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Bessey adds to clamping force of K Body Revo

By Jennifer Hicks

Bessey Tools has made small but significant changes to its K Body Revo parallel clamp, which will be available in January 2018. Boasting a new internal design, it now offers up to 1,700 lbs. of nominal clamping force compared to the previous 1,500-lb. limit, according to the company.

Product manager Andrew Fera says the new clamps feature the same key components as the steel stock bar originals but have slight improvements that make a huge difference in production and small shop settings.

"Bessey invented the parallel clamp idea and launched the product in 1980. There have been several generations over the years with lots of incremental changes along the way within these generational versions. This newest version is no different with regards to it being an evolution. Small changes, but it makes a big difference and many small changes make a great clamp even better," says Fera.

The latest version has been visually refreshed for a more modern look. One of the key functional improvements is a slip free sliding jaw, eliminating the clamp from releasing unexpectedly once it is set into position.

Another update is smoother clamping force due to an internal component that reduces friction for smooth application of force. With less internal friction, the high-tech sliding arm can deliver more clamping force, the company explains.

The new ergonomic handle is easy to grip and turn, and features a new 6mm steel hex socket in the head of the handle.

"This feature makes it easy to apply force, particularly for individuals with strength issues. It also removes the need for an integrated pivot handle that can have its own inherent weaknesses," says Fera.

The new clamps are offered in the same nine original size options from 12" to 98" and have a throat depth of 3-1/4". They range in price from $35 to $90.

For more, visit *www.besseytools.com*.

Martin adds Barth Corvus vacuum press line

By Jennifer Hicks

Martin Woodworking Machines is the exclusive North American distributor of the Corvus vacuum press VPL Series, a new machinery group from the Germany-based Barth brand.

"A rubber membrane press such as the Barth Corvus is the modern solution to traditional American vacuum bags," says Martin president Carl Stout.

"Dragging large, heavy workpieces in and out of a vacuum bag carries with it material alignment problems and many other issues that affect a customer's bottom line. [With Corvus] pressing times with a specialized white glue can be brought down to under ten minutes, relieving expensive bottlenecks in the production process."

Stout adds that the Corvus machines are ideal for small- to medium-sized shops.

The Corvus vacuum presses are available in three sizes with rubber or silicone membranes.

"Veneer seems to be the biggest attraction for these presses. We have a customer down in Gainesville (Fla.) that bought one for conference tables and has branched out to make many more products," he says.

The Corvus vacuum presses are available in three sizes with rubber or silicone membranes. They feature a control panel that's slightly tilted towards the operator, making it easier to read the pressure switch display. Casters are standard.

Extraction time is reduced with a 100-liter tank that serves as a buffer so the vacuum pump does not have to be operated continuously. This reduces the noise level and saves energy. A connection port for additional applications, such as an external vacuum bag, is also available as a standard option, according to the manufacturer.

Accessories include a speed-up option for shorter pressing times and a cover plate that protects the membrane from sunlight and serves as a work surface when the machine is not in use.

The Barth Corvus vacuum presses start at $19,000.

For more, visit *www.martin-usa.com*.

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Apollo boosts spray performance with dual-motor Precision-6

By Jennifer Hicks

Apollo Sprayers International, a manufacturer of HVLP spray equipment, offers increased spray coating transfer efficiency with the new Twin-Turbo Precision-6 production system.

Introduced earlier this year and formally launched at the AWFS in July, the Precision-6 atomizes high-viscosity, high-solid paints and coatings with soft, warm air derived from its built-in turbo technology. This means fewer coats will need to be sprayed, which will save money, reduce pollution and maintain production speeds, according to Apollo.

Company president John Darroch explains that in the spray finishing industry, coatings products tend to be more advanced than the spray equipment. The solution is improving motor technology.

"HVLP has been evolving for about 50 years, so we've always been playing catch up with the coatings manufacturers. We're especially trying to keep up with the coatings made for industrial settings where air-assisted equipment has taken over in the last few years," says Darroch.

"Our company was able to close that gap with this system so there's not much we can't spray. Typically, all turbine systems are limited to a one motor design. The Precision-6 uses a dual-motor design so we're able to boost the pressure considerably above a single motor unit."

The system features a relatively high atomizing pressure and 80 percent or better transfer efficiency, according to Darroch. "This equates to an estimated 38 percent savings on coatings compared to compressed air systems," he says.

The unit's Pressure Control System controls motor speed, voltage and amperage while adjusting automatically for altitude and barometric pressure. Other features include a throttle back control, LCD message center, pressure and temperature displays, and hour use meter.

The Precision-6 is sold in several variations, including cup gun styles and pressure pot configurations, at a base price of $3,495.

For more, visit *www.hvlp.com*.

Classic designs influence new WoodRiver chisels

By Jennifer Hicks

Woodcraft has added bevel edge socket chisels to its line of WoodRiver tools, designed with balance in mind to increase comfort and effectiveness, and inspired by details featured in classic chisels by Stanley, Keen Kutter, Buck Bros., Swan and T.H. Witherby, the retailer says.

Darin Lawrence, Woodcraft's director of product development, explains that bevel edge socket chisels are necessary for dovetails, for example, because the geometry of the grind sweeps back and out of the way when cutting in tight spaces. The resulting flat area, or 'land', is a consistent 0.7mm on these new chisels, which is narrow enough for tight access but wide enough to prevent an "uncomfortable" sharp edge.

"The design of our socket chisel takes inspiration from early chisels of the 20th century. Most chisels have a land that is considerably wider towards the tip and widens towards the handle of the chisel. The top profile of our socket chisels is ground back towards the center leaving a consistent land on the side of the chisel. This allows the chisel to fit into narrow corners with angle sides such as when cleaning out dovetails," says Lawrence.

Each chisel incorporates a lightly finished bubinga handle fitted to the socket. Inspired by the traditional Stanley 720 and 750 series chisels, the handle's tapered cone is wedge fit into the corresponding cone at the base of the chisel, allowing it to be removed easily.

The eight chisels feature 4" long 100 CR-V steel blades ranging in width from 1/8" to 1-1/4". They sell for $35 to $45 each. A four-piece set of 1/4", 1/2", 3/4" and 1" chisels sells for $150.

For more, visit *www.woodcraft.com*. W

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Laser Products offers award-winning digital measurement system

By Jennifer Hicks

Laser Products Industries presents a new digital measuring system, model LT-2D3D-C, for fast and accurate jobsite use. The product captured a Visionary Award for creativity and innovation at the 2017 AWFS fair in Las Vegas.

LPI has been in business since 1994, providing digital measuring products for the stone and countertop industries. It started developing laser products and specific software tailored to cabinetmakers earlier this year.

The system is compatible with most standard 3D design and layout software such as Microvellum, Cabinet Vision and others, and generates 3D renderings within minutes after the data is imported, according to company president Rich Katzmann.

With the LT-2D3D-C digital measuring system from Laser Product Industries, woodworkers can take jobsite measurements and produce a 3D project rendering for the client in minutes.

"When we started developing this system, we knew we could add value to [woodworking] companies and justify the cost of investing in going digital as far as templating goes," says Katzmann.

"We strongly believe using our product can help the custom woodworking guy win more jobs. They can whip out our system at a consultation, spend about five minutes capturing all of the relevant data needed to import into a 3D rendering program, and show the customer the project right there."

The system can take measurements in high and hard to reach locations, eliminating the need for ladders and acrobatics, according to Katzmann.

The system sells for $15,950, which includes a Microsoft Surface Pro 4 tablet and user training.

"We believe going from manual to digital is incredibly complicated and important, and a business changing decision for our customers. So we have a national force of salesman and in-house trainer, and with every system we sell we offer to go to your shop and train your workers until everyone understands it," adds Katzmann.

For more, visit *www.laserproductsus.com.* W

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Hand-held sanders get better with age

Recent innovations provide plenty of options

By John English

It's hard to believe, but hand sanders have been around for more than 90 years. The first one, which looked remarkably like a modern belt sander, was invented in 1926 by Art Emmons at the Porter-Cable factory in Syracuse, N.Y. Before his 'Take About Sander', according to the company, "workers had to take the work to the tool, which proved to be laborious and time-consuming." Despite hard times over the next decade as the country suffered through the Great Depression, "sales continued to grow as this portable unit helped carpenters, craftsmen and boat builders shorten month-long projects into just days."

Mr. Emmons probably wouldn't find it hard to believe that his invention is still going strong, but he might be a bit surprised at some of the turns it has taken.

Tool types

Among the latest evolutions in sanders is a tendency among manufacturers to make it easier to load sheets on partial sheet orbital finishing sanders (those are the ones with rectangular bases that take less than a full sheet of paper). Many of the latest models feature large, tool-free clamping, so it isn't as big an effort to change paper as it used to be. Several models also come with through-the-pad dust collection, so they include a plastic punch plate that pops holes in the paper to facilitate collection. Orbital finish sanders are also getting less tall and that keeps a woodworker's hand closer to the work, which offers more control and a better feel. Woodworkers sorting through the various options here should also look for a model with a reduced body size that is smaller than the pad, so the tool can sand right up against edges on projects such as flat panel five-piece doors. Also ask if various handles can be removed temporarily, to facilitate better access.

Orbital finish sander manufacturers are also including extra counterweights nowadays, and various other devices that reduce vibration through the handle. Less vibration, of course, lets us work longer without fatigue, especially overhead or on vertical planes. And the handles themselves are getting a lot more ergonomical, and softer, too. But it's still a good idea to pick up several at the store and see what fits your hand. Some models also feature speed control, and this can be a real boon – especially on delicate surfaces when you're using extra fine paper.

Speed control is also available on some random orbit sanders (those are the ones with round discs, which many of us just call palm sanders), and the no-load speed range can be anywhere from 4,000 to 12,000 or more orbits per minute (OPM). The actual orbit size varies, too. There's quite a bit of difference in the swirl size from a 1/4" to a 1/8" orbit (smaller is finer).

Both types of sanders are generally available in either pressure sensitive (PSA, or stick-on) paper, or hook and loop versions, and some models come with both options. You can change the paper on the hook and loop ones faster, which is handy when you're re-using grits. But be aware that on some less expensive models the H&L paper can move a hair, and that can effect control and also swirl marks. On highly critical jobs, PSA might be a better choice on cheaper tools.

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Circular pads on random orbit sanders can't reach in and clean up inside corners, so they're not a complete solution to your sanding needs – but they come very close. Smaller discs can obviously handle more detail, while larger ones work well on wide surfaces. A 5" diameter model seems like a good compromise if you're only looking at buying one type of random orbit sander so they all use the same size paper. You can then back it up with an oscillating/orbital tool. There are a number of manufacturers that offer sanders with pads that resemble the shape of the base of a clothes iron. These tools can reach into small places, and they can also sand a wider flat surface in a pinch, so they're a great choice for the jobsite. Most are fairly narrow, so they're also quite well suited to sanding face frames.

There are also some linear (in-line, also called stroke) handheld pad sanders on the market and these are ideal for working along the grain. But they can be a nightmare if the new guy doesn't know that and sands across the grain.

Belt sanders also work best along the grain, and they are a great choice for removing a lot of stock very quickly. Some of the newer models offer windows, cut-outs or transparent covers so you can see whether the belt is tracking well. The better models offer one edge that can sand right up against a wall, with the dust collector on the other edge and well out of the way. Larger belts are not just wider, they're usually longer, too. That means they sit better on a flat surface: there is more platen/support to stop any slight tipping. However, the trade-off is weight. Hauling a larger machine up flights of stairs on a jobsite, or holding onto it for long periods of time, can be wearying. You might also consider a variable or two-speed model, as that can also help enhance the operator's control.

Several manufacturers offer long, thin belt sanders (3/8" or 1-18" wide), and some have a pivoting arm that can reach into all kinds of very tight spots. They're generally variable speed and very lightweight, and the pulley at the tip acts as a platen so the end of the belt can be used to sand inside curves and irregular profiles.

Accessories

When you buy a hand-held random orbit or orbital finish sander, look into purchasing at least one foam or felt platen (backing) pad, too. Unfortunately, manufacturers sometimes discontinue models and it can become impossible to find a replacement for a worn pad. The after-market ones are sometimes of lesser quality, fit poorly, and are either less or more dense. If they're softer, the edges of the pad will compress and wear quickly while the center stays 'fat'. If they're harder, they can cause a little burning and also wear through the edges of the paper. Having a couple of inexpensive spare pads on hand can add years to the life of the tool.

It's a simple thing, but look for a sander with a rubber boot over the switch: it keeps dust out and helps the switch last longer.

Dust canisters on many models have improved, too, and several now feature a small filter that scrubs the exhaust air before returning it to the shop. The old bag with a zipper seems to be on its way out. Some canisters are see-through (finally!), so one can instantly check on how full they are. Many can be removed and replaced with a shop vacuum hose for better dust collection.

Some variable speed sanders that offer a very low speed range are set up so that the abrasive head can be changed out for a polishing head. That's usually reserved for metalwork, but wood-turners also like to polish some oily species such as African blackwood, and the lathe speed combined with the polisher can deliver quite a sheen.

For most handheld sanders, but especially the cordless models, you might want to see if the manufacturer offers a case or bag that will hold the tool, batteries, charger and paper.

Power sources

Electric razors came out a long time ago with a combined hardwire and battery setup, where you could plug it in or go cordless. The sander manufacturers are finally getting to that point. The delay was battery technology: it takes a lot more juice and time to sand a board than to shave a chin. And we also had to wait until the batteries were small enough (weight-wise) to hold and carry them all day, yet strong enough to last at least an hour between charges. 18-volt packs are the stepping off point here and some manufacturers already offer larger power packs. It's pretty obvious that larger, longer-lasting batteries will become the trend. Brushless motors also help, as there is less resistance. Look for a power pack that lasts longer than it takes to charge, so that just two batteries will carry you through a full day of work. With hybrids (corded and cordless) that isn't an issue, but we often find ourselves on jobsites without power, and that's a consideration.

In the workshop, pneumatic sanders are a viable option if there is a large volume of compressed air available. They're usually not a great option on jobsites, as most models will drain a small portable compressor very quickly. There are a few small detail sanders that work well: check out automobile finishing catalogs for a lot more variety in air tools than woodshop suppliers tend to offer. W

Leitz adds Diamaster line of profile router tools

Leitz Tooling Systems has developed a line of standard, off-the-shelf, precision diamond-tipped router tooling to support the MDF cabinet door industry.

"This selection of contemporary tools is much more economic, offering significantly longer life and the possibility of multiple re-sharpenings when compared to insert tooling," the company said in a statement. "Profiles can be mixed and matched to create a wide variety of door designs. Economic custom profiles are also available upon request.

"This new Diamaster line of profile router tools for MDF doors compliments an already strong product offering ideally suited for kitchen and bath cabinet door manufacturers, which includes insert spoilboard surfacing cutters, solid carbide boring bits, diamond-tipped nesting router bits and ThermoGrip shrink chucks.

For more, visit *www.leitztooling.com*.

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Connecticut furniture company Modify makes products that are contemporary, customizable, and environmentally friendly. When the time came to look for a tool that could keep up with demands while keeping cost and environmental impact to a minimum, founder Marci Klein turned to the ShopBot PRSalpha 120-60 .

"Our ShopBot has allowed us to cut like an industrial woodshop without the negative impacts," says Klein. "We're able to meet demands while still keeping things customizable and economical."

Thanks to the e ciency of their ShopBot, Modify has been able to do more in-house, expand the product line, ensure quality, and help the business grow.

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THE CUTTING EDGE

with R.W. LEE

It's all about the details with a digital probe

Most woodworking shops with a 3-axis routers are setup to cut cabinet and furniture parts from flat panels and solid wood. But what happens when a customer walks through the door with a relatively complex part and wants it replicated as precisely as possible. In some cases, though it might be time consuming, the part can be measured and drawn with CAD software.

It gets more complicated if the part is carved or has contours. A rational shop owner would pass on the job unless he was familiar with digital probing, laser probing or laser scanning.

Laser probing and laser scanning are not for most typical cabinet or furniture making shops. These are tools used by large manufacturing firms to replicate parts or to do quality control. There are also companies that will laser scan oddly shaped parts and then convert the output from that scan into a file format (DXF, STL or the like), that can then be used in a shop's CAM program. These are known as "solid scans" as they represent the scanned object as a solid object when the scanning is done.

Digital probing is a more practical solution. The probe is basically a type of switch that has a long tip on it that generates a map of heights on the Z-axis over a gird on the X- and Y-axis plane. The resulting map of heights is known as a "point cloud" where each point has an X, Y and Z coordinate. The results of a probe scan are known as "surface scan" as the tip of the probe only touches the external surface of the object.

The point cloud is generated when the tip of the probe makes contact with the object and activates the switch in the probe body. The switch generates a signal that is sent to the CNC controller point-by-point. This set of points is saved to a user designated file in the storage medium chosen by the user which is either on the CNC controller or on a computer that is used for the platform for the CNC controller.

On the probe tool is the probing tip. Probing tips, more technically know as a stylus, are the part of the digital probe tool that makes contact with the object being scanned. Tips used in the woodworking industries are generally not complex, looking mostly like a small metal shaft with a ruby tip. The shaft must be of a very rigid material, and the tip must be accurately spherical.

The ruby tips can be of any diameter, though the smaller the diameter, the more accurately the point cloud will represent the actual object. However, small probes take longer to scan an object.

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Another time factor is the distance between the points on the X-Y plane grid, which is determined during the probing processes setup. The smaller the distance between these points on the X-Y plane grid, the more accurately the probe scan will represent the original object. In most cases, a successful probe scan process will take 12 to 18 hours.

A point cloud cannot be used to immediately generate tool paths and G-code. It has to be converted into a type of file that can be further processed into a format that can be exported to a CAD program. These conversion programs do what is known as "surface reconstruction" where the set of points, which can number in the tens to hundreds of thousand, is converted to a DXF or SLT file which most CAD programs can read.

Some software program have the capability to read and display the surface file, though more often than not the refinement phase needs an add-in for the CAD program. Add-ins offer a variety of methods to execute the refinement, with some of the refinement being automatic based on user set parameters, while more detailed refinement must be done manually. The refinement step of the process is very detail oriented and therefore quite time consuming.

After refinement, the point cloud is exported in a chosen file format (DXF or STL, for example), and then the CAD model can be refined further to add items like small details that were too small for the probe tip to register. Some details are either too time consuming to add to a CAD model or impossible to machine, so it might be more productive to use hand tools.

The next step is to begin machining. Use a small ball nose bit and machine at a slow speed to produce the greatest detail.

How do you get digital probing technology? First, call the manufacturer of your CNC router and/or controller to determine capability. If affirmative, ask about probe tools, software and the like. If not, the task becomes a bit more complicated though not impossible. Since all CNC routers have limit and home switches, there is often a way to tap into the controller circuitry and use it for the digital probing process. Your best source for this information is an online forum. W

CMA names conference keynote speakers

Paul Downs will deliver the opening keynote at the Cabinet Makers Association's 20th anniversary conference, scheduled for Mar. 1-2, 2018, in Denver. Henry "Dutch" Hempel will deliver the closing keynote.

Downs, a CMA member, started as a one-man furniture shop in 1986, and currently has 19 employees. His address will cover the factors that have led to his success, including how to market over the Internet, how he hires, what he pays and how much money he takes home.

Hempel specializes in educating business owners and staff in effective business development and communication methods and strategies.

His closing keynote will cover how to communicate effectively throughout the entire sales process. "From Estimating to Implementation: Improving Communications for Presenting Fact Based Documents" will help business owners gain a better understanding of their customers, develop a business and marketing strategy to communicate their unique value, and develop the leadership skills needed to see the job through to completion, according to the CMA.

For more, visit: *www.cabinetmakers.org/denver*.

PRO SHOP

with DAVID GETTS

Tales of terror

Survival in this business depends upon attention to every detail and learning from past experiences

Any coach will tell you that having a game plan is critical for success and victory. Running a business is no different. Although no plan is perfect, not having a plan at all will guarantee failure. Developing good organizational skills is crucial in carrying out your business plan. And as the three tales below reveal, you must not only be prepared as you manage your projects but also flexible as those plans change.

Out of left field

Our first subject is a white collar, middle-aged single mother of two. My company has performed several jobs for her over the course of four years. As an attorney, she is very concise and organized, which generally makes jobs easier to manage. Her understanding of the importance of Change Order approvals and design-build material choices made her a dream client to work for.

Because of our previous rapport and successful project completion, I let my guard down on a large kitchen remodel we contracted to do. Every one of my normal business procedures (which were employed on her previous projects) were put into place. Although she was very familiar with the standard contract terms, she elected to challenge certain portions mid-stream in the project. Even though I have a contingency plan to deal with opposing client behavior, what I didn't plan for was her personal attack on my character simply because she didn't like the contract language she had already agreed upon. Regardless of the cause her unprofessional behavior was directed back on track with a good contract and pre-organized response.

Lesson learned: Expect the unexpected so you can re-organize your game plan when the focus gets changed.

A hands-on customer

A few years back I did a project for a general contractor who was referred to me by a designer I've known for over 20 years. She warned me that his practices were a bit off, but relying on the overconfidence in my ability to manage I dismissed the warning.

Like all projects, our contract covers boilerplate issues such as payment, schedule and change orders. The intangibles that this contractor brought to the table were somewhat odd such as wanting to help install the cabinetry, something he was clearly paying us to do. His overeager enthusiasm to learn the art of cabinetmaking and woodworking installation forced me to enforce ad-lib policies about our work practices. The last thing I wanted was to be held

responsible for something he did when it came to the work we were contracted to perform.

I informed the contractor that he was welcome to watch, but not participate. Discouraged by my abrupt rules, he insisted on working so close to us that a sheet of his plywood knocked over a cabinet of ours causing $1,000 in damage. To make matters worse, he charged the homeowner for his blunder and left us in the middle of how payment was going to be received for damage we needed to repair.

Lesson learned: Never rely on past experience, intuition or over confidence to be a substitute for a well-organized job management plan.

HR to the rescue

And finally, our last tale is about a bathroom remodel that caught us completely off guard. It involved a person whom we never met, nor who was even part of the contract.

As the house was being prepped on day one, the homeowner's mentally unstable adult daughter approached my employee thinking he was her doctor. After informing her that he was there doing work on the house, the woman became uncorked into a meltdown tirade that required both the fire department and social services to unravel. She was taken from the premises to the hospital, only to return the following day resulting in a second meltdown.

Having lost several hours of production time and not wanting to be in the middle of a personal matter, our human resource manager informed the client we would not return if the unstable daughter was in the house. The reluctant homeowner committed her daughter to a ward for the duration of the project.

Lesson learned: Although we had no such plan in place to deal with a specific issue like this, the quick thinking of our human resource personnel recognized it as a hostile work environment. Good organization provides fertile ground for on-the-fly decisions. This is especially important for dangerous situations that employees or subcontractors should not be subject to.

Back to basics

There are several things you can do to accomplish better organization in your business practice, but I only want to focus on one: communication.

I think if you master the art of communication, it will cover all the bases needed to better manage and plan your projects. All trade skill businesses share the need to run multiple jobs at the same time. Depending on the size of your company, this can take many different forms. Larger companies may have several big projects running concurrently to keep the labor force busy, whereas a smaller operation may have just one large and a few small projects going at the same time.

Regardless of size, all companies that fabricate custom products need to have multiple jobs at various stages of conception, design, fabrication and installation. It's the only way to keep the fabrication process fluid and the cash flow steady.

When building is your business, it is imperative that you learn how to manage and organize this multi-phase approach. If you don't, things will fall through the cracks. This translates to undue pressure on suppliers, frustrated employees, unhappy clients and additional stress on you the manager.

Don't overthink it. The communication process should be basic. You can start by implementing a few simple things; having a standard operating procedure, tailoring an organizational style that uniquely suits you, and a tenacious follow-through.

Be prepared

When things go wrong (when, not if), you need something to fall back on. Make sure your company has a set of Standard Operating Procedures for everything. Although you cannot plan for every situation, a good SOP policy manual will enable you to enact a plan when things go awry. Never adopt the attitude that things will just work out. The only way they can work out in your favor is when you plan ahead.

You can't organize a business if you are not organized yourself. Getting organized is going to be different for everyone. Whether you make a list, use a calendar, take photos, use a tablet or recorder, be diligent about it. The busier you get, the easier it is to forget something. And, if you find that your management style is slipping, examine the practices you do in your personal life. More often than not, the best managers of people and projects are self-disciplined and know how to organize and manage their own personal affairs, even when no one is watching or paying attention.

Charge things like a bull

See every task as a red flag that needs immediate attention. Like the old saying, "never put off for tomorrow what you can do today". People who procrastinate have a much higher percentage of letting things slip through the cracks than those who address issues as soon as they come up.

To some, charging like a bull may appear to be over-the-top behavior, bordering on OCD obsession. However, in order to stay organized, you must make things manageable. Too many items on your plate and you won't be able to finish the course. Although you must learn to manage one day at a time, a good manager looks to the future to lessen the load ahead. It's a balancing act that takes time and attention to achieve.

Remember, you'll never get everything right the first time. W

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- Scoring blade tilt: 0–45°
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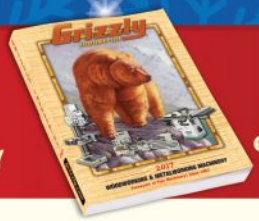

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- Cutterhead speed: 4800 RPM
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& BURN

Digital fabrication of columns, stair balusters, chair spindles and more is available from a long list of CNC manufacturers

By John English

Securing sheet stock on a CNC bed is a large part of the machining process. Clamps, jigs and vacuums hold the material steady while the spindle moves. But when it comes to turning parts on a CNC, everything changes. That's because the work is no longer stationary: the wood moves too.

There are machines that are built specifically as CNC lathes, and there's also a rotary indexing accessory for most of the major manufacturer's CNC routers. The indexer looks like a wood lathe, and it holds work between centers and rotates it or else holds it in a fixed, indexed position while the spindle and tooling do their job. It's usually an optional accessory or an aftermarket purchase: call your CNC supplier to see which unit fits your existing machine(s). Some 3-axis routers can handle turning tasks, where the servo drive is operating continuously like a wood lathe's live drive. But speed can be an issue, as can heat build-up. A rotary indexing accessory will allow the part to be presented one face at a time and completely milled, then rotated several degrees to a new face where the operation is repeated. This will result in a 'turned' piece that has never actually turned more than one revolution. It is more of a rotary mill than a lathe, but the results are the same.

Parts can be designed in many CAD programs and saved in a library, as most of the turning that is done on CNC lathes is actually duplication. Parts such as posts and columns, stair balusters, newels or furniture spindles are made many times over, and each one is an exact replica of the original pattern. Some artists also use CNC turning as a way to produce a more refined and accurate prototype or original part than they would be able to achieve on a manual lathe using handheld tools. But the greatest commercial value is in the machine's ability to repeat, and that has earned a home for it in shops that produce everything from pool cues to mallets, flagpoles and truncheons.

(From top left, clockwise) CNC Auto-Motion's Motioncat; Introtex CKX-1300, and Style CNC STL1516.

Domestic manufacturers

Laguna Tools *(lagunatools.com)* offers a small family of CNC lathes under the group name Turner, and they're capable of creating anything from 6′ decorative wooden columns to baseball bats. One of the more user-friendly aspects of the line is a hand-held controller that is simple to use. Plus, the machines are also compatible with most software formats, so implementing designs isn't a huge challenge. The lathes come with liquid-cooled spindles because eliminating heat build-up is critical in long production runs. Among the offerings are machines that can turn out parts that are 46″, 60″ or 72″ long. In addition, there is one unit that is essentially designed to make baseball bats in five minutes, and another, the 4-axis CNC 2′x4′ Turner, that is available in a "two-up" version with two spindles and two rotary axis, for even higher turning productivity.

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ShopBot's Rotary Indexer *(shopbottools.com)* will turn one of the company's small- to mid-sized routers into a CNC controlled lathe. The Indexer lets a woodshop cut full three-dimensional objects on a ShopBot. Like a lathe, it provides a fourth rotary axis for turning a part, but it also provides precise 'indexed' control over rotation. That means a woodworker can create standard lathe work such as spindles, newel posts and table legs, but also mill 3D sculptures. The rotary indexer comes in three different sizes (3", 6" and 12", depending on the machine you own) and can be purchased with new tools, or retrofitted to older ones.

Legacy Woodworking Machinery *(lwmcnc.com)* in Springville, Utah, started out with machines that used routers to create work in the round such as fluted and spiral balusters. Today, the company offers a number of machines designed for both panel and turning work. The Artisan II, for example, is a 5-axis hybrid CNC, and its framework is built of 11-gauge folded steel panels. The frame and gantry are welded, not bolted together, to withstand years of continuous motion and stress. The rack-and-pinion drive system provides high-speed positioning, and the industrial-grade motors and digital drives provide superior torque. Either a 5-hp MTC spindle or a 13-hp ATC spindle can be used on this machine. ER32 collets allow you to use ½" shank router bits for tool-based machining, as well as precision carving. The Artisan II is available in several sizes, with a working envelope ranging from 30" x 48" to 30" x 96", and a swing diameter of either 11" or 15". The 4-axis turning system combined with Legacy's CCAM4 software allows you to program turned parts that feature beads, coves, flutes, reeds, joinery, rope twist, barley twist, hollow spirals and much more.

ShopBot's Rotary Indexer.

Camaster *(camaster.com)* is located in Cartersville, Ga., and one of the company's CNC routers can be paired with powerful yet relatively easy to use software to closely mimic the artisan's skills seen in moldings, arches, carvings, corbels, as well as in columns. Camaster routers are offered with an indexing lathe, which makes 3D carvings on cylindrical parts a snap.

Techno CNC Systems *(technocnc.com)* offers a fourth axis upgrade that allows the operator to route an intricate 3D carving on a cylindrical surface, or index a part by rotating it a set number of degrees. It's designed more for working on cylinders than creating them. It comes complete with a three-jaw chuck and tailstock, plus a linear guide track for easy tail stock movement and center alignment.

ShopSabre *(shopsabre.com)* offers a rotary indexing head that essentially turns a 3-axis machine into a 4-axis one. The device, called On-Table 4th Axis, makes it possible to create chair legs, railing posts, gunstocks, and more. As with most indexers, it will also turn the work slowly so that the tool can create ropes and other threadlike designs on balusters and posts.

CNC Auto-Motion, based in Warren, Pa., *(cncmotion.com)* offers the Motioncat TC650E. This is a 2-axis CNC controlled wood turning lathe that was specifically designed for turning spindles, posts, columns and baseball bats. Profiles are designed in CAD/CAM software that is provided with the machine, and they're

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Legacy's Artisan II (left) and the Columnmaster from CNC Auto-Motion.

stored on the control panel for easy recall. This eliminates the need for changing templates between jobs, which can be time consuming and expensive. The lathe runs on single-phase power, so it can operate in small hobbyist workshops or even a garage. Standard features include a flip-up safety guard and a dust extraction hood, as well as a center punch mounted on the machine. There are a number of videos on the website showing it in action.

For larger shops and projects, CNC Auto-Motion recently introduced a family of heavy-duty 3-axis computer-controlled turning lathes. The Columnmaster CNC Lathe is capable of accurately turning a wide va-

riety of finished products such as columns, both large and small, rope twists, and newel posts. These lathes are capable of automatically turning columns up to 24″ in diameter, with a maximum length of 16′. An automatic, six-position tool changer allows the operator to set up several profiles and change tooling quickly. The lathe isn't restricted to wood: other foam and plastic columns might also be good candidates (check with the manufacturer).

Imported machines

Intorex Woodworking Machinery *(intorex.com)* is a Spanish manufacturer of CNC lathes with offices in the U.S. and Canada. The company's CKX 600/1300/1600 can handle stock 23-1/2″, 51″ or 63″ long. It is equipped with two independently controlled cutting gouges, one for roughing and the other for finishing. Plus, it has an additional hydraulically controlled gouge for rounding. An automatic hopper feed loading system is standard on this lathe, and it also has programmable and variable spindle speeds, along with two rear overhead hydraulic back knife units for operations such as doweling. The machine can be equipped with an optional B-axis with a milling head (for twisting and/or fluting), or a sanding head with a narrow belt (for sanding turned and/or straight profiles). Programming is done with pre-installed, Windows-based, proprietary Intoredit software, and it can either take place on the machine controller or on a remote PC/laptop with transfer via USB key. The CKX is suitable for one-off specials, short batch runs and long production runs. Intorex also has three other models.

ShopSabre's rotary indexing head.

The Chinese company Style CNC *(stylecnc.com)* has been around since 2003, and offers seven varieties of CNC wood lathes. They run the gamut from benchtop units to dedicated machines that turn out two baseball bats at a time. The German company CNC Step (cnc-step.de/en) offers a "Shapilling Kit" which turns its High-Z CNC router platform into a CNC turning lathe. It's a quick and easy conversion. And the Italian company Fapil *(fapil.org)* builds a number of tools for woodturning on a CNC lathe. These include profile tools, tenon cutters, gouges, cutters for wooden rings, parting tools, collets for lathes, screw-plate tools, and other accessories.

Before investing in a dedicated CNC lathe or a rotary indexer for your existing machine, check with your CAD/CAM software supplier. Unless you're looking at large volumes, the machine you already own can probably make most of the 'turned' parts that you need, using existing tooling and hold-downs. It just needs to be told how. W

Retooling for 2018

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The Federal Home Loan Mortgage Corporation (Freddie Mac) is forecasting that the economic environment will remain favorable for housing in 2018, and home sales will increase about two percent over 2017. If that's true, then woodshops are going to stay busy for the foreseeable future. Combining growth with low interest rates makes this a great time to re-tool. It also makes it a great time for Bessey Tools to introduce its new IBeam clamps – industrial grade bar clamps that can handle up to 7,000 lbs. of force. They come in lengths up to 96", so no job is too big.

Speaking of handling big jobs, wood-turners who are thinking of re-tooling might want to take a look at the new T40 Turbo lathe from Harvey Industries. Its variable speed drive is an industrial turbo motor! And Harvey also handles dust control with its spectacular Gyro Air, a collector like to other that eliminates 99.9% of particles… before the air is even filtered.

That level of waste management is also true, in another way, of KCD's cabinet shop software. Packages that handle designing, pricing, cut-lists and CNC manufacturing can act together to save a woodshop thousands of dollars annually. Plus, this particular re-tooling comes with a bonus: FREE tech support.

And for shops that handle lots of one-time jobs, RSA Solutions in Missouri has a couple of software tools for 2018: woodCAD|CAM is designed to manage one-off projects, and ProductionCoach converts operations to a paperless shop.

Whether you're re-tooling the office or the shop, the timing seems perfect.

Two Extraordinary New Machines

Harvey Industries is a manufacturer of high quality machinery that is sold in over a hundred countries, and now they've entered the US woodshop market. Among its initial offerings are two products that are definitely worth considering when retooling for 2018 – the unique and innovative Gyro Air G700 Dust Processor, and the impressive T40 Turbo Lathe.

Harvey's Gyro Air is a dust collector like no other. It has a one-of-a-kind, patented design that separates dust particles from the air and captures them more efficiently than any other product on the market. Unlike any of its competition, the Gyro Air uses an axial centrifuge to spin the air in the dust stream to over 4,000 RPM. This separates particles from the air and collects debris in two bins that are located inside the unit. The system is so efficient, it collects 99.9% of the particles before the air even reaches the unit's pleated filters. After filtering, the scrubbed air's cleanliness level can reach an astonishing 0.05 mg/cubic meter.

And it's not just efficient in terms of collection; the G700 can save up to 50% on energy, too. Plus, any woodworker who has grown accustomed to the uncomfortable noise level of standard dust collectors will be pleasantly surprised by the quietness of the Gyro Air, with decibel levels between just 61 and 72 dB (depending on which speed is used).

Harvey Industries' other innovation is the T40 Turbo Lathe, which frankly is a turner's dream machine. This is a bench unit that performs more like a heavy-duty floor lathe. It uses an industrial servo motor system as the spindle drive, so its variable speed delivers more power when needed, and does so in milliseconds. Built with premium grade, precision ground castings and weighing in at 178 lbs., the T40 delivers solid performance with virtually no vibration.

T40 TURBO LATHE video
https://www.harveywoodworking.com/products/turbo-t-40-wood-lathe

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Fast, accurate and efficient software for designing, pricing, cut-lists and CNC manufacturing will save a woodshop thousands of dollars annually. Now, some people feel heavily invested in their current software – and running a hands-on custom cabinet shop is challenging enough without taking on something new. But what if the risk was only $95? What if that's all it takes to see whether different software is a better fit ? And whether it works faster to quickly design, lay out and customize kitchens, baths, closets, entertainment centers and more; or easily make changes; or offer variations on door styles, colors, textures, materials, handles, hinges, countertops, accents and more; or generate floor plans and elevations, and present beautiful, realistic 3D images of designs to clients…

KCD helps jobs run smoothly, and ties everything together without stress or complications. Yes, moving into new software can be daunting. And often it's the smallest things that slow down the process and make it frustrating. That's why it's so important to have someone to talk with. Free, live support is absolutely essential, and great learning tools from KCD Software make getting started quick and easy.

KCD Software and the Development Team have been recognized by the Adex Award for Woodworking Design and the Sequioa Award for Innovation in Software Productivity for outstanding product development. The software works exceptionally well for creating custom designs direct to pricing, Cabinotch and parts lists. Plus, the whole program can be run on a Surface Pro tablet for maximum portability. KCD has amazing depth and versatility when a designer wants it. It's a solid choice for creating framed and frameless cabinetry, commercial and residential work, and cabinets and closets. It's also refreshingly simple and allows designers to embrace creative freedom. Plus the team on the shop floor can relax, knowing that everything is set up for smooth production. KCD partners with hundreds of CNC companies to support the largest selection of equipment and tools for unique design and manufacturing needs. Woodshops experience more choices for customized production with their favorite optimization software, table saws, panel saws, beam saws, table routers, and other specialized CNC equipment.

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KCD Software

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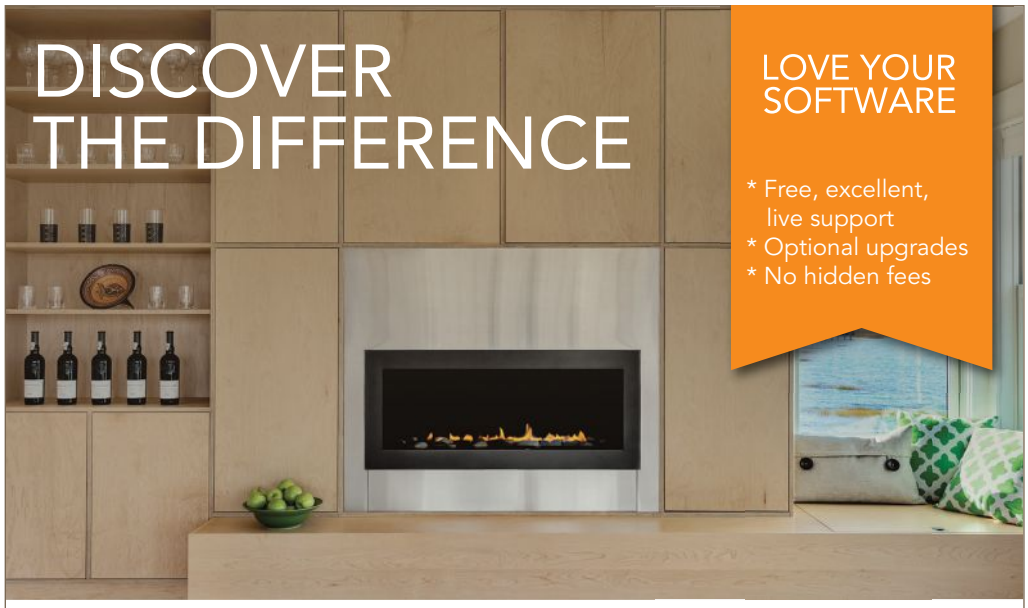

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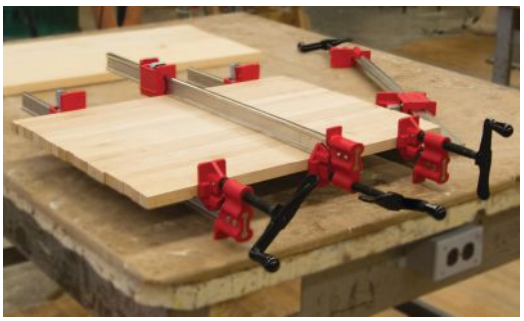
Re-Tool with New IBeam Clamps



When it comes to updating a woodshop's assembly process, everything depends on the clamps. There will be times when the demanding requirements of industrial workloads require a clamp with minimal flex that can apply a heavy dose of clamping force to close the gaps on today's larger panels. Given that, the best way to go is with BESSEY Tools new IBeam bar clamps. Their 1-3/8" engineered beam is incredibly stiff and resists bend or bow, unlike your old clamps, and especially over a longer distance. That means the jaws stay aligned, even under the most extreme pressure.

Available in eight lengths ranging from 24" to 96", there's an IBeam clamp for just about any job. The variety of lengths makes them ideal for tasks where minimal flex is important, such as wide assemblies like stair treads or countertops.

The tough, ductile castings on BESSEY's IBeam clamps are powder coated for decades of durability. And the rail is nickel plated to resist corrosion, allowing the moveable jaws to slide with ease, and then lock in place with absolute reliability. That's because the locking mechanism is five strong, hardened steel clutch plates.

These clamps are equipped with a crank handle that delivers tremendous strength and long-term durability. Each handle has a fast-acting ACME threaded screw with a 9/16" spindle diameter. It also has a large, easy-to-hold, ergonomically designed grip that allows the woodworker to apply just the right amount of torque to get the job done. In fact, a BESSEY IBeam clamp can apply more pressure than virtually any other manual clamp on the market – up to an astonishing 7,000 lbs. of clamping force! And feet cast into the jaws elevate the work and allow the handles to turn completely, even over a workbench.

When it comes to re-tooling decisions, let BESSEY handle the pressure.

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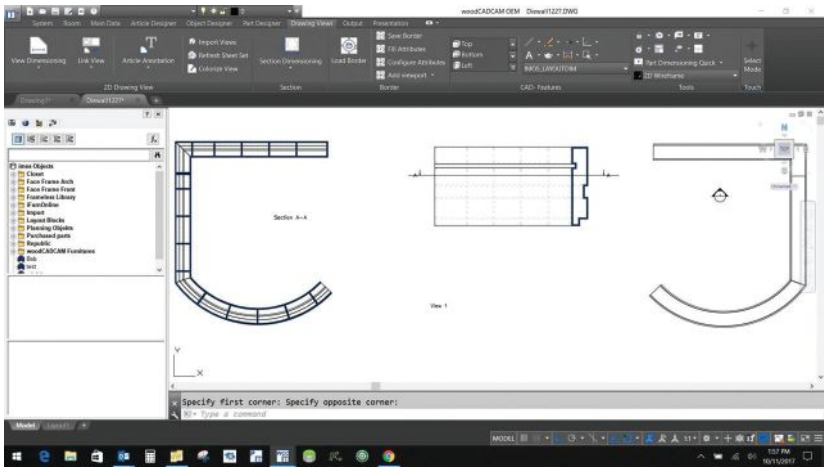
How to Economically Increase Factory Volume at a Small Shop

Gearing up for the next level of production isn't just about machines: it also needs to address the software that makes those machines work most efficiently, and profitably.

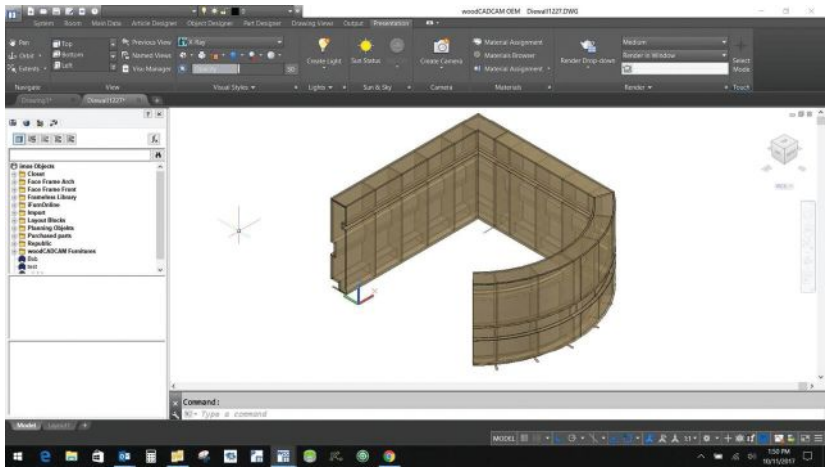
Missouri-based RSA Solutions understands that every custom woodshop has unique needs. The RSA team also knows that the software one chooses should fit the business model, and not the other way around. With that in mind, the company has a strong suggestion for small to midsize shops. woodCAD | CAM helps casework and custom builders handle those time-consuming, one-off projects. It is designed to let woodworkers discover where the profit lies in custom jobs. It's a breakthrough program that engineers everything, on a single AutoCAD 3D platform. Yes, everything – case goods, reception desks, store fixtures, wall paneling, complex millwork and more.



Even though most software packages cater to cabinets, a shop that's using multiple packages is paying too much in both time and processes. If your company is experiencing an abundance of shop capacity but a shortage of data to leverage that capacity, it may be time to take a look at woodCAD | CAM. It doesn't depend on a complicated library of never-ending formulas, and it's both intuitive and designed to simplify processes. For example, it will create 2D or 3D drawings that contain all the information needed for manufacturing. A user can easily create real time sections and exploded views of products, or dimension automatically with the touch of a button. woodCAD | CAM uses contour shape extrusion in a shadowbox to add parts, drawers, doors, buy-outs, all from scratch. Every article designed is parametric, with no lengthy formulas. The Part Designer module also allows for building up non-parametric designs, one part at a time, and attaching them to other parts using proper joinery that can be selected by the engineer. The program outputs up to 5-axis machine code, if the woodshop's CNC equipment can deploy it. Part Designer lets the user add machining to parts while in 3D, and/or change joint associations between parts while in development.

Contours of parts or assemblies can also be modified, simply by modifying the contour. That means there is no fumbling around in a spreadsheet to complete simple variations of construction. All of the heavy lifting calculations, the CNC data, and the material/labor/work cell needs are done behind the scenes. There is no dependency on a library full of spreadsheets that must be referred to as you develop new products – no formulas, and no limitations on what you can create. Everything that's engineered in Article Designer or Object Designer is fully parametric!

The bottom line here is that woodCAD | CAM gives the user the ability to produce complicated one-offs and custom products graphically, where the only limitation is imagination. You can learn a lot more about woodCAD | CAM on the RSA Solutions website.



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Smarter, Leaner & Diversified

These three words sum up the efforts of J.H. Klein Wassink & Co., which is changing the ways it does business after 20 mostly successful years

By Jennifer Hicks

J.H. Klein Wassink & Co. is a custom cabinetry and fine woodworking firm in Concord, Mass., just west of Boston. Founded in 1996 by owner John Wassink, the company has grown to include 24 employees and gross over $2 million a year.

Of course, there have been some growing pains over the years. In the spring of 2008, for example, Wassink moved the shop from Allston, Mass., to Concord. The timing was less than auspicious.

"Everybody knows what happened that fall," says Wassink, referring to the start of the Great Recession. "Within 12 months after moving here our gross sales were cut in half and it's taken us 10 years to get back up to that. We went down to six employees in 2010/11 during the worst of it, and now we're back to 25 on a good day. We lost three of our biggest clients. It's been a long 10 years."

Change is happening

Fortunately, Wassink has always been a quick study. Originally from North Carolina, he received a bachelor's degree in product design at North Carolina State University. After moving to Boston, he ran a custom shop for a contractor for 10 years.

His business achieved rapid growth in the first decade. Then he figured out how to survive the economic downturn. Now his plan is to aggressively boost the shop's bottom line and prepare for when hard times strike again. The plan revolves around maximizing efficiency with Enterprise Resource Planning (ERP) software.

John Wassink, left, confers with project manager Peter Dianni.

PHOTO: MICHAEL GORDON

Wassink and his project managers recently visited a branch office of Innergy, an ERP provider, and got a tour of Wilkie Sanderson, a large shop in Sauk Rapids, Minn., which runs the company's software. The demo clinched the deal, and the software should be fully integrated by the end of this year.

"This is exciting for us," says Wassink. "As our organization grows, the difficult task for us is to channel all the information efficiently and effectively to all the different departments and people that run them. We're in a rapidly changing environment. The plans we make by 10 a.m. are shot by 3 p.m., so adding a good information highway that can adapt and help us allocate our resources in the proper manner is key.

"As a smaller company we can do all of that with Excel, Google sheets and old-fashioned sticky notes. That's fine but a little too slow. This is going to take us up to the next notch. It lets us do what we do normally, but

A recent kitchen project from the shop's extensive portfolio.

speeds us up. There is no duplicate data entry and it's a lot more efficient because it works all throughout the shop."

Wassink, a regular attendee at the major industry trade shows, says he's been looking into ERP software for almost six years and selected Innergy because it is created by woodworkers.

Step two

The other part of the equation is to expand the client base and coverage area. The shop's primary clients are contractors, designers and architects hired by high-end homeowners in eastern Massachusetts and southern New Hampshire. The shop also takes on a few select commercial projects at libraries and colleges.

"Our primary business model is to source our work through design professionals. Through them we will sit down with the client to get their ideas to finesse and finalize the details," says Wassink. "We have good relationships and are actively searching for more connections all of the time. We're looking on Nantucket, and outer coastal areas, but primary greater Boston."

A super high-end job will include everything in a house: kitchens, casework, libraries, millwork, and whatever is in between. We're talking 20,000-sq.-ft. homes with a dozen bathrooms and multiple fireplaces. These projects take six to eight months to complete and though quite lucrative, the shop would like to become less reliant on this type of work.

"Since 2008 we've realized we have to cast a broader net in the modern market. We are now offering good, better and best options with our marketing done at different price points," says Wassink.

The plan is to offer the same full custom woodwork and cabinetry services as always, but offer different price points to obtain more work in high-end spec houses and upper middle-class homes. Clients can now

David McNally (left photo) routs part of a door frame; Sean Coyne, left, and shop manager Ned Karjanen talk next to the shop's MultiCam 3000 series CNC.

PHOTOS: MICHAEL GORDON

select different profiles, ornamentation, embellishments, hardware, drawer inserts, wood thicknesses, etc.

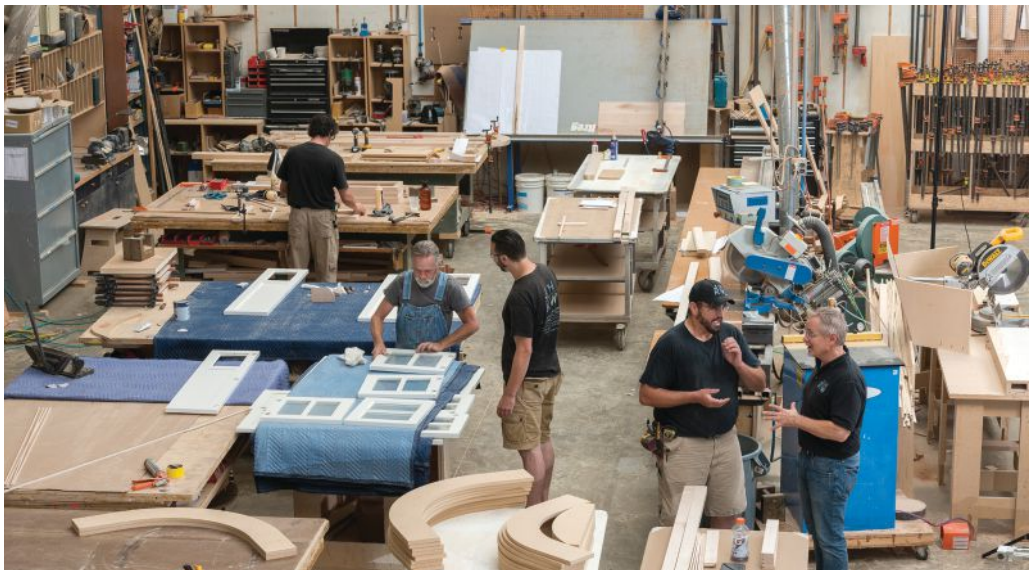
"The one downside of having relationships with all high-end builders was we could only service so many builders. In 2007 we had the equipment and manpower and could have been doing other things, but those high-end jobs were so demanding and you can only service so many people," says Wassink.

"We want to be more like a shopping mall, how it serves core businesses like Macy's and Sears and all the little stores in between. We didn't have all those other little stores, so to speak, and that hurt us. So we want to add others but still maintain our anchor clients."

Cutting edge shop

The shop has full CNC capability and the skill to handle any job that comes its way. Design styles in the Boston suburbs tend to be more traditional with inset beaded face frames and painted finishes. City dwellers want more contemporary designs, with current projects calling for lots of walnut, glass, hidden hardware, and high-gloss finishes, according to Wassink.

The shop's machinery includes a Martin table saw, SCMI shaper, Brandt edgebanders, Multi-Cam router, Omga CNC cut-off



Wassink's shop in Concord, Mass; Steven Day (below) in the spray booth.

saw, JLT rotary door clamp, Weinig five-head molder and Vac-U-Clamp vacuum press.

The shop's craftsmen are all trained in traditional techniques and many work with computerized technology, creating hand-carved and profiled pieces for high visibility areas while employing full CNC production for hidden and repetitive components. A team of finishers can apply a full array of custom finishes both inhouse and onsite.

Striving for excellence

At the end of the day, Wassink just wants a happy customer. He wants to maintain his employee count, perhaps adding five or so but no more, and foresees moving into a larger building soon. He says competition is fierce and knows it is important to stay on top.

"There are lots of other shops like this. That's the good news and bad news about Boston. The good news is there's a lot of money, but the market is saturated with a lot of good shops. Contractors and subs need to get their prices sharper and more importantly, tighten up on deadlines. We live in a state of instant gratification and could lose a job based on someone having to wait."

Clearly determined to succeed in reaching new financial goals, Wassink agrees part of his motivation to carry on and be prepared stems from the rough experience he encountered with the recession.

"We are now a much leaner smarter company than we were in 2007. We're much more diversified, nimble and able to adapt to changing conditions. We've reworked our process, cut the fat, and did whatever needed to be done. We also use contract routing, manufacturing and finishing to augment our bottom line, and are always looking for other ways to diversify our income." W

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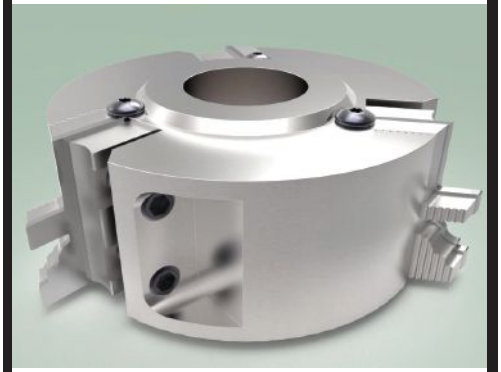

The MultiTasker line of tooling is designed for dual purposes. For small production runs on a shaper the MultiTasker can be fitted with precision ground HSS knives for a low cost to complete the project. For larger runs, the MultiTasker can be fitted with carbide inserts for longer tool life and steel backer for support.

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GET SMART & OUTSOURCE

The woodworking industry is rich in suppliers that can deliver top quality, bare bones boxes on a budget, upgrades to designer doors and hardware, and the software and design expertise to make it all happen

By John English

A recent article (Oct. 2) by Tim McKeough in The New York Times ("Putting a designer's polish on Ikea products") describes how a supplier used off-the-shelf Ikea boxes and custom designer doors to create a small but very stylish New York kitchen – for $1,600 without the doors. The casework package included the boxes and hardware, motorized push openers and even internal lights. The doors, toe-kicks and appliance panels added about $5,000, and counters ran another $8,500. All in, the client got a state-of-the-art designer kitchen for about $15,000, which is one heck of a deal on a custom space.

Every small woodshop in America has the capacity to deliver this kind of deal.

The key is exactly what that designer did: outsource intelligently, using budget-conscious elements where possible and spending the big money on impact. The woodworking industry is rich in suppliers that can deliver top quality, bare bones boxes on a budget, upgrades to designer doors and hardware, and the software and design expertise to make it all happen. That last element, the ability to create eye-catching design, is often missing in woodshops. There is a tendency to be traditional, to make everything 'fit'. And while most clients will settle for familiar, and some embrace it, there are a lot of buyers – especially younger professional people – who want a little spice in their kitchen.

Competition today isn't limited to a few custom shops across town. With online design and purchasing, woodshops are now also competing with homebuilders, designers and architects, kitchen and bath dealerships, big box stores and even consumers. What carried the industry through the last half-century – the expertise to create something beyond the physical abilities of homeowners and even carpenters – is no longer the litmus test. If custom shops don't compete on price and offer design innovation and superior service, their days are numbered. It's very Darwinian: we need to evolve, or become extinct.

Fortunately, there is a path toward the light: outsourcing. Buying in some components can cut costs and provide uniform, predictable and repeatable quality. Every day the offerings from these suppliers are becoming more customizable and innovative. And outsourcing isn't restricted to boxes, drawers and doors. Many companies offer architectural or millwork details that can add some zest and unique flavor to a kitchen that is leaning a bit toward blandness.

The following is a guide to some of the better outsourcing suppliers in casework, drawers and architectural details.

CASEWORK

Cabinet Outsource *(cabinetoutsource.com)* in Brea, Calif., offers a catalog of modular cabinets with no stock or standard sizes. The casework is built to order using CNC equipment, and assembled with either Comfirmat screws (from *quickscrews.com*) or standard dowel construction. It ships by courier across the U.S. or will deliver in southern California.

CabParts Inc. *(cabparts.com)* in Grand Junction, Colo., offers more than 1,500 standard configurations and sizes of cabinet boxes, as well as custom sizing, milling and material choices. The line includes a modular hanging-panel, drawer-and-shelf system, and closet components that have a wide range of applications. In addition, it makes drawer boxes including optional solid wood dovetail construction, plus full overlay, flat panel doors and drawer fronts. CabParts can supply roll-out and adjustable shelves, fixed shelves, slab-type door and drawer fronts, closet systems and functional hardware. The flat-packed casework can be assembled using either Confirmat screws with hardwood alignment dowels (no glue required), or an option that includes 8mm x 30mm dowels that are factory inserted, and the woodshop will need to glue and clamp the joints.

For more than a decade, Cabinets Quick *(cabinetsquick.com)* in Orange, Calif., has specialized in semi-custom, built-to-order cabinetry from high-end residential work (using plywood and veneers) to commercial projects (laminates), and everything in between. The factory features state-of-the-art equipment, and uses only durable, locally sourced materials. For example, the standard hinge is Blum's 110 clip-top Inserta with Blumotion.

Canary Closets and Cabinetry *(canarycc.com)* in Union, N.J., is a full CNC manufacturing facility offering custom cabinetry and closet parts for the home storage industry, along with five-piece polyester doors in over 30 matching colors. A free online closet design tool is available.

Eagle Bay *(eaglebaywood.com)*, based in Orlando, Fla., supplies woodshops with cabinet doors, dovetail drawers and cabinet re-facing. Items can be finished or unfinished, and ordered online. Eagle Bay has extensive experience working with many species of wood, including bamboo, teak, ironwood and sapele.

Hall's Edge *(hallsedge.com)* in Stamford, Conn., specializes in nested-base cabinet part machining for custom shops. The company points out that by outsourcing custom case goods machining, a woodshop that doesn't own a CNC can eliminate errors, reduce assembly time

and increase accuracy. As with most of the leading outsource suppliers, Halls's Edge will accept a 2D DXF file or create one as needed. The shop delivers parts with all the joinery and hardware holes machined, and can edge band. Joinery options include blind dado designs that are self-squaring, so they require no jigs or clamps.

Corbels from Castlewood (left page); door panels from Osborne Wood Products.

TaylorCraft Cabinet Door Co. *(taylorcraftdoor.com)*, near Austin, Texas, builds custom, unfinished wood cabinet doors and drawer fronts that it sells wholesale to the cabinetmaking trade, both nationally and internationally. Its manufacturing facility is over 140,000 sq. ft.

Conestoga Wood Specialties *(conestogawood.com)* in East Earl, Pa., has been building custom cabinet doors and wood cabinet components since 1964. It makes doors, drawer boxes, front frames, ready-to-assemble (RTA) cabinets and hundreds of accessories. Conestoga employs more than 1,100 employees in five manufacturing facilities, and operates its own sawmills and trucking company.

Bill Sandrock is the founder and owner of Stratton Creek Wood Works *(strattoncreek.com)* in Kinsman, Ohio. The shop makes indoor/outdoor cabinets, window surrounds, decorative brackets, columns, spires, railing systems and much more.

Since 1983 Elias Woodwork *(eliaswoodwork.com)* has used its geographical position at the center of the North American continent to ship casework and components from sea to shining sea. The manufacturing facility is more than a quarter of a million square feet, and includes state-of-the-art finishing. In addition to cabinet doors and re-facing products, Elias offers custom, ready-to-assemble cabinet boxes, a polyester-saturated paper on MDF cabinet door line (DLV), a high-gloss acrylic line of cabinet doors, many Thermofoil colors and an impressive selection of wood species.

Product offerings from Adam's Wood Products.

The stated aim of Decore-ative Specialties *(decore.com)* is "to help cabinetmakers be more profitable." The company has locations in northern and southern California and also in Monroe, N.C. It makes RTA cabinets, doors and drawer fronts, plus drawer boxes, moldings and accessories. Decore-ative Specialties also performs custom finishing, supplies standard and specialty hardware, and creates such specialty items as panels, odd-shaped doors, custom hood surrounds, radius projects, mullions and louvered doors. The company has a strong commitment to environmental issues, and offers a diverse collection of water-based finishes on products made at its plant in Irwindale, Calif.

Walzcraft *(walzcraft.com)*, based in La Crosse, Wis., manufactures custom cabinet doors, drawer boxes, moldings and many other cabinet components and accessories, all of which are available unfinished or prefinished. It's another family-owned business with more than 270 employees. Walzcraft is now offering high pressure laminate (HPL) stock colors from Formica on its contemporary slab-style doors and fronts, as well as on custom pressed stock and laminate sheet stock. These are suitable for both residential and commercial applications, and are being incorporated into more and more contemporary kitchens, bathrooms, closets and furniture.

Keystone Wood Specialties *(keystonewood.com)* in Lancaster, Pa., is a wholesale manufacturer of high-end products ranging from doors and drawer fronts to dovetailed drawer boxes, face frames, solid wood molding, wainscoting and much more. For shops with strange angles to tackle, Keystone now offers lock miter construction (LMC, a solid, locked glue joint that can be specified in any angle from 90 to 140 degrees), for either inside or outside corners. The company also helps set designs apart from the crowd with its "weathered look without the hundred year wait." That's a technique that ages doors, fronts and other elements in any one of nine common species with a very authentic look.

DRAWER MANUFACTURERS

CCF Industries *(ccfdrawers.com)* in Apollo, Pa., offers custom options such as laser engraving, edgebanding, front and side scoops, file slots (with or without bars), and undermount slide notching.

Cimarron Drawer *(cimarrondrawer.com)* ships nationwide from Las Vegas and builds standard drawers in Baltic birch, walnut, select maple, red oak, padauk, natural maple, plus white or colored melamine. There are cutlery and spice drawer designs available, along with suggestions for a wide array of custom design options.

Draw Box Specialties *(dbsdrawers.com)* is a States Industries company that hails from Orange, Calif., and offers five varieties of custom drawers, with a standard five-day lead time. The catalog also includes laser

branding, slopes, notches, scoops, dividers, finishing options, corner drawers and more. DBS also offers fully machined, edge-banded and prefinished component parts with specified face and back veneers, and finishes that match a shop's application. Edge treatments available include solid wood, wood veneer, PVC, polyester and clear or wood-grained foils, plus clear, custom color matches, opaque colors or printed wood grains in standard and custom gloss selections.

Drawer Connection *(dcdrawers.com)* in Meza, Ariz., manufactures high quality wooden dovetail and dowel drawer boxes, and offers seven-day turnaround on melamine and plywood orders, and 10-12 days on solid wood. The company works in a wide selection of materials and FSC certified products.

Draws Online *(drawersonline.com)* in Bristol, Conn., produces dovetailed drawers with hardwoods and European plywood. Product can be ordered assembled and finished, and the express lead time can be as little as 24 hours.

Olon (olon.ca) in Georgetown, Ontario, has locations in Indiana and North Carolina. The company offers a number of components and a full range of solid wood, plywood and wrapped drawers, flat packed or assembled, with dovetail, miter-fold or drill & dowel construction. Olon's environmental commitment includes wrapped moldings using No. 1 grade MDF, and drawer components using particleboard, both of which are composed of recycled and recovered wood fiber.

Top Drawer Components *(topdrwr.com)* has been making drawers in Apache Junction, Ariz., for 28 years and offers a three to five day lead time, quotes in an hour, laser engraving, dovetail joinery, UV coatings, eco-friendly processes and lean production methods.

Western Dovetail *(drawer.com)* in Vallejo, Calif., offers a wide variety of quality drawer styles plus cabinet doors, accessories such as dividers and trays, and hardware. Custom- made drawers usually ship in five to 10 business days, and hardware ships in two to five business days. Among the options are pullouts, file drawers, recycling units, divided drawers, under-sink U-shapes, angled and curved profiles, and pantry drawers.

MILLWORK AND MORE

Art For Everyday *(artforeveryday.com)* in Toronto specializes in original architectural woodcarving design and production. Its catalog includes more than 1,200 decorative corbels, capitals, moldings, corner posts, island posts, mantels, appliqués, rosettes, custom woodcarvings and other decorative architectural components.

CabinetMaker Warehouse *(cabinetmakerwarehouse.com)* ships throughout the U.S. and Canada. Among the components it supplies are prefinished ½" birch plywood drawer sides (4" to 10" tall) and bottoms, freestanding kitchen islands, a pretty decent selection of vanities and bathroom mirrors, and lots of hardware including barn sliding door sets.

Artisans of the Valley *(artisansofthevalley.com)* offers museum quality period reproductions and original designs by commission, including components based on the Gothic, medieval, Tudor and renaissance periods. The shop also does hand carving including wildlife, floral, leaf work, landscape, traditional period reproductions, ropes, vines, and figures in relief and in sculptural form.

Back in 1979, Leon and Janice Osborne started manufacturing and selling wooden items through a local country co-op. Their business was located in a garage in Toccoa, Ga., 90 minutes northeast of Atlanta on the edge of the Chattahoochee National Forest. Osborne Wood Products *(osbornewood.com)* is still headquartered in Toccoa, and today it supplies hobbyists and cabinetmakers with high quality decorative components. Its Classic Reeded Island and Islander styles have identified the company over the years as ''the kitchen island leg'' people, but the catalog reaches far wider than that. Osborne supplies table legs, corbels, architectural columns, appliques, bed posts, wooden furniture

kits, cabinet and furniture feet, on-lays, molding and trim, table slides and more. Its hand-carved cabinetry panels can add exquisite detail to kitchen doors. They come in 28″ x 16″ dimensions and are 5/8″ thick.

Castlewood/American Manufacturers Supply *(castlewood.com/ams)* offers carved accents, range hoods, and a wide range of ornamental and decorative elements. The company will ship container and JIT programs from its headquarters in northwest Alabama. Among its catalog items are bar brackets, countertop supports, bun and pedestal feet, shelves, posts, legs, on-lays, moldings and trim, rosettes, valances, storage for wine and stemware, vanity components and drawer slides. It also has a strong collection of carved corbels.

Adam's Wood Products *(adamswoodproducts.com)* has been manufacturing furniture and cabinet components in-house at its Tennessee location for more than 40 years. Among the offerings are kitchen island legs, finials, feet, posts, on-lays (these are split turnings in rope, reed, flute and other designs), carved corbels and shelf/mantle/countertop overhang supports, and a variety of other furniture legs. Many of these components can be used to customize a featureless cabinet, especially in contemporary casework where painted finishes are being used. All of the parts offered in the online catalog are in stock, and can be ordered with no minimums. Adam's can also custom make many accents that a shop designs in a CAD program.

No relation to the last company, Adam's Wood Turning is a custom lathe shop (both manual and CNC) with a 100,000-sq.-ft. facility in High Point, N.C. *(adamswoodturning.com)*. Turnings Unlimited *(turningsunlimited.com)* can be found in Latham, Ohio, and makes custom balusters, spindles, newel posts, table legs, columns, capitals, finials, stair parts and the like. And King's Corner Wood Turning *(kingscorneronline.com)* in Weare, N.H., is a custom turning shop that makes architectural turnings, furniture parts, and custom restoration work.

Alexis Mfg. *(alexismanufacturing.com)* in Grand Rapids, Mich., makes custom, complex wood components, primarily chairs and chair parts.

A. Lewis Mfg. Co. *(alewismfg.com)* in Baltimore produces high quality ornamental wood products including embossed wood molding (some 165 patterns), turned rope molding, rosettes and dentil molding. All products are manufactured to order, and while there is a downloadable catalog available for patterns, the shop can also meet custom needs.

With locations in Illinois, Ohio, Maine and Michigan, Brown Wood Inc. *(brownwoodinc.com)* is an industry-leading supplier of parts and components. Founded in 1927 and FSC certified since 2001, the company offers thousands of turned and carved decorative wood components through its Designs of Distinction branded product line. Parts can be ordered unfinished or finished. Silk screening, laser engraving and imprinting are also available.

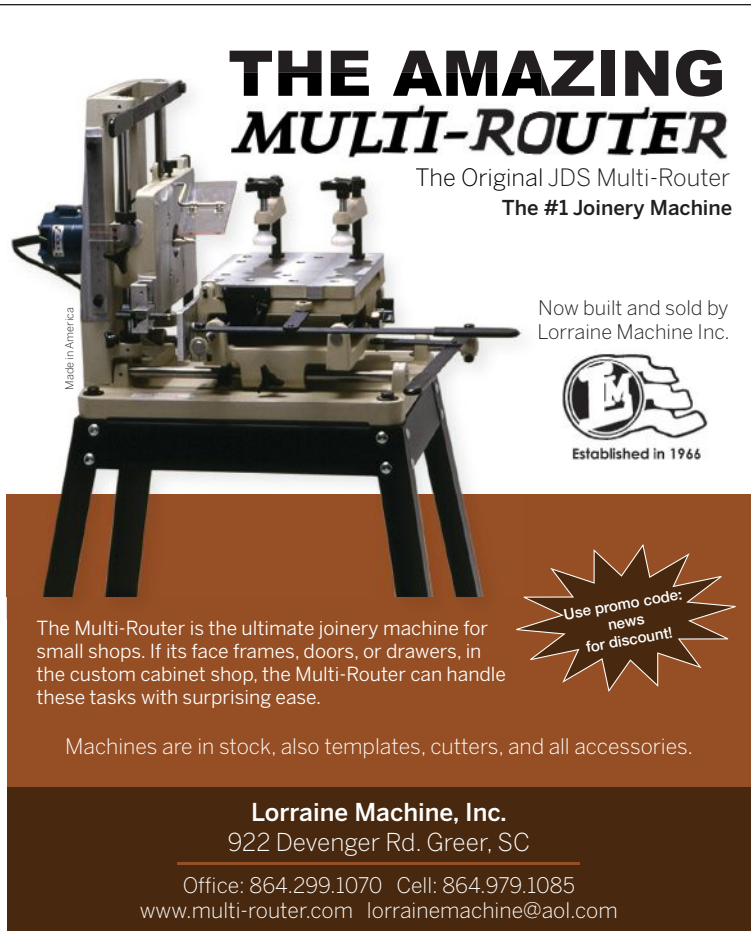
Outwater Plastics Industries *(outwater.com)* in Bogota, N.J., stocks more than 65,000 products. Among the cabinet components are architecturally accurate polymer moldings and millwork, more than 1,200 decorative wood carvings, legs, corbels, and six lines of assembled and RTA kitchen cabinetry.

Rev-A-Shelf LLC *(rev-a-shelf.com)* ships from Louisville, Ky., and offers residential cabinet storage and organizational products that can add flair to a basic casework package. These include lazy Susans, kitchen drawer organizers, base cabinet and pantry pullouts, stemware organizers, wine racks and waste bins, to mention a few.

Woodshops that don't own or lease a CNC, or don't have enough capacity on the machines available, can go to the Wood Products Manufacturers Association's website at *wpma.org*. After signing up, they can use the free supplier locator to find more outsourcing manufacturers to help fill orders, offer customers more choices, and use design tools and components to surprise the local market and build a reputation as an innovative custom shop. W

NEW PRODUCTS

MILWAUKEE TOOL introduces the 18-volt "one-handed" reciprocating saw to the company's M18 Fuel line. The Hackzall features the company's Powerstate brushless motor, Red Litium battery pack, and Redlink Plus electronics. The saw measures a little over 16" in length and weighs about 5-1/2 lbs. The bare tool sells for $149 or in a kit for $249. For more product information, visit *www.milwaukeetool.com*.



KREG TOOLS has added two new versatile clamping solutions. The Bench Clamp Base (above) is a perfect companion to the Kreg Mobile Project Center, allowing you to get more from any work surface that's equipped with 3⁄4" or 20mm bench dog holes, according to the company. The In-Line Clamp holds workpieces and assemblies in place without getting in the way by applying pressure from the side, rather than from overhead. For more, visit *www.kregtools.com*.

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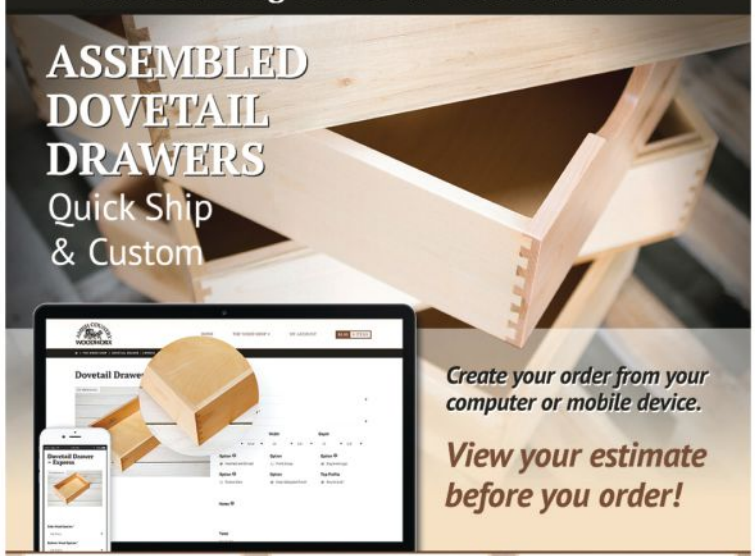

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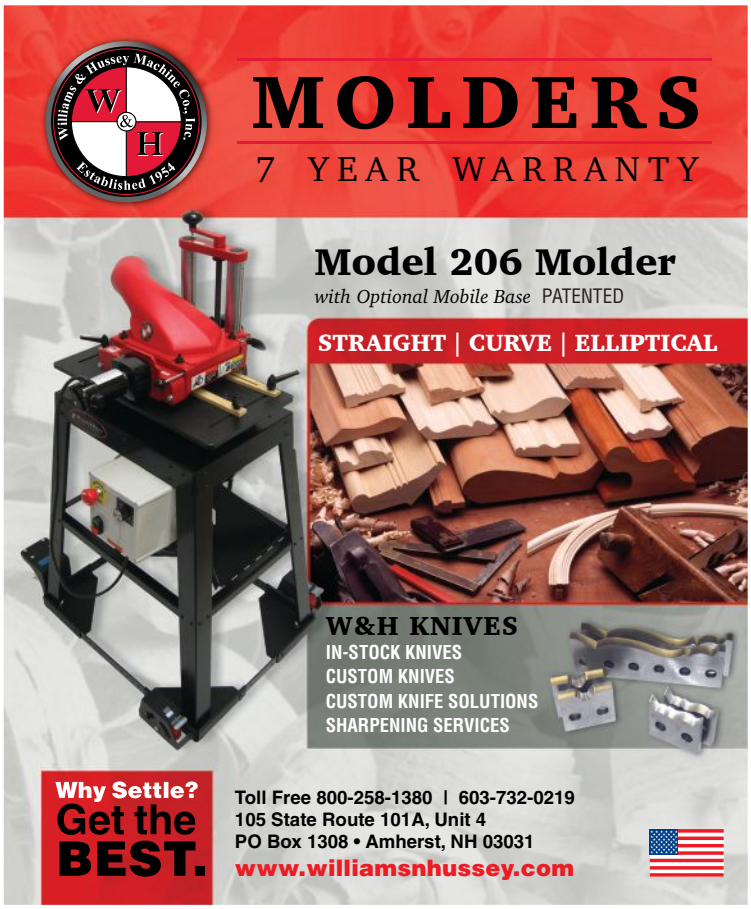
DOUG MOCKETT & CO. has a new flip-up power grommet, item No. PCS87, with an electrical outlet and four video, audio and data connections. A pneumatic lid regulates spring tension for opening and closing to keep the lid from flipping open violently and then clicks closed nearly flush with the surface when not in use. For more, visit *www.mockett.com*.

GRIZZLY INDUSTRIAL introduces a new bench-top planer, model G0832, featuring a 2-hp universal motor, three double-sided HSS knives and built-in dust collection. It comes with a cut depth indicator that instantly measures the depth of cut for each pass up to 1/8", an adjustable cutterhead depth stop for repeat planning operations, and a built-in, see-through chip blower, according to the company. The planer sells for $355. For more, visit *www.grizzly.com*.

DEWALT introduces the 35′ XP tape measure featuring a tougher case, blade coating and hook connection, according to the company. The coating covers the entire blade and protects the paint for long blade life and maximum protection against abrasion, wear and rust. The 1-¼″ wide high-carbon steel blade provides up to 13′ of straighter blade standout for increased reach and efficiency. The tape sells for $39.99. For more, visit *www.dewalt.com*.

BOSCH presents the Custom Case System to store its Impact Tough bits, offering tilt-in/tilt-out convenience and removable bit clips. For more, visit *www.boschtools.com*.

HITACHI introduces a 10″ sliding dual compound miter saw with the company's Zero Clearance technology and a laser marker. The saw, model C10FSHC, features Hitachi's compact slide system that requires zero rear clearance, allowing the saw to sit nearly flush on a benchtop without compromising the range of movement, according to the company. For more, visit *www.hitachipowertools.com*.



Chair exhibit visits Little Rock, Ark.

By Jennifer Hicks

The Arkansas Arts Center in Little Rock, Ark., is hosting a chair exhibit, "The Art of Seating: 200 Years of American Design," through the end of the year.

"A comprehensive survey of American chair design, the 43 chairs featured in the exhibition document the rich and varied evolution of American design, illustrate the emergence of new technologies and materials, reflect changes in consumer taste, and illustrate social and cultural developments," according to a gallery release.

The exhibit originated at the Museum of Contemporary Art in Jacksonville, Fla.

For more, visit *www.arkansasartcenter.org*.

25 years and counting

Hawaii's Woodshow, an annual juried furniture and woodworking exhibition, recently celebrated its 25th anniversary. The 2017 show, sponsored by the Hawaii Forest Industry Association, closed Oct. 8 at the Linekona Honolulu Museum of Art School in Honolulu.

Exhibitors displayed heirloom-quality works made from koa, mango, kamani, milo, Norfolk pine, macadamia nut, and other woods indigenous to the region.

The HFIA's goal in holding the show is to encourage an appreciation for the participating artists and the materials they use to promote the positive role forests play in their local economy and ecology. Artists are required to submit projects made of wood from Hawaiian-grown tree species, especially those that have been planted and brought to maturity in Hawaii.

For more, visit *www.hawaiiforest.org*.

"The Art of Seating" exhibit includes this Shaker rocking arm chair, circa 1840.

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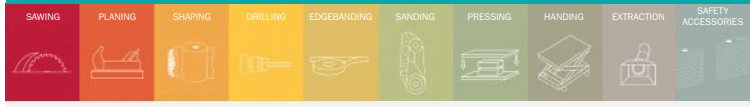

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Other pieces include this lounge chair, attributed to Charles and Ray Eames (c. 1945).

The "Slipper Chair," (c. 1860), designed and manufactured by John Henry Belter, New York City.

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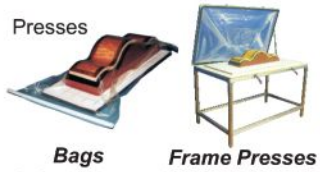

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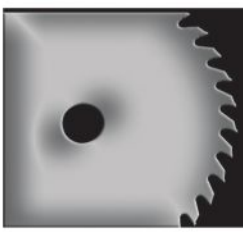

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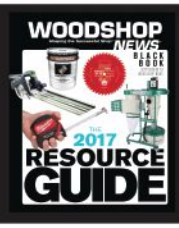

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First place, Residential Other: Fitucci Cabinets of Valencia, Calif.

PureBond on parade

Columbia Forest Products recently announced the winners of its sixth annual PureBond Quality Awards competition that recognizes exceptional design and craftsmanship using the company's formaldehyde-free hardwood plywood materials.

"The PQA competition is a way for us to recognize the exceptional work being produced by our PureBond Fabricator Network members," Todd Vogelsinger, CFP's marketing director, said in a statement.

"We've forged strong partnerships with woodworking operations all across North America who build quality custom installations and furnishings for residential and commercial clients using our beautiful and formaldehyde-free PureBond brand of hardwood plywood, and it's important to share the amazing work they do with it every day."

Category winners were:

Residential Kitchen
First Place: Ruffino Cabinetry of Fort Myers, Fla.
Second Place: Beech Tree Woodworks of Olympia, Wash.
Third Place: Fitucci Cabinets of Valencia, Calif.

Residential Other
First Place: Fitucci Cabinets
Second Place: Urbangreen Furniture of Brooklyn, N.Y., and Wm. H. Fry Construction Co. of Cupertino, Calif.

Commercial
First Place: Provincial Woodworkers Ltd., of Dartmouth, Nova Scotia

Judges included C.T. 'Kip' Howlett, Jr., president of the Hardwood Plywood & Veneer Association; Ang Schramm, a veteran of the building materials industry and a two-term member of the HPVA's board of directors; Katherine Swank, chairperson of the Department of Interior Design & Merchandising in the College of Health & Human Performance at East Carolina University, and Chip Wade, a woodworking specialist who has appeared on several HGTV television programs.

Columbia developed PureBond in conjunction with scientists at Oregon State University and has been producing the product since 2005.

For more, visit *www.columbiaforestproducts.com.* W

-Jennifer Hicks

First place, Residential Kitchen: Ruffino Cabinetry of Fort Myers, Fla..

First place, Commercial: Provincial Woodworkers of Nova Scotia.

60 Grit

Rough humor by Steve Spiro

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