainty in national politics, which is going to affect everything from minimum wage to international trade agreements.

Overall, though, the future for the domestic industry, at least during the next few years, looks quite promising. Let's begin by taking a quick look at general economic trends in the U.S. and work down to some wood industry specifics.

One good indicator for the woodshop industry is the manufacture and sale of durable goods. These are defined as items such as appliances and furniture that continue to serve the consumer over several years, rather than being completely consumed in a short time. On Oct. 27, the U.S. Department of Commerce released its report on durable goods in the manufacturing sector and the August 2016 numbers for new orders edged down a hair (0.1 percent) while actual deliveries increased a healthy 0.8 percent. However, if one takes defense spending out of the equation, durable goods orders were up 0.7 percent.

That would seem to indicate a rather healthy outlook.

But in the tradition of boom and gloom, the government also reported that quarterly after-tax profits for U.S. manufacturing corporations are significantly down from their high in 2014 and indeed have shown a steady, though un-dramatic, decrease since then (about 13 percent). On the other hand, much of that can be traced to companies investing pre-tax profits in new machinery and equipment. And if AWFS and IWF numbers are any indication, that is certainly true for the wood industry.

At the retail level, furniture and home furnishing sales are up 3.8 percent during the last nine months and building materials are up 6.7 percent. Those compare well to overall retail sales, which are up only 2.9 percent.

Skilled labor shortage

In North America, hardwood and sheet stock performance is inexorably tied to the health of the housing and commercial construction markets. On Oct. 19, the Department of Housing and Urban Development reported that September's building permits were up 6.3 percent over August and 8.5 percent over the same month last year. The numbers for buildings with five units or more were significantly stronger than single-family homes.

And here's that boom-and-gloom aspect again: actual housing starts for privately-owned housing were down 9 percent in the same period (August to September 2016) and were 11.9 percent lower than in 2015. Housing completions were also down: 8.4 percent from August and 5.8 percent from a year ago. However, total construction spending (in all segments — residential and commercial) was only off by 0.2 percent in September from a year ago. So, units were down, but dollars weren't. That would indicate a significant increase in unit cost.

There are several codicils here. The most apparent is that some regional markets have slowed down because of shortages in both materials and available labor. There has been a distinct tightening of both skilled and unskilled labor pools as unemployment numbers have continued to shrink. The recession also refocused large segments of the economy so that workers who had been trained in construction were forced to gain new and often unrelated skills and education as a means of surviving shrinkage in this specific industry.

Technology also has a lot to do with changes in the labor pool. Attendees at IWF in Atlanta were treated to a number of exhibits where robotics have taken over traditional roles and the woodshop of the near future is going to look a whole lot different than it does today. Skilled labor is taking on a new identity, where workers are becoming more adept at running robots than saws.

The U.S. isn't alone when it comes to a skills crisis. On Oct. 31, Lloyds Bank in London reported that one-third of British contractors are facing significant challenges hiring skilled bricklayers, electricians, plumbers and joiners. The report, published in Builders' Merchants News, also went down that gloom-and-boom path as it quoted Lloyd's Pete Flockhart as saying:

"Given the challenges that house builders face, the sector is painting a relatively optimistic picture, with improved growth and investment forecasts compared with last year's survey."

So, while labor shortages are hurting, demand for new construction is still strong for now.

That lack of skilled labor means that U.S. builders will be paying more in wages, and that increase in cost must be passed along to buyers. The net effect is that a construction boom has caused a tightening of material supplies and a shortage of skilled labor, which in turn is raising home prices, which seems to be having a negative affect on new construction starts. Whether these are simple growing pains or the beginning of a long-term trend is debatable at this point.

But the need to attract, train and retain skilled woodworkers and related trades is not debatable and indeed is becoming critical. On Oct. 30, Dan Nielsen of the Record-Eagle in Traverse City, Mich., covered some commentary from Home Builders Institute president and CEO John Courson. Courson told the paper that solving the shortage of skilled building trades workers is one of the most significant keys to keeping the U.S. recovery on track. "Housing historically has always been a driver of GDP. Every recovery we've had has been fueled by housing," Courson said in the report. "Attracting young people to the building trades and training them has never been more important. The recession

a decade ago slowed construction activity and left many construction workers idle. About 1.7 million skilled workers abandoned the industry. Most have decided to stick with the new careers they found after leaving the trades."

Fortunately, those new careers may be just what the doctor ordered. When it comes to potential new employees, the woodshop of the future will be more in line with the skill sets of young people who know more about touch-screens than saw blades.

Competition for materials

A shortage of skilled workers isn't the only challenge facing woodshops. According to the Hardwood Review (hardwoodreview.com), "global lumber demand in 2016 has proven stronger than every economic indicator that suggested, including the strong dollar, global economic malaise, and the hangover buyers should've had after the fall 2015 buying spree."

High global demand for softwoods affects the availability of core fiber for sheet stock in the U.S., and strong demand for hardwood boosts door stile, face frame and other component costs. And if a local woodshop thinks global trends have little to do with its bottom line, it might be time to think again. Much of the current peak in demand is being generated in Asia. In November, Fortune (fortune.com) reported a significant bolstering in the services sector of the

Chinese economy and the editorial concluded "the world's second-largest economy is on a steadier footing. Beijing is increasingly counting on the services sector to create jobs and drive growth as it looks to shift its economic model more toward consumption from a traditional reliance on investment and exports."

That fundamental shift in direction indicates maturity in the Chinese economy that will lead to more sophisticated and extensive commercial and residential construction and thus higher demand for wood industry materials. This, combined with a willingness in that economy to increase the use of credit, leaves some economists with the impression that interest rates could soon rise.

The trend from industrial to service growth in both China and several other Asian countries is fueling a need for new commercial construction to cope with an emerging middle class and its demands. That ties in with a Hardwood Review report that shipments of North American lumber this "year-to-date were up 19 percent to Asia and 10 percent to Europe." One smaller facet to that is the fact that Asian paper mills are making serious inroads into what was traditionally a U.S. industry. Book, magazine and catalog publishers have increasingly turned to China for cost savings and the volume of paper pulp being used has had an impact on American wood markets. Some pulp producers in the Northeast have tried to switch to biomass energy as a replacement market, but that route is heavily impeded by environmental regulation.

The note about an increase in European demand also makes sense. Many European woodshops manufacture parts and completed product for Asian markets. For example, Turkey has a vibrant woodshop industry and indeed had a very strong presence in the most recent Las Vegas and Atlanta woodworking shows. If the trend continues — and there is no indication that it won't — North American woodshops will face a gradual rise in both prices and demand for materials in the foreseeable future as other countries compete for limited resources.

Domestic lumber production in the U.S. might meet some of that demand, but strictures on imports, especially from Canada, will probably offset any gains. On Oct. 24, Wood Markets Group (woodmarkets.com) ran an editorial about the expiration of the U.S.-Canada Softwood Lumber Agreement. The group's forecast seems to be that tariffs or quotas will soon be used to curtail imports and boost domestic prices. Canada currently supplies almost one-third of U.S. needs, which represents a significant amount of the raw material that is used to manufacture panels and other materials for woodshops.

Much of the lumber produced in the Eastern U.S. is destined for domestic markets. In the West, exports to China, South Korea, Japan and other Asian markets are more significant. The term "Midwestern" has traditionally referred

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to America's heartland, but now it is being applied more and more to China. As that country's midwestern cities continue to develop and grow, some of their supply chain for lumber is beginning to switch from Russia to the U.S.

There is a finite amount of commercially harvestable wood in the world and vast new Asian markets are beginning to emerge. If one relates that to a strong domestic housing market and the Federal Reserve "leaving the door open" to imminent interest rate increases, then long-term trends for higher wood prices seem preordained.

Industry trends

The world is changing and woodworking must change with it. While the great industries used to be basic, such as steel and railroads, today the largest profit centers are in high-tech fields such as pharmaceuticals and medical research. And though woodshops will always build residential casework and furniture, the nature of commercial projects is evolving in response to that. Shops are now building more clean rooms, research facilities, medical centers and laboratories. Part of the transition is an international awareness about the need to handle biohazards more intelligently to protect consumers and employees, but most of it is simply profit-driven.

Add to that the fact that the spaces we occupy are gradually moving away from organic

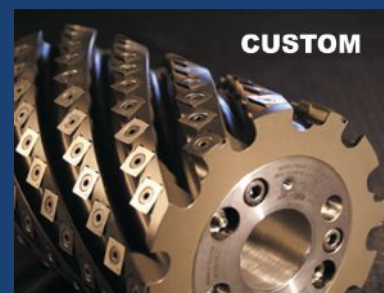
products such as veneers and solid-wood panels and replacing them with more "sanitary" solutions. Americans who travel in Europe and the Far East can't fail to notice the accelerating trend toward glass, metal and plastic in both design and architecture. Some of that is due to locally available materials or maturing tastes, but there is also a troubling medical undercurrent. As antibiotics become less effective and global travel increases, the planet's population continues to rise (we just passed 7.4 billion). Many designers are predicting the emergence of what they're calling the wipe-down world. It began with grocery stores offering antiseptic wipes for cart handles and people in some Asian countries wearing filtering masks on the streets. For woodshops, the trend means that more and more jobs will spec plastic and other non-porous, non-fibrous materials.

Robotics continues to make significant advances in the world of CNC milling and materials handling. While those physical changes are still in relative infancy, a look at automobile manufacturing facilities presents a chilling picture of the woodshop of the future: rows of robotic arms replacing those of woodworkers. It will be a little while yet before small- and medium-sized shops can take full advantage of automation as costs decline and machines become more accessible. But it won't be too long before most of the workers on the shop floor are

monitoring machines rather than running them.

Another and much more fundamental change is also working its way through the industry. Larger woodshops are becoming outsourcing suppliers and smaller shops are evolving into a more retail-oriented role, rather than a custom manufacturing one. The number of big shops that build components such as doors and drawers and wholesale them to other shops has increased dramatically during the last few years. And it's no longer just doors: RTA (ready to assemble) cabinetry now represents a significant share of the market and many small shops spend more time selling and placing parts orders than they do running their own machinery. Consequently, much of what was once custom is now available as components and small shops are specializing in installations, sales and an occasional artistic manufacturing project.

This isn't a surprise: the trend in most maturing industries is that supply gradually becomes centralized. One only has to take note of the number of large corporate mergers of late to see the pattern. The result, for woodworkers, is that small custom shops are beginning to occupy a niche, rather than remaining mainstream. Whether that will evolve the way the coffee shop fad has done or whether it devolves as outsourcing suppliers enter the big-box retail market remains to be seen. The industry will always need installers, but soon it might not need so many builders. **W**



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New clamps and hold-down devices solve problems to give woodworkers some relief

By John English

Byond the materials we choose, there are three key factors that affect the quality of work. These are the amount and color of light; the sharpness of tools and cutters; and the security and strength of clamps and hold-downs.

This latter has always been a bit of a challenge. Too much force can mar the surface, while too little can allow the part to move as it is worked. And a clamp that gives a little under pressure can be a nightmare. That was one of the biggest drawbacks to the old pipe clamps: tighten too much and the jaws were no longer parallel because the pipe would bend a little.

Solving that problem gave rise to a new breed of I-beam clamps and the latest version of these is from Bessey Tools (besseytools.com). Ideal for casework, the beam clamps come in lengths from 24" to 96" and they're incredibly strong. Designed for long life, the castings are powder-coated and the rails are nickel-coated. Each clamp has four hardened steel clutch plates and a decently sized crank handle

that delivers up to 7,000 lbs. of pressure, according to the company.

Another recent Bessey Tools innovation is the TW16AW19 system. This is an adaptor for woodworkers to use metal-working solutions from the company's TW and TWV clamping lines on a cabinetmaker's bench. It pops into any 3/4" hole in a benchtop or jig and then accepts the 16mm base for



Irwin Tools
has added
corner clamps.

Jay Bates and his clamp rack.



all the metalworking fixtures.

Rockler Woodworking & Hardware (rockler.com) has also recently addressed the problem of bowing. That company's solution is a heavy-duty F-style bar clamp that comes with a lifetime guarantee. Developed in partnership with the Spanish clamp manufacturer Piher, this new Piston Clamp has an enclosed, double-threaded, piston-style mechanism that delivers very fast tightening. The enclosed design also prevents glue from clogging the threads. But perhaps the nicest feature is that the head advances without rotating and that eliminates any twisting torque that might cause misalignment of parts or marring. The clamp has a 4-3/4" throat depth and comes in 16", 24" and 32" maximum openings. The bar is cold-rolled steel and features a toothed brake. There's a flip-up ratcheting handle that delivers a whole lot more leverage than a traditional in-line version, so these bar clamps can deliver more than 2,000 lbs. of pressure. Clamp pads are sold separately.

Storing clamps can also be a challenge. They take up a lot of wall space and larger carts can get so heavy they're difficult to move about the shop. Jay Bates (jayscustomcreations.com) has come up with a simple, intelligent, space-saving way to store clamps at each workstation. His solution was to attach triangular shaped pairs of supports to a backboard. This lets him sort the various clamps and then store like ones together. It also provides great access and takes up much less floor and wall space. The system is also customizable and quite inexpensive.

Unique solutions

An interesting take on traditional bar clamps is the Sash Clamp Head, which is available through several British suppliers including Faithfull Tools (faithfulltools.com). This is a cast head and tail and the shop makes the bar from wood. While the travel is limited, the clamp is actually unlimited in total length as one just drills holes about an inch in from the edge of a 1" board of any width and/or length. The holes let the woodworker place the tail anywhere it is needed, so this would be an ideal solution for job-site clamping on sawhorses to accommodate larger doors, panels and so on.

Another innovative solution is the relatively new Quick-Release Wonder Dog from Lee Valley & Veritas (leevalley.com; item 05G10.30). It has a fast-acting cam mechanism to speed adjustments. To use it, pop the post into a dog hole in the bench, slide the head against the workpiece and then throw the cam lever to apply clamping force. Curved and irregular shapes can be clamped and two screw holes in the brass head

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The Sash Clamp Head, available from Faithfull Tools; Castle Inc. has redesigned the quick clamps on its three AT Race face-frame assembly tables (right).



let you attach a custom face of any shape. This delivers perfect holding without marring and it could probably be used on CNC tables. The low-profile head and clamp body are 5/8" and 11/16" thick respectively, so one can plane or mill stock as thin as 3/4" without worrying about hitting the clamp. The 3/4" diameter, 2-3/4" long post can be used anywhere a woodworker can drill a suitably sized hole and it's actually canted to keep the clamp head against the bench when pressure is applied. The dog has just over 6" of travel and the rod, post and cam lever are all made of steel.

Speaking of CNCs, are you having trouble holding small or thin parts on the CNC bed? If so, take a look at the Pressure Foot accessory

from ShopBot Tools (item 13104; store.shopbot-tools.com). The device allows an operator to clamp and mill small workpieces without using tabs or double-sided tape. It simply attaches to the Z-axis and exerts downward force right around the cutter. The ShopBot version works with the company's PRSAlpha, PRSstandard, PRTAlpha and PRTstandard tools. Other manufacturers such as Suzhou Rico (www.ricocnc.com) offer universal versions to accommodate different spindle diameters.

Woodshops with a lot of dovetailed drawers to glue and clamp might want to take a look at the latest system from Omec. It consists of one machine that applies glue and a second that automatically clamps the draw-

er together. The Omec ICA-600 — the glue machine — recently arrived at the Charlotte, N.C. showroom of Macoser Woodworking Machinery (macoserwood.com). This is an automatic hopper-fed system that applies glue to female or male dovetail boards two at a time. The machine then waits for the operator to remove the pieces before applying glue to the next two boards and that's done while the worker places the previous parts in a pneumatic clamp that delivers a perfectly square, clamped and glued drawer box. The drawer box clamp, the Omec SCM 1200, is unique in that the operator assembles the loose parts in the clamp itself, rather than on a separate bench or workstation. Pneumatic cylinders



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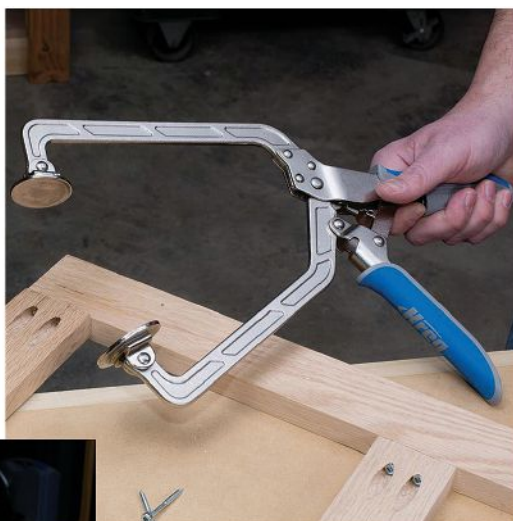
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Kreg Tool's Automaxx clamps.



The Quick-Release Wonder Dog.

lock in the drawer sides and springs guide the fronts and backs in place. A pneumatic vacuum holds the drawer bottom while the hydraulic cylinder compresses the box. The total elapsed time from loose parts to completed box is less than one minute. Clamping drawers has come a long way from wet rags and diagonal measurements.

For shops that are constantly shifting between two or three stock thicknesses, Kreg Tool (kregtool.com) has an inspired line of clamps that automatically adjust to those changes. The system is called Automaxx and it is available in a whole array of clamps that

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The Omec ICA-600 glue applicator (right) and drawer box clamp.



run the range from basic pocket hole joinery to almost any kind of work holding. There are one-handed face and bench clamps, and now the company has introduced a selection of six bar clamps 550 to 700 lbs. of force. The gross adjustment is automatic and, if further fine adjustment is needed, there's a simple thumb-screw that can dial in less or more pressure. Once you dial in the exact amount of pressure you need, these clamps will close with the same force every time.

Irwin Tools (irwin.com) is launching an updated line of one-handed bar clamps and a new line of clamping accessories. The clamps feature

a quick-change push button for easy conversion into a spreader or for quick installation of the new accessories, and the swivel jaws are now removable. The heavy-duty clamps are available in six sizes (6", 12", 18", 24", 36", 50") and the medium-duty clamps are available in five sizes (6", 12", 18", 24", 36"). There are also mini- and micro-clamp sizes.

Two more

And now for something completely different: the Paulk Workbench from FastCap (fast-cap.com). This is basically a torsion box with holes in it — a very lightweight, very strong,

beautifully engineered job-site bench that accommodates almost any power tool. It has built-in tool storage, a 20mm bench-dog hole system, and is made from multi-lam birch plywood. It comes with a couple of collapsible sawhorses, so the whole shebang can be toted on site by a single installer or finish carpenter. It works as an outfeed table, an assembly table, a milling and cutting center.

Castle Inc. (castleusa.com) has recently redesigned the quick clamps on its line of three differently sized AT Race assembly tables for face frames. Each table's clamping arm glides on an open beam that allows face frames to extend beyond the top of the table and this gives you more work area to handle oversize frames without taking up extra shop space. The new quick-clamps have dual handles with centered activation and this allows for easy clamping from either direction. The AT Race line includes 5-, 8- and 12-foot wide tables that are built with ergonomics in mind. For example, the location of the bottom rail (32" off the floor) and the angle of the worktop are both designed to reduce operator fatigue.

The security and strength of clamps and holding devices is not only important to the quality of the work. Quality clamps are also an essential part of the effort to keep our employees — and ourselves — safe while we work. [W](#)



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with ABRAHAM TESSER

An off-the-wall idea for making more space

Hanging tables can make the home feel larger, while also providing a mosaic of designs

The need for table space varies in most home environments. More tabletop space is needed on social occasions such as dinner parties or meetings; less when fewer occupants of the space are about. Even the need for workspace can be variable. With limited space, folding tables can provide desirable flexibility.

The four tables described in this article are constructed so that they can be hung in various spatial configurations. And because each table is different but all have patterns that appear to flow across neighboring tables, the number of potential patterns that the consumer can realize is surprisingly high.

Table construction is straightforward. Each table has a veneered top, in this case walnut and tamo ash. The walnut aprons are wide in the corners, but thinner in the middle. The extra width in the corners provides joint strength and sturdy anchorage for the leg brackets; the thinner middle provides convenient handholds to hang and retrieve the tables from the wall. The aprons are mitered on the ends and joined into a frame. The frame is rabbeted at the top edge to receive the tabletop. The four tapered legs for each table are walnut with 6" ash "feet." The legs are joined to the inside of the aprons using off-the-shelf folding leg brackets.

The tables are a standard height of 28-1/2" when open. The legs fold under the top around the inside perimeter so each side of the table must be long enough to accommodate the full length of the leg plus bracket. The tabletops — 31-1/2" x 31-1/2" — are about as small as they can be and still accom-

The hanging system

A system of French cleats was devised to make the tables secure on the wall, but simple to take down and put back. First, a bracket plate, approximately 10-1/2" x 10-1/2", made from plywood with a strip of 1-1/2" thick pine glued across the front at the top and another at the bottom, was fabricated for each table. These rough bracket plates, screwed to the wall in four corners, are completely hidden by cabinet-like structures. It is these finished structures that are revealed whenever a table is removed from the wall.

The cabinet-like structures (12-1/2" x 12-1/2" x 3-5/8") feature four walnut sides and a veneered front panel of walnut and tamo ash. The pattern on the front panel is of the same motif as the tabletops. A strip of walnut molding cut longitudinally at 45 degrees was glued to the top at the front of each cabinet-like structure to serve as the cleat to receive the table. The cabinets have no back so they can slip over the bracket plates and be secured with screws through the top and bottom.

To complete the system, four cleats configured in a square pattern were mounted on the underside of each table. These cleats were designed to slip easily over the 45-degree molding at the top front of the cabinets. In sum, this French cleat system consists of cleats on the underside of the table and at the top front of each cabinet. When the table is hung on the wall, one of the under-table cleats slips over the cleat on the wall hung cabinet. To take the table down, it is simply slipped past the cabinet cleat and removed from the wall.

Flexible esthetics

These hanging tables are beautiful and practical. They create an arresting focal point on the wall. The light colored tamo ash veneer appears to flow smoothly across table boundaries, creating a beautiful and organic overall graphic design. The linear grain pattern of the darker walnut background provides a warm, patterned mosaic background across tables. And each can be removed from the wall (leaving an attractive place holder) and the hidden legs unfolded. Tables can be set up in various configurations allowing for a variety of seating configurations when needed and no loss of valuable floor space when not needed.

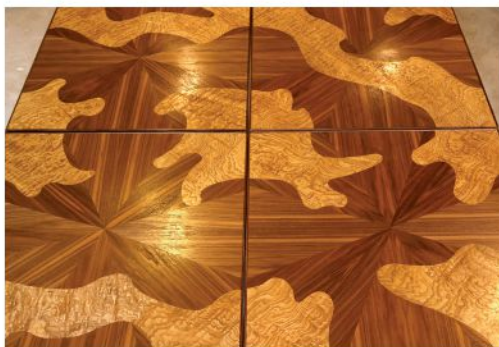
The large number of design possibilities comes from several elements.

Uniqueness: No two tables are alike with respect to tabletop graphics (although they are identical in all other aspects). So putting Table A next to Table B yields a different organic graphic design from putting table A next to Table C.

Asymmetry: There is no symmetry in any of the individual tabletop graphics. So any rota-



The author with his folding table design that hangs on a wall.



The tables can be switched around to present different design patterns.

tion of table A next to Table B produces a new organic graphic design.

The emphasis on uniqueness and asymmetry is, in a sense, misleading. Getting the figure and background to appear to flow across tables actually requires both symmetry and similarity. First, the boundaries of the figure(s) at the edge of Table A must match the boundaries at the contiguous edge of Table B. This was met by constraining the graphic design of each tabletop to have figural elements in every corner. The boundaries of these elements where they cross table edges are exactly the same

distance from each corner of the table on all corners on all tables. With this set of constraints, the figural elements match up across contiguous pieces.

Matching boundaries is not enough. There must also be continuity in the background and foreground materials across tables, i.e., no jarring change in grain direction or discontinuity of figure in the wood where the tables meet. To deal with this, the background veneer was configured in a sunburst pattern; the grain appears to fan out from a point in the center of each table. Since the walnut grain pattern on each tableside is identical within and across

tables, there is a background match regardless of specific table or rotation.

Grain direction can be less important with the tamo ash. Its color is a striking contrast to the walnut background so the eye tends to put contiguous tamo elements together. Second, although the shapes on each tabletop are unique, they are all abstract, organic, curvilinear shapes that are plausible continuations of one another. Finally, the complex and irregular changes in grain direction and figure in this wood make it more difficult for the eye to distinguish changes in grain/wood pattern across tables.

A summing up

These pieces are versatile. They are at once décor and functional tables. And by storing conveniently on a wall when not in use, they optimize the use of space. But even when space is not a pressing issue, one can appreciate the earthy colors, grainy textures and varieties of figure reflected in these hanging tables. And they are designed to provide for a virtual kaleidoscope of interesting, organic, overall graphic designs on or off the wall. **W**

Abraham Tesser is a furniture maker in Athens, Ga.

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▲ **GIBEN AMERICA'S GS** CNC router, winner of a Challengers Award at IWF 2016, features the Tornado 3535 compression spiral bit from Vortex Tools. The Tornado tool has a four-flute configuration with two roughing edges and two finishing edges. "With two roughing and two finishing flutes, the Tornado solid carbide rougher/finisher achieves in one pass what previously took two separate tools and two passes to accomplish," the company said in a statement. For information, visit www.vortextool.com.

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FINISHING

with GREG WILLIAMS

Specialty finishes can add to your array of skills

I was introduced to glazes after having some experience with dye and pigment stains, sealer and topcoats, filler and shading lacquers. And I was flabbergasted. I asked, “Why didn’t you show me this sooner?” It was remarkably easy to understand and execute and did so many wonderful things to a finish, multiplying the looks I could achieve by hundreds of variations.

We’ll call some of these finishes “specialty finishes” or “special effects” because their execution goes significantly beyond the simple variations of combinations of color, sheen, pattern, texture and depth that we can achieve with more familiar finishing materials.

The reasons for wanting a specialty finish are many, ranging from a unique look to emulating a historic piece for its gracefully aged, well-maintained and complex patina and presence.

Several names

There’s a long list of common names and descriptions for these finishes. Among them are mottle, distressed, spider web, veiled, scorched, opaque, translucent, whitewashed, pickled, blistered, weathered, crackled and striated.

In 1989, I moved to Dallas to take over the Southwest sales territory for a finish manufacturer. I found a thriving art community, where I became involved with an association of picture framers and dealers in framing materials. Most were interested in touch-up and repair products, but some craved techniques and products to create custom finishes.

One of the techniques was called veiling or cobweb. At the time, Mohawk made a “cobweb lacquer,” but only in large batches for manufacturers. Veiling lacquer, as it was also called, could be sprayed with a pressure gun at very low fluid pressure and varying atomizing air pressures to get different effects. The lacquer — a very sticky, viscous liquid — did not break up easily into discrete droplets, but was stringy, like melted mozzarella cheese.

By varying the viscosity of the lacquer, the fluid and air pressure, and the motion of the spray gun, the operator could achieve a sparse and random “drizzle” effect or a “cotton can-

dy-like cloud” of rapidly drying threads. For instance, spraying at higher pressure especially with the addition of a fast-evaporating solvent such as acetone created the effect of dusty cobwebs in a corner of a room.

Some finishers had experimented with colored lacquers or clear lacquer tinted with dyes and pigments, drizzling them off a paint stir stick that produced satisfactory results on a horizontal surfaces. Often they let much of the solvent evaporate from the paint before applying it, thickening it somewhat to improve the “stringiness” of the paint.

Styrofoam trick

The most successful practitioner of this art shared some of his secrets with me. First, he dissolved Styrofoam (from old drink coolers or packaging material) in clear lacquer until it would “string” off a stir stick to form patterns over a base color, often metallic. He started with about two ounces of Styrofoam dissolved in a pint of standard nitrocellulose lacquer. He varied that somewhat depending on how it was to be applied and according to the desired look.

He used lacquer thinner, retarder or acetone to reduce it and modify the flow, atomiza-

tion and drying. Retarder kept the fluid wet and mobile longer; acetone hastened the setting and drying. He used universal pigments and lacquer compatible dyes to add color and sometimes mica or metallic powders for sparkle and pearl effects.

Once that had dried well, he coated with clear lacquer, glaze or several coats of different color glaze, each applied and patterned in a different way.

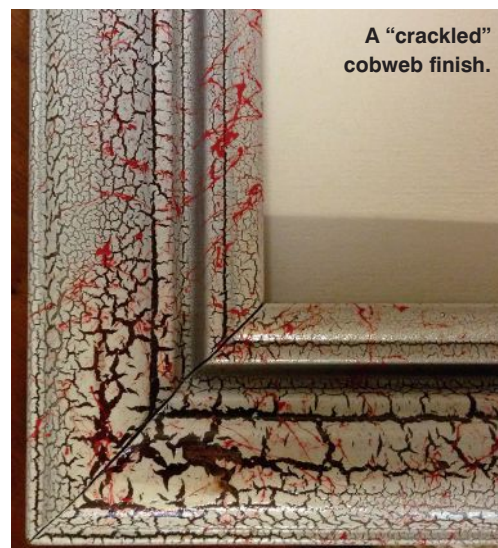
He also used the same material, often thinned with acetone, to apply a spatter or fly speck pattern.

We found that we could vary the viscosity, air and fluid pressure, and use different cap and needle sets to achieve many different effects. For instance, a very thick mix was used as a texturing material, either as a translucent mix of Styrofoam and lacquer or with the addition of a bodying agent such as talc, fine saw dust, micro balloons or other inert particulate.

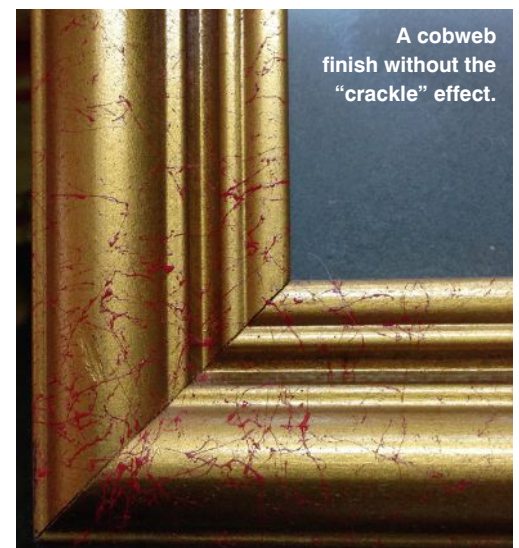
Several manufacturers make products for veiling, but they might be hard to find. I only know of one manufacturer of a veiling gun. Veiling is popular for hot-rod restorations, picture and mirror frames, electric guitars and motorcycles, and in finishing many other decorative objects.

Other methods and materials have been used to do veiling or cobweb accents, from hot glue to contact cement, dripped, sprayed, flicked, pounced, dabbed or otherwise applied. Styrofoam can also be dissolved in D-limonene, a citrus-based solvent found in some paint strippers and cleaning products, and which is considered safer than the normal lacquer solvents.

These techniques and materials are more tools in your box. With imagination and practice, you can learn to quickly add interest and value to a tremendous range of pieces, both practical and artistic. **W**



A “crackled” cobweb finish.



A cobweb finish without the “crackle” effect.

CALENDAR

ARIZONA

Jan. 9-26, 2017 — Fundamentals of Traditional Woodworking 1, a hands-on course that covers fundamental skills. This is the first of a three-class series. Location: Southwest School of Woodworking in Phoenix. 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.

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

Jan. 10-12, 2017 — Kitchen & Bath Industry Show, an exhibition of new products, industry trends and manufacturing technologies. Location: Orange County Convention Center in Orlando. For more, visit www.kbis.com

GEORGIA

March 10-12, 2017 — Southern States Woodturning Symposium. Scheduled demonstrators include Stuart Moritmer, Dixie Biggs, Dennis Pallus and Windsor chair maker Greg Pennington. Other events include a gallery, trade show and auction. Location: Clarence Brown Conference Center in Cartersville. www.southernstatesymposium.com

INDIANA

Feb. 3-5 — The Woodworking Show at the Indiana State Fairgrounds in Indianapolis. www.thewoodworkingshows.com

KANSAS

Jan. 9-13, 2017 — Woodworking Technology Industry Institute Boot Camp. A project-based program that covers several of the industry's fundamental wood processing applications and machinery used in those manufacturing processes. Topics include AutoCAD, CAM Software, CNC, Wood Science, Finishing, Millwork and more. Fee: WMIA members receive a \$450 discount; the \$1,950 tuition includes hotel, meals, course, and project materials. Location: Pittsburg State University in Pittsburg. For more, visit www.wtii.net.

MARYLAND

Monthly — The Howard County Woodworkers Guild meets the first Saturdays of the month at the Bain Senior Center at 5470 Ruth Keeton Way, Columbia, Md. from 9 a.m. to 12 p.m. Open to all those working in wood. For information, email Manny Flecker at aaron0641@hotmail.com

Jan. 6-8, 2017 — The Woodworking Show at the Maryland State Fairgrounds in Ti-

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Jan. 13-15, 2017 — The Woodworking Show at the Eastern States Exposition in West Springfield. For more, visit www.thewoodworkingshows.com.

March 24-26, 2017 — Paradise City Marlborough. Celebrating its 20th year, the juried arts festival features fine furniture and other handmade items by over 175 exhibitors. Location: Royal Plaza Trade Center in Marlborough. www.paradisecityarts.com

MISSOURI

Jan. 20-22, 2017 — The Woodworking Show at Kemper Arena Grounds in Kansas City. For more, visit www.thewoodworkingshows.com.

Feb. 10-12, 2017 — The Woodworking Show at the Gateway Center in St. Louis. For

more, visit www.thewoodworkingshows.com.

NEW JERSEY

Feb. 17-19, 2017 — The Woodworking Show at the Garden State Exhibit Center in Somerset. For more details, visit www.thewoodworkingshows.com.

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 Cold Springs Fire Department in Baldwinsville. www.sawdust-woodchips.org

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

OHIO

Jan. 27-29, 2017 — The Woodworking Show at Columbus. Provides woodworkers with an outlet of tools and machinery for sale, hands-on demos and skill training seminars. Location: Ohio Expo Center in Columbus. For more, visit www.thewoodworkingshows.com.

PENNSYLVANIA

March 31-April 2, 2017 — Philadelphia Invitational Furniture Show. Annual curated show featuring handmade artisan furniture and furnishings. Now accepting exhibitor applications. Location: 23rd St. Armory, Philadelphia. www.philadelphiafurnitureshow.com

RHODE ISLAND

Nov. 4-6 — Fine Furnishings Show featuring furniture and other handcrafted items for the home. Location: Pawtucket Armory Arts Center. 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 wood-turning groups. www.sdwoodworker.org

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Best of the best

The Architectural Woodwork Institute presented its 2016 Standards of Excellence Awards in October at its 64th annual meeting and convention in Kansas City, Mo.

The awards recognize “the best of the best” in fine architectural woodwork from features appearing in AWI’s quarterly Design Solutions magazine.

“Each year, AWI conducts a two-year retrospective review of approximately 32 fine architectural woodwork projects and a panel of judges votes to determine the best projects in specific project categories such as retail, hospitality, public facility, corporate office and education facility. As part of the annual judging, one special project inevitably rises to the top of the finalists and is distinguished as the overall standard of excellence winner each year,” AWI executive vice president Philip Duvic says.

The top prize went to Stephenson Millwork Co. of Wilson, N.C., for the Talley Student Union Center project at North Carolina State University in Raleigh, N.C. It features a multi-story wooden trellis of the school’s wolf mascot.

“It is a signature feature not only of the building, but also of the university. Extensive study between the architectural millwork company and the architect was required to develop and deploy this unique work of art. Product selection, finish, geometry and fastening/anchoring details could not have been accomplished without Stephenson Millwork’s leadership and collaboration,” university spokesman Charlie Marshall said in a statement.

Other category winners included:

Corporate: Montbleau & Associates of San Diego. Project: Law offices of Procopio, Cory, Hargreaves & Savitch in San Diego.

Hospitality: Allegheny Millwork in Lawrence, Pa. Project: Horseshoe Casino Caesars Entertainment in Baltimore.

Residential: Tech 2000 Woodworks of Jeannette, Pa. Project: City View Apartments in Pittsburgh.

Education: Accurate Custom Cabinets of Addison, Ill. Project: College of DuPage Student Resource Center in Glen Ellyn, Ill.

Public Facility: Keystone Millwork of Bryan, Texas. Project: Austin Independent School District Performing Arts Center in Austin, Texas.

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

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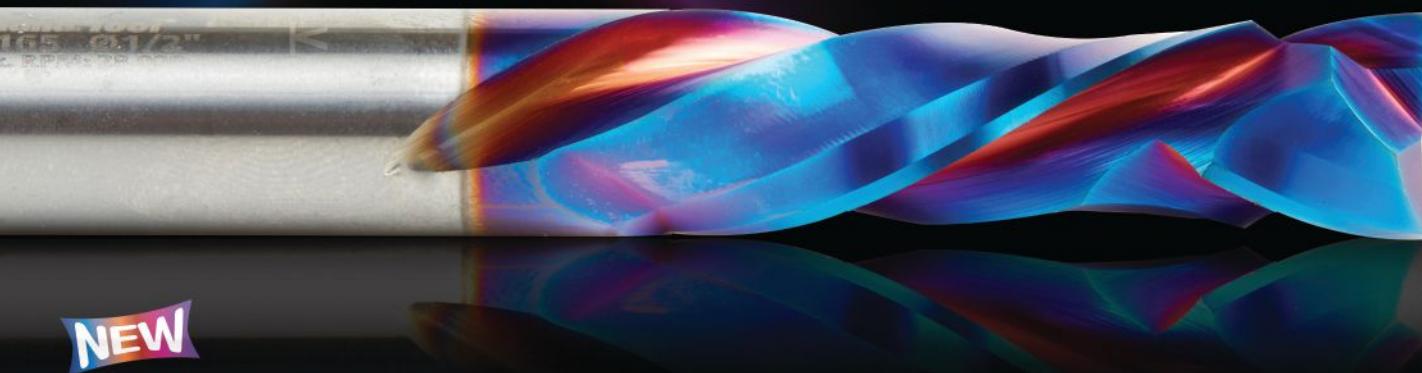
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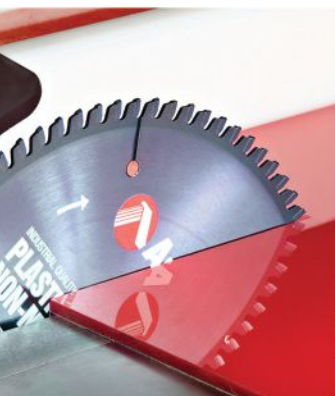
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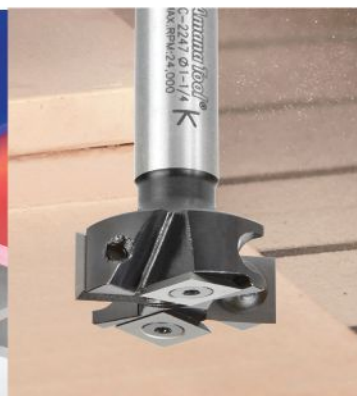
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