eCabinet Systems
VOLUME 2, NUMBER 3
MEMBER MAGAZINE

GROWTH
IS BIGGER BETTER?

BLUE RIDGE CABINETWORKS
USING TECHNOLOGY TO GROW

VOLUMETRIC COMPENSATION
MORE ACCURATE CNC ROUTERS

A Rugged High-Performance CNC Router

with a Next Generation Control for a **New Low Price** ...only from Thermwood

The CabinetShop 41 features a 4'x8' fixed table, 10 HP, 24,000 RPM automatic tool change spindle, high performance Siemens drives, a variety of vacuum options and Thermwood's new Gen2 SuperControl all starting under $60K.

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The Gen2 SuperControl offers more next generation control features than any other control on the market. Improved motion algorithms for faster, smoother motion; advanced three-dimensional laser alignment and compensation for better accuracy; easier programming and operation, (for example, send a single design file to the control for each job instead of a hundred or more CNC files required with a first generation control, or combine files from multiple CAD or software sources in the same job right at the control); advanced communications (the control tracks tool use and routine maintenance, shows maintenance and repair videos, has dynamic 3-D CAD drawings of all assemblies that you can rotate, zoom and explode, offers a searchable electronic manual, and can connect directly to Thermwood service with an audio/video/data link to perform virtually any control service online).

Use this system to efficiently make cabinet boxes, dovetail drawer boxes, MDF doors, five piece raised panel doors and puzzle joint face frames. You can even model carvings and moldings and build designer furniture. With the new low price and everything it can do, the CabinetShop 41 can be cost justified by virtually anyone in the custom cabinet business. It's time….give us a call.

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VOLUME 2, NUMBER 3, FEBRUARY 2008 MEMBER MAGAZINE

FEATURES

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GROWTH

BY KEN SUSNJARA

This issue of the Member Magazine is focused on growth. Growth generally means getting bigger, making more and different products and generally expanding. I have always also associated growth with making more money, which I always thought was a good idea.

One of the first surprises, one that I discovered when we started working with the cabinet industry, is that some cabinetmakers, in fact, a lot of cabinetmakers were not all that interested in growth. The CNC routers we make are usually sold to companies that are expanding their business and need new production capacity. Pretty much everyone we had worked with before then was in the expansion mode and viewed growth as good. As we first approached the cabinet industry we found that a lot of the cabinet shops we talked to did not want to get bigger. They didn't want to grow. They were perfectly happy with their size and the business they were doing. They did not have anything against more money, however their main interest seemed to be that they generally wanted to work fewer hours. Most were working daunting schedules. They wanted to make the same amount of money but they wanted more free time.

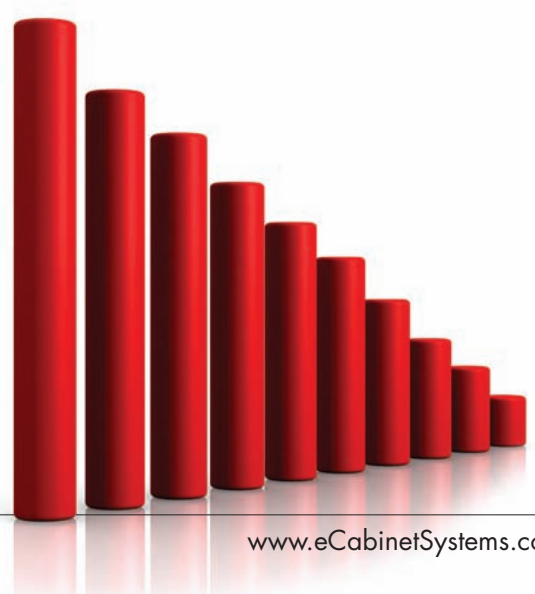
Some cabinetmakers, in fact, a lot of cabinetmakers were not all that interested in growth.

We adjusted our marketing to address these folks, but I believe they were making an assumption that I don't think is correct. They assume that if they grow, they need to work even more hours than they do now. They view expanding as simply doing more work themselves.

Over the last forty years or so my business has expanded and I have experienced expansion first hand. I have also watched hundreds if not thousands of small companies expand into large companies. The biggest surprise is that to grow you have to change personally and it's a really fundamental and uncomfortable change. At almost any level you can't simply do what you are doing today, just on a bigger scale. You have to fundamentally change to grow.

When you are a one person shop, growing means hiring additional people who will then do some of the work you now do yourself. You then spend part of your time doing what you have always done but you spend a lot more of your time training and managing your new people. Your fundamental job as a cabinetmaker has changed. Whether you work more or fewer hours now depends on how willing you are to let others do the actual work and how much of it you insist on doing yourself. This can be a difficult transition, especially when you know you can do it better.

In the next growth phase you get too many employees to train and manage yourself. Now you are not doing any of the work yourself. To grow further you need foreman or supervisors to manage and train the people. You then manage and train the supervisors. □



VOLUMETRIC COMPENSATION
is now a reality at Thermwood

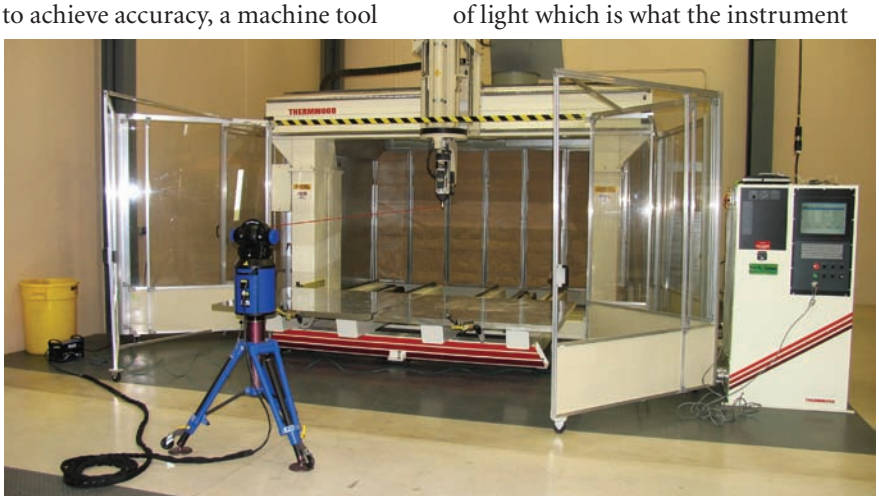
Thermwood has recently implemented one of the most significant changes in manufacturing technology in its history. This technology goes under the name "volumetric compensation" and it represents one of the most basic improvements in CNC machine manufacturing ever.

Volumetric compensation originated in an effort to make CNC machines more accurate but has expanded its role to affect the very nature and design of machines. Thermwood is one of very few companies in the world that has been able to implement this new technology and one of even fewer that use it on every machine they produce.

While the biggest impact of this technology is in very large envelope aerospace machines, it has also had a significant impact on the design of other machines including our new "low cost" CabinetShop 41. To understand this new technology we must first examine how machines have been built until now.

Most people assume that in order to achieve accuracy, a machine tool is simply built very accurately. This is actually not the case. Sure, machine tool makers try to make their products as precise and accurate as possible, but you quickly reach the limits of what can be done mechanically and still, when tolerances of even precise parts combine , the result can be very poor. Efforts to make parts more and more accurate cause part costs to skyrocket but have little affect on overall accuracy. There are actually two viable choices, live with the result, which is what most low cost machines do, or laser compensate the machine.

Laser compensation has been the common choice of machine tool makers, but it too has had its limitations. The traditional laser interferometer, the instrument that is used to measure position, measures very precisely along a straight line. This instrument is so sensitive and so precise that you must calibrate it for air temperature, humidity and barometric pressure because each of these factors affects the speed of light which is what the instrument uses to measure distance. You can actually measure to a tiny fraction of a thousandth of an inch across a room.

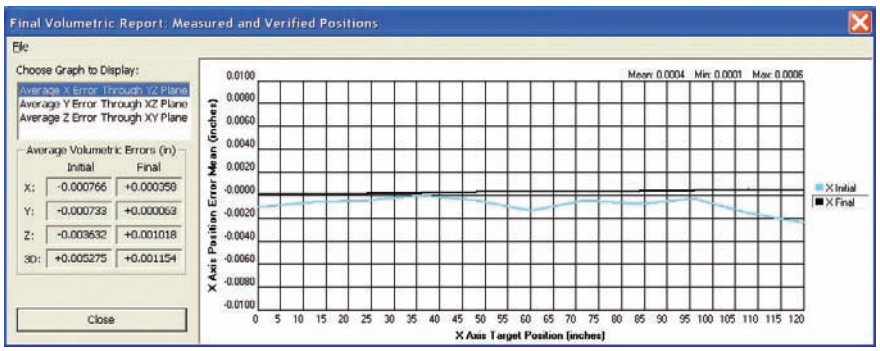


A typical set up to perform "volumetric compensation" on a five-axis CNC router.

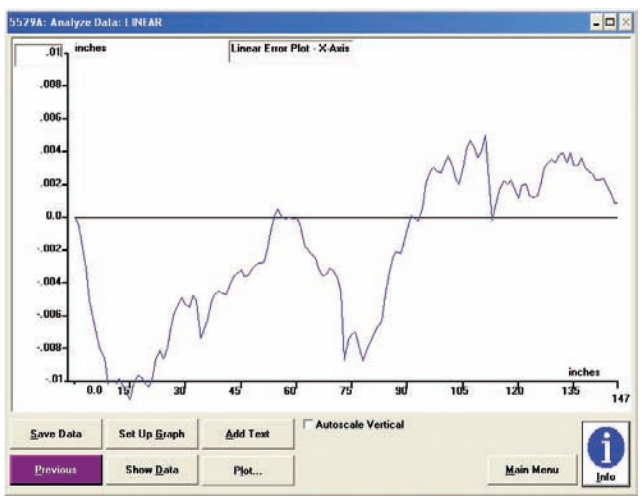
The traditional way of using a laser is to set it up on each axis of a machine and measure the position of that axis as it moves back and forth. When the position of the axis measured by the laser is compared to the position the machine control thinks it is at, a difference almost always exists. When this occurs, we simply assume the laser position is correct and we create a compensation table that the control uses to adjust the position. This works great when moving along a single axis. This is the state of the art today.

The real problem with this is that as you move along one axis, you can actually change the position of other axes. Any variation in the straightness, parallelism or perpendicularly of adjoining axes causes other axes to vary when an axis moves. For example, if the X axis is bowed a couple thousandths of an inch, it causes the Y and or Z axis to vary by those couple thousandths as you move along the X axis. Traditional laser compensation can't correct this and it is virtually impossible to make the machine mechanically accurate enough to eliminate this. Until now you had to either live with the inaccuracy or spend millions or tens of millions of dollars to try to correct it mechanically. Now there is an easier way.

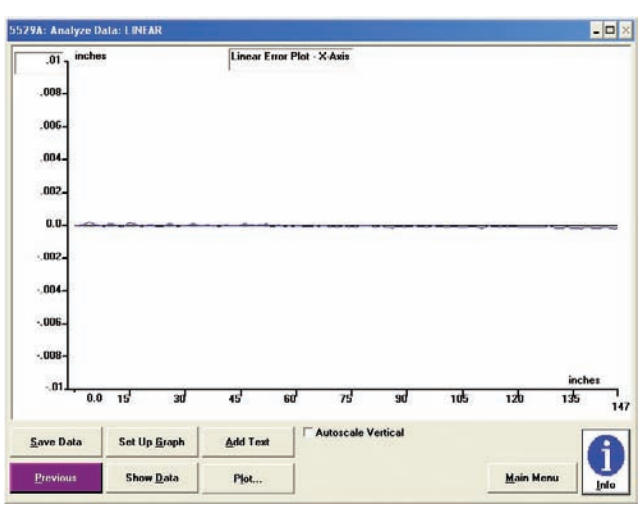
The basis of this new approach is a new type of laser. Where the traditional laser measures position along a straight line, this new three-dimensional laser measures the exact position in all three axes at once. It gives the X,Y and Z position of the sensor in free space.



Typical improvement on a dual plane from a normally laser compensated machine to a volumetrically compensated machine.



X axis before volumetric compensation



The same X axis after volumetric compensation

Now, it is theoretically possible to correct for every error and inaccuracy regardless of its source. Actually doing this offers quite a challenge and while most major control manufacturers are working on it, few have actually succeeded. The problem is that you need extremely fast and powerful controls to handle the involved math at high block processing speeds.

Thermwood, working with its new and very fast Gen2 SuperControl has been able to successfully add three-dimensional compensation to its CNC controls. This new technology and the three-dimensional lasers are now being used on all CNC routers being built at Thermwood.

Before and after measurements are showing that this is having a dramatic affect on basic positional accuracy, especially on large envelope machines.

This all sounds great, but how does it affect woodworking where you don't have the really large envelopes and super high accuracy isn't really needed? Actually it has a very practical application on Thermwood's most basic machine, the CabinetShop 41.

The CabinetShop 41 is a low cost, 4'x8' CNC router intended for smaller shops. In order to keep the cost low, the gantry is driven by a single servo drive. While this practice is common with low cost machines, it presents a major design problem called "gantry skew".

When you mount a gantry using a set of linear rails on each side, tiny, almost immeasurable differences in the rails, parallelism and straightness cause the gantry to skew, that is not remain perfectly perpendicular as it moves back and forth. This is a common normal occurrence and happens on all gantry designed machines. Although all gantries will skew, if you have any inaccuracies at all, the amount of skew can become material.

The way this is handled in the industry is to drive the gantry from both sides using a separate drive on each side (trying to drive both sides with a single motor doesn't work). The individual drives then force the gantry back into squareness, eliminating the effect of gantry skew. In fact, commercial gantry CNC controls have a gantry skew detection feature that shuts off the machine if the drives are not powerful enough to eliminate gantry skew beyond a certain tolerance.

When Thermwood decided to build a gantry machine using a single drive, we needed to find a way to deal with gantry skew, other than ignore it. The answer is volumetric compensation. We actually measure the effect of gantry skew on the head position and compensate for it. While, because of the normal forces of nature, the gantry doesn't remain perfectly perpendicular as it moves, the head moves perfectly perpendicular because of the compensation.

With advancing technology, in the future all machines will use volumetric compensation. You will get better machine with better performance and better accuracy at lower prices. If you want all these things in a CNC router today, Thermwood is currently your only choice. □

NESTED BASED FURNITURE

Back to School

An emerging new technology is developing where nested based techniques from the cabinet industry are being applied to building traditional looking home and office furniture. The techniques and technology for doing this has advanced to the point that almost any case furniture can be made in small quantities at a competitive cost with little or no tooling or fixture investment. This approach builds traditional furniture but in quite a different way than the furniture industry and it is opening up some exciting opportunities for smaller shops. Recently Thermwood built all the desks, cases, walls units, conference tables, occasional tables, file cabinets and dining tables for its new corporate offices using these new techniques. Now, Thermwood is offering classes to teach others how this is done.

The class is a week long, hands on course that covers a wide variety of subjects. "Hands On" means that you are actually going to design, build and finish nested based furniture during the class.

This is a pretty fast paced class with a lot of information to absorb. It starts with the design process. Using eCabinet Systems and other software you see how furniture can be designed using nested based principles. You also learn how to make carvings, moldings and other special components using modern nested based technology.

You then move to actually making the individual components needed for the furniture. You learn carving, including how to download programs, scale size, hold down parts and how to production sand complex carvings. You learn how modeling can easily produce the most complex moldings and profiles. You learn how to make carved legs and posts using the rotary playback device.

You will learn, hands on, how to make a variety of components using a CNC router.

Classes include modern assembly, sanding and finishing techniques.

You will completely machine, assemble and finish high-end furniture in the class.

There is section on making various types of doors including plywood centered raised panel doors. And then it is time to assemble.

Here you learn how to use modern assembly and adhesive techniques to easily and quickly assemble furniture. You learn how to final sand and prepare the piece for finishing.

Next you are introduced to the world of furniture finishing. You are introduced to the materials, techniques and technology used by the furniture industry to produce high-end, high-quality furniture finishes. You learn about fillers, stains, wash coats, glazes, sealers, and topcoats. You learn about resins, solvents, pigments, dyes and additives. You learn how to mix colors and apply finishes. Then you learn about advanced multi-step finishes including the complex world of finish distressing. You learn about aging procedures including burnish, accent and stipple padding. You learn how to dry brush, spatter stain, crackle and cowtail. You also learn about the science of physical distressing including clinker, wormhole, chain, wire brush, chisel, wood file, hammer, sandpaper and steel wool.

You then use the new techniques to actually finish the furniture you have made.

This course is intended for the experienced cabinetmaker who wants to begin moving into the world of traditional furniture using nested based cabinet techniques and should provide valuable new tools and insights for virtually any cabinetmaker. □

KCDw NOW COMMUNICATES

with Thermwood machines at the job level

This magazine is based around the eCabinet Systems Cooperative and its cabinet making Members. These Members all have eCabinet Systems software and many of them also use other software packages. Of these, KCDw is one of the more popular.

eCabinet Systems software users, however, have enjoyed a major benefit over all other software when communicating with a Thermwood CNC router. We call this feature "Job Level" communication but for the user it simply means that processing a job at the machine is easy…really easy.

To understand why the Thermwood approach is so much easier, you must understand how software and machine controls normally communicate. Normal communication between software and a CNC control is governed by the limitations of the CNC control itself. Traditionally, CNC controls simply execute CNC programs that are generated someplace else. They do little or no processing themselves, but simply play back the program.

This is a throwback to earlier days when CNC controls had little or no processing power. The practice continues today because it allows control manufacturers to build generic controls which don't have to know anything about the application or the machines they run. If you are willing to make the effort to integrate the control with the machine and the application, some really great things happen. That's what we did.

We taught our Gen2 SuperControl about nested based jobs and the machine it runs. Now the control can do a lot of things to make your job easier and more efficient.

With traditional CNC controls, sending a job to the machine means sending individual CNC programs to the machine since all it can do is execute properly prepared programs. You need a program for each nested sheet of material. You also need a program for each and every part that requires a flip operation. If you have other components such as doors, moldings or the like, each of those also require a separate CNC program. The result is a pile of programs that you must organize, sort through, load and run. This is confusing at best and as you might imagine, there is an easier way.

The easier way is "Job Level" communications. In job level communications you simply send the whole job to the CNC control as a single file and let the control sort it out. The control can figure out which parts are made from which material, create the nests, create the programs, select the proper tooling and pretty much guide you through the job, step by step.

Obviously, this requires a smarter control. We have that smarter control and it can take a job file from eCabinet Systems, process and run it, just like that.

This is great if you are running eCabinet Systems software, but if you are running any other software you have a problem. All other cabinet design software packages are designed to output the individual CNC programs, not the entire job. As it turns out, with just a little work they can output the entire job and with a little more work on our end, we can teach our control to understand their job. This means that theoretically every software package can communicate with Thermwood controls at the job level with a little work and cooperation.

As it turns out, we have been talking to the other software companies and they seem quite interested. We have started programs with each to develop this job level connection and the first to complete the work is KCDw.

We completed the interface, tested it in our facility and then did extensive testing at a mutual customers facility. This job level interface is now complete and available directly from KCDw.

This type of interface has some major benefits for everyone involved. The customer has more flexibility as to which software they want to use without losing efficiencies at the machine. Machine operation is more efficient without all the file fumbling. The various software companies can eliminate the struggle they face each time they need to configure their software output to the exact configuration, set up and tooling of each and every machine they try to work with because the same job file works with every Thermwood machine. The control takes care of allowing for machine configuration and tooling. And finally, Thermwood benefits because its machines work better and more efficiently with every software package. □

MEMBERS DETERMINE

eCabinet Systems store content

By Duane Marrett, Vice President of eCommerce Division

The theme of this edition is growth, and that is something we are constantly working on with the eCabinet Systems Member Store. You may be aware that the development direction of eCabinet Systems is in a large part determined by input from our Members, but did you know that we also depend on Member input to direct a variety of the development and product additions to the Member Store?

The new front page offers easier navigation.

Last issue I spoke about our custom cabinet doors on the Member Store program. This program is an example of how we identified an existing need within our Member community, and developed a way to meet it (since last issue, we have added an additional door vendor to the program, NorthWoods Manufacturing - owned and operated by longtime eCabinet Systems Member Bill Rutherford). We use this approach in determining not only products and vendors that our Members are interested in adding to the store, but also how the actual store is laid out and operates.

You may have noticed a difference in the front page of the Member Store. We recently revamped the front page layout of our store based on Member comments. This new interface allows you to easily navigate directly to any of our product categories without the need to click through several sub-menus. It features easy-to-view product pictures and text navigation, and gives the site a more balanced feel.

There has also been quite a lot of work going on behind the scenes with the goal of automating the entire ordering process from start to finish. In past years, much of the processing of online orders was done manually, and required additional time (not to mention the chance of human error). Since the launch of the new site about a year ago, we have been consistently automating every step of order processing. Now, when you place an online order on the Member Store, your order is processed immediately, and a PO is automatically sent to our vendors for shipping directly to you. You also automatically receive an emailed notification with your order information and number. In addition, when your order ships you are automatically notified via email with all available tracking information.

Some of our other recent projects have been the addition of offerings from door vendors, spray gun and finish manufacturers and many other cabinet suppliers. We are currently

working on upcoming additions of further wood component, cabinet hardware and finishing material suppliers. Our list of available products is at over 16,000 and constantly growing (if you are ever looking for a product by an existing eCabinets vendor and don't find it on the Member Store, just let us know, and we can get it for you and add it to the store).

As mentioned previously, your input is vital to our future growth both in functionality and product offering on the Member Store. Please let us know anything you would like to see added (whether it is additional vendors, products or new layout or ordering tools). You can email us at webstore@woodworkerswholesale.com and we will do our best to add it to the store. Your input is very important to us and we look forward to hearing from you.

We appreciate your help in supporting this cooperative that benefits us all by improving your Member Store. □

SETTING UP
a small business network

By Dean Fehribach, Information Systems Manager, Thermwood Corporation

Editor's Note: Dean heads up all the networks and computer systems here at Thermwood. We asked him to give us an overview of the types of networks a typical cabinet shop might want to set up. Hope this helps.

This article will provide a high-level overview of file sharing in a small business environment. By small, I mean less that five computers and hopefully a Thermwood router. Businesses with more than five users and computers would likely benefit from implementing a server like Microsoft Windows Server 2003 Standard Edition or even Microsoft Windows Small Business Server 2003, which adds the email server Microsoft Exchange. Server implementations are not the target of this article however, but I wanted to make the reader aware of when it might make sense to move into a server environment.

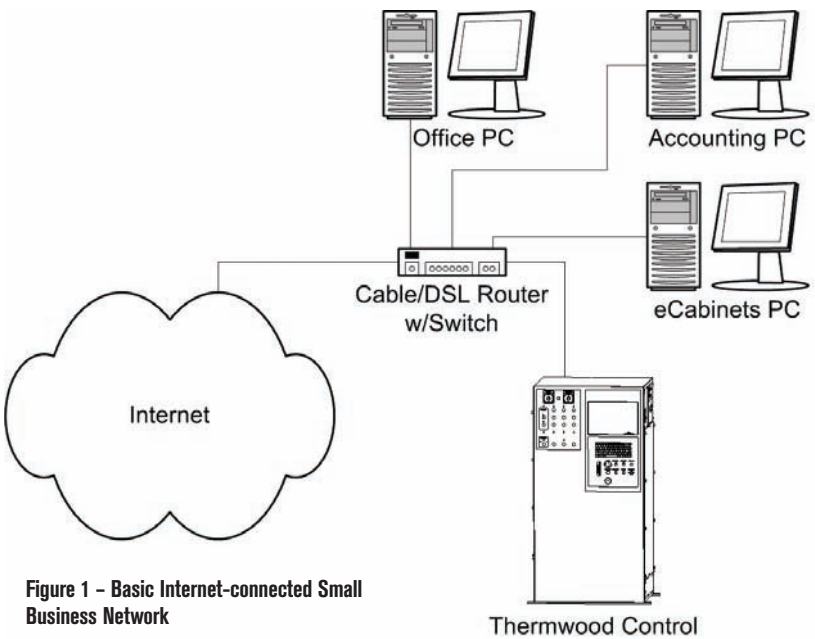


Figure 1 – Basic Internet-connected Small Business Network

There is certainly more than one way to implement a small business network and this article by no means represents the only way to implement one. In this approach, I will primarily be making use of Microsoft Windows XP Professional Edition and Microsoft Windows Vista Business Edition. The current implementation of the Thermwood Gen 2 Control utilizes Windows XP Professional, so networking this control is much simpler than its predecessors.

In simplest terms, Figure 1 demonstrates how a small business network connects all the computers amongst themselves and to the Internet. A network of this type lacks a robust firewall. If a third-party software firewall is not used each PC will at least need the Windows Firewall enabled. This network infrastructure is a simple "workgroup" environment where PC's share folders with each other and, the Thermwood Control can access any of these for production files.

First, make sure all computers actually exist in the same workgroup. This will make finding shared resources a lot easier and quicker. In Windows XP, this can be set in the Control Panel > Performance and Maintenance > System on the Computer Name tab. The workgroup setting is buried a little

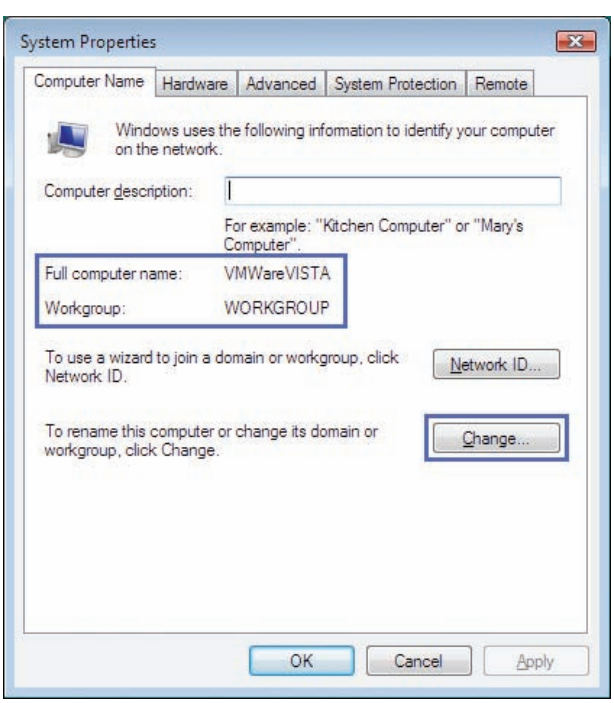


Figure 2 – Computer Name and Workgroup Settings in Windows

deeper in Vista: Control Panel > System and Maintenance > System > Advanced System Settings > Computer Name tab. Once on the computer name tab in either operating system, if the workgroup doesn't match for all PC's in the small network, just click the Change button and set the workgroup to match; a reboot will be required to activate the change. While here, each PC should have a different Full Computer Name or problems will occur; this can be changed here, too. Figure 2 is an example of the computer name settings.

For security reasons and because Windows Vista eliminated it, Windows XP should have its default simplified file sharing disabled. If a workgroup is connected to the Internet without a robust firewall, Simple File Sharing is a security risk because folders can be shared onto the internal, private network without passwords. In Windows XP, this is done by opening My Computer then choosing Tools > Folder Options > View tab; uncheck "Use simple file sharing. Figure 3 shows the simple file sharing setting in Windows XP.

Create user accounts on all computers that will be sharing folders and ensure that those accounts have passwords on them. In a small network that is not managed by Windows Server with Active Directory, each computer must have user accounts that match users of the other computers so that the users that are requesting access can be verified. In the simplest setup, all PC's should have all the same users and passwords as every other PC in a small network. Your personal login name and password can be used in a small network environment, but if you have a Thermwood Control, you'll want to at least add the username and password used by the control to any desktop PC on which it will require resources. In both Windows Vista and XP, this can be done by going to User Accounts in Control Panel. The wizards to add users in both operating systems do not request a password; it is important to create passwords for any and all accounts that exist on a network. Creating passwords is done after the accounts are created. If you aren't using a password on your main account, now is a good time to create one; besides, it's more secure if you do.

Because of its increased network security, Windows Vista's file sharing is a little more complicated to configure than Windows XP. Microsoft has implemented the principle of least access for all defaults for networking in Vista, where XP has many settings enabled by default. Configuring Windows Vista for file sharing is not difficult, in fact it's relatively simple if you know where the settings are found. Click on Start then right-click Network and choose Properties. Figure 4 shows the default network configuration for Windows Vista Business. Four areas of focus have been highlighted. If the network configuration is set to "Public network" it will be necessary to click the Customize link and change it to "Private network" using the wizard. With a private network configuration, "Network Discovery" is enabled, which helps you to find other computers on your network. Following Vista's security principles, "File Sharing" is still disabled. If this computer is going to offer files to other computers on the network, then click the down arrow in the "File sharing" line and enable it.

Create a folder in a location outside your personal directory. This can be an external hard drive or the root of drive C:. It is not really a good idea to share your My Documents, My Music, My Pictures or any other personal folders because there are complex attributes or settings that make sharing these a bit more difficult. In our example, create a folder called SHAREDFOLDER in the root of the C drive. Next, we'll share this folder on the network by right-clicking the folder and choosing Share (in XP, it will be Sharing and Security). In Vista an extra step exists here, so click on the Advanced Sharing button. Now enable the share by clicking Share this folder. Optionally, the name of the share can be changed, but if there are no spaces or non-alphanumeric letters in the folder's name, then changing the name of the share isn't really necessary, however it is highly recommended that share names not have spaces in them. Windows XP's permissions for the share will default to all users being able to read only.

If everything has been done correctly, then both operat-

ing systems should be able to browse the computer network and see the other computers and their shares. In Windows XP, this is done by going to My Computer > My Network Places and clicking on View workgroup computers. Windows Vista is a little simpler by going to Start > Network.

In a mixed Windows Vista Business and Windows XP Professional environment, file sharing can be a real headache because of the Windows Firewall and the improvements in security built into Windows Vista that don't exist in Windows XP. If computers are unable to see other computers in a mixed O/S network, it is likely due to the Windows Firewall and Vista's security improvements. This is an unfortunate case brought on by viruses, trojans, and other malware that infect Windows-based personal computers via the same methods used in peer networking such as that described here. It is really best to have a homogenous network of all Windows Vista computers or all Windows XP computers to prevent headaches in interoperability between the two operating systems. □

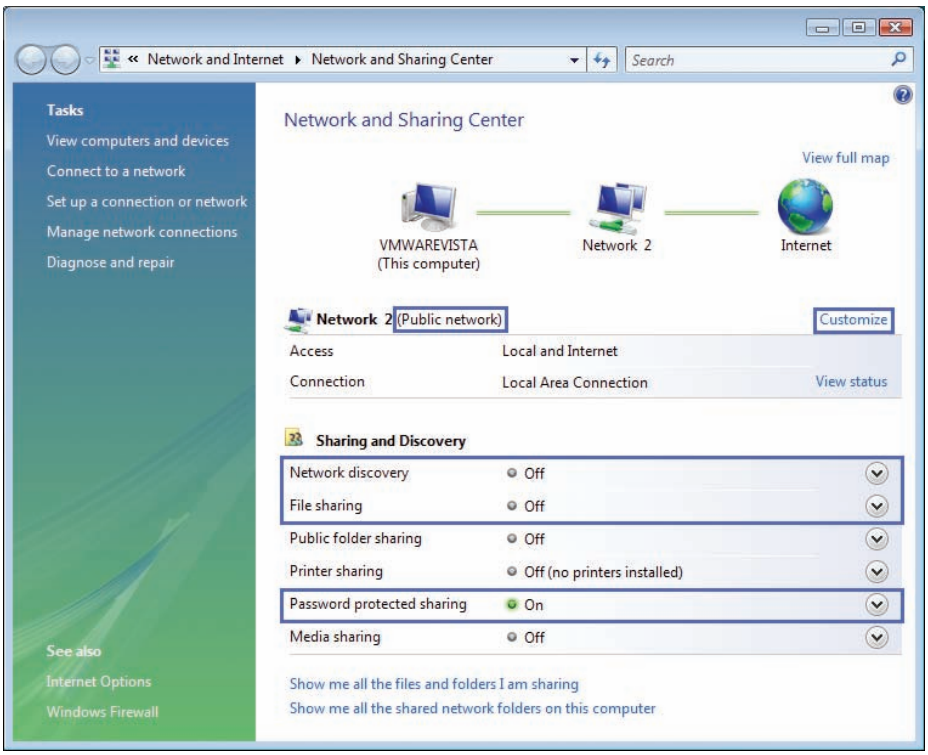


Figure 4 – Network configuration in Windows Vista

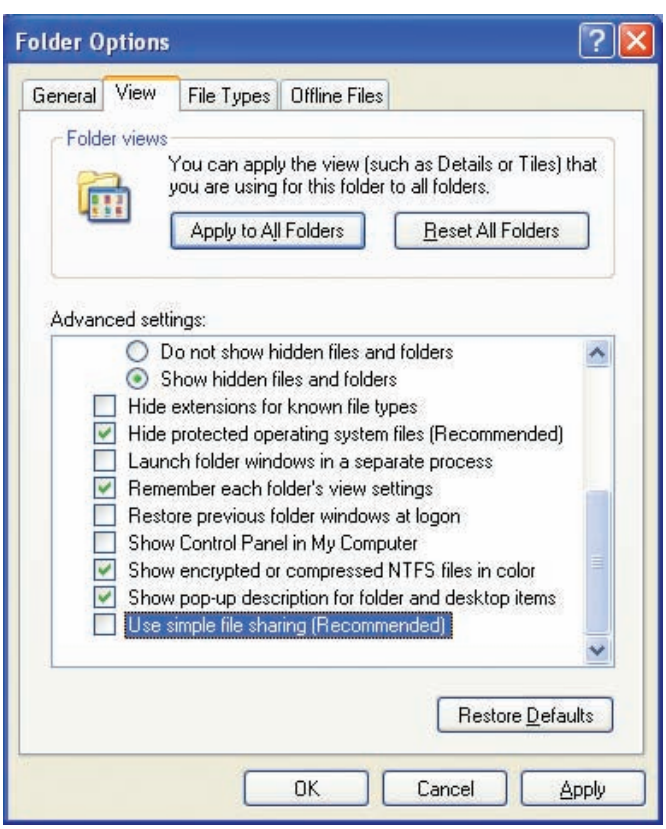


Figure 3 – Disabling Windows XP's Simple File Sharing

ADDITIONAL RESOURCES:

Windows XP Networking:
www.thermwood.com/v2n3/1.htm

File and Printer Sharing for Windows Vista:
www.thermwood.com/v2n3/2.htm

Microsoft Small Business Server 2003:
www.thermwood.com/v2n3/3.htm

File Sharing for Windows XP:
www.thermwood.com/v2n3/4.htm

A GROWTH STORY

eCabinet Systems Software Expands and Diversifies Cabinetmaker's Customer Base

By Cita Smith

In 2003, Ben Raterree was a self-described hobbyist with no formal training in the cabinetry business. Fast forward to 2007, and Ben is the owner of Blue Ridge Cabinetworks, a South Carolina company whose sales last year were 1.2 million. Starting out as a one-man shop working out of a friend's garage, Ben had access to limited equipment -- a table saw, a band saw, a miter saw, and hand tools. But all that soon changed.

Ben became familiar with eCabinet Systems' free software and eventually purchased a router. "On a limited budget," says Ben, "I was able to use the software for free and then buy the router when I could afford it. It was a seamless transition."

The CNC router has truly transformed Blue Ridge Cabinetworks into the up-to-date business it is today. Selling cabinetry and millwork mainly in the commercial market, Ben's company has been able to expand and diversify its customer base, which includes restaurants, banks, and condominiums.

This past year, Blue Ridge Cabinetworks added four new commercial contractors which became some of it's largest customers. Ben is quick to credit updated equipment like the CNC router and the automatic edgebander with this growth. "This has allowed us to do more varied work and to produce the more complicated and intricate products that architects are specifying. The router has increased our proficiency and efficiency greatly," says Ratterree.

Before the router, all cabinet parts were cut out on a vertical panel saw. All the holes and dados are now machined in the material by the router—all the shelf pin holes, the hinge plate locations, holes for conduits, and any special cutouts required. Everything is automated. The precision of this process gets high praise from Ratterree. With the CNC router, he says, "it's every part, every time, exactly the right size."

Modern equipment has allowed Blue Ridge Cabinetworks to profitably tackle larger jobs.

The ability to make complex pieces opens new markets.

The router has also reduced the number of times workers handle each piece of material. "We pretty much take off a part, edgeband it, and it's ready to assemble," says Ben. No more cutting a cabinet on the vertical panel saw and then having to take it off to drill holes manually. "The other real advantage to it is that there is little to no rework involved. There are no mistakes, like the man on the saw who cuts something 1/16 an inch too short. The whole process has been helped tremendously."

Not only does this new equipment speed up the assembly process, but it also helps morale. When an employee has parts the right size every time and he can count on having good quality parts coming to him, then he enjoys working more than if he has to stop and re-cut something because it wasn't cut right the first time.

Spray painting a restaurant booth.

The finished booth.

A Thermwood CNC router has spearheaded growth at Blue Ridge Cabinetworks.

Though he is certainly pleased with the growth his company has recently undergone, Ben Ratterree is still aiming to add more customers. In particular, he hopes for customers who will use a design multiple times. "If we can have a customer who builds three or four restaurants with the same cabinetry, then all the work that goes into the CAD design and the design with eCabinet Systems can be used again." Says Rattertee, "That's what's so beautiful about the router. Once a design is in there, the router can produce that design as many times as you want."

Being able to design products in eCabinet Systems and print out professional shop drawings and 3D renderings ahead of time allows Ratterree and his employees to show customers the designs prior to production. "That lends a lot of credibility to our company, up front, before customers even see the product," says Ben. "So it sets you on the right footing with the customer from the start and lets them know that you are a professional organization."

For Ben Ratterree, Thermwood's eCabinet Systems is not just a great company; it is really a partner in business because of the software, equipment, and support that it provides. "Their eCabinet message board on the website is very helpful," he points out, "and they are very approachable." □

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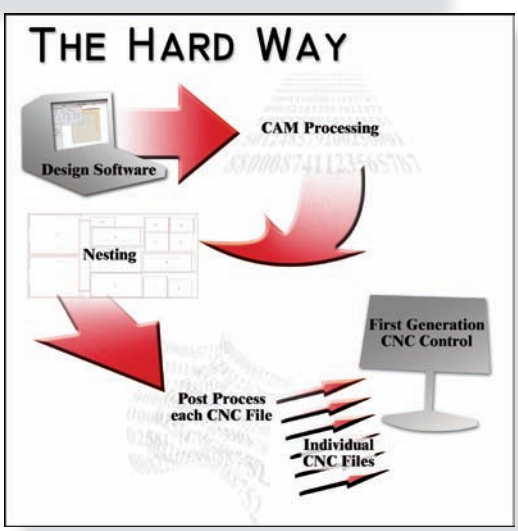

Thermwood builds an entire line of CNC routers for nested based applications from low cost machines for small custom shops to large, high-throughput systems and they all use the Gen2 SuperControl with more next generation features than anyone else.

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KERRY'S CORNER

Big Fish in a Little Pond

BY KERRY FULLINGTON

I am one of the people Ken referred to in his article from this issue of the eCabinet Member Magazine, that have little interest in growing, and for a reason he mentioned. I don't want my job to change. I have no desire to train and manage people, I want to cut boards. Right or wrong, I personally view what I do as craft first and then a business. Many businessmen feel that someone who is not particularly interested in growth, like myself, should simply go to work in a larger shop to practice my craft. This would be fine except that I want to be the one to work with customers, use their ideas to develop a design and then create that design in the shop. I must have final say as to what goes into the job and how it is built. I want complete control over every aspect of every project that I work on and am afraid that because of this I would be a lousy employee. One thing Ken mentioned in his article, that bigger shops have and I want, is their ability to make more money. Because of this desire, some type of growth is necessary.

Cabinet shops are like fish in a pond. Just as the fish can only grow to a size directly related to that of its pond (market area) and the number of fish (competitors) sharing that pond. The Cabinet Shop is similarly affected by what is happening in its environment. The ideal situation would be a flow of fresh water (new customers creating jobs) into the pond and just enough of that water exiting the pond on the other side to allow growth at a steady rate. This is perfect because a shop could gradually add machinery and manpower to keep up with that consistent growth of its environment. If too much water were to flow in at one time causing a flood, the small Cabinet Shop might be overwhelmed by the need for growth it was not prepared for and when the shop doesn't grow fast enough it allows other larger Cabinet Shops the opportunity to push him out.

There are also challenges for a shop swimming in a pond that is only filled by seasonal rains. Growth of a shop in this circumstance might be limited because with the heavy rains there is an influx of too many jobs overloading the resources of the small shop and then without warning the work dries up. This is a situation where Production Sharing and Outsourcing might prove to be beneficial. A well prepared shop could remain small, farming out much of its work when the floods come, eliminating the need for expensive new machinery and employees and still be able to handle everything in house when things slow down.

A pond that has very little or no fresh water coming into it creates a different set of problems for the small cabinet shop. If there is just enough work flowing into a pond to keep its level even but not enough to cause the pond to expand, then a shop swimming in that pond will also be very limited in its growth. If the flow of water stops completely, then most likely the pond will stagnate and eventually dry up killing the cabinet shop. A shop in this situation might do well to take Ken's advice to "Embrace Technology". Using eCabinet Systems Software, the Internet and the availability of easy shipping anywhere, you could actually grow your business in this tough environment by purchasing a Thermwood router to become a Production Sharing Shop. This would allow shop owners like me that don't want to move to a bigger pond to be able to survive cutting parts for other shops nearby in ponds that are flourishing or flooding. All the fish in every pond could benefit from this and maybe we all make more money.

All of this is to say, that although I realize that the growth of my shop is directly affected by the pond it is in, it doesn't mean that this growth has to be limited by that environment. As a member of the eCabinet Systems Cooperative I have all of the tools necessary, eCabinet Systems Software, Thermwood Production Sharing, online purchasing, outsourcing and access to a wide variety of Thermwood CNC machines through purchase or sharing to let me reach my goal of being a Big Fish in a Little Pond. □

eCab World

Growth in your business is a good thing, right? The answer is, of course, it depends. Growth must be managed and not allowed to get out of control.

By Dan Epps

Growth in your business is a good thing, right? The answer is, of course, it depends. Growth must be managed and not allowed to get out of control.

We've all seen pictures of beautiful ivy-covered walls. How about the rampant covering of the southeastern United States by the kudzu vine imported from China?

Ivy can be pruned and maintained so that it enhances a garden. Not so with kudzu…it grows as much as 12 inches per day and will cover anything that doesn't move quickly!

These are two extreme examples of growth, one managed and the other out of control. The same idea can be applied to business growth. If not managed properly, it can get out of control and choke the life from your business.

How do you manage growth then? The first, and most important aspect of managing growth (and your business in general) is to have a well thought-out business plan. Your business plan should have "trigger" events in it to control your growth.

What I mean by trigger event is that path B cannot be taken until you successfully complete path A. If you attempt to jump ahead to path B before completing path A, you will likely end up in a state of chaos that can be extremely difficult to overcome. In common folk terms, it's getting the horse in front of the cart.

Let's look back at the kudzu example for a minute. When kudzu was first brought to the United States, it was seen as a great erosion control plant. It was…too good even. Soon everything was covered over by the unstoppable vine. Then winter came, it died back and everyone breathed a big sigh of relief. Little did they know that it would be back again in the spring and would spread ever further than before.

There have been uncountable attempts at eradicating kudzu but none are as successful as the vine. Herbicides have no lasting effect and fire only removes the competition for nutrients. Kudzu grows so fast that even gasoline or diesel, which render the soil sterile, won't stop it. It simply grows past the affected soil and takes root in a new location.

Many local governments have turned to kudzu-eating goats for help. They indeed help but the after effect of a herd of goats gorging on kudzu is unpleasant to say the least.

This is a classic case of implementing an untested solution to a problem without a well thought-out plan for managing future

growth. The solution quickly got out of control and the original problem still existed.

It cannot be said enough—create a business plan. Have the plan reviewed by someone not connected with your business for issues that you (or someone connected to your business) might easily overlook. Keep your plan up to date when your business changes. Follow your plan and achieve controlled growth.

If a business plan is the roadmap to success, where does not having a plan lead? This is not to say that every business without a business plan is a failure, merely that they cannot reach their full potential without it.

Why should growth be managed and controlled? The simplest answer is money. Wait, you say, more sales means more money. Does it? Along with growth in sales comes the need for increased capacity. Increasing capacity permanently means investment—usually expensive investment.

What happens if the growth spurt is not sustained? If you rushed out and added permanent capacity at the beginning of the growth spurt, you now have too much capacity and your bottom line is eroded.

Having these trigger events in your business plan keep you from adding permanent capacity before you have the sustained sales to support it. Short-term capacity needs can be met through many means, such as the Production Sharing Program. If your growth is sustained for a length of time, it may be time to investigate purchasing a CNC router for added capacity.

What if the extra capacity is in the form of human resources? Hire temporary employees instead of permanent employees. If you use a temporary employment agency, they usually cover expenses such as worker's comp and unemployment insurance. If the growth period is sustained you can offer the temporary employees permanent positions. If not, you can simply end the contract with no hard feelings.

If someone had only visited kudzu-covered China and talked to someone there before unleashing it here…

As always, please contact me at depps@ecabworld.com for comments or questions about this article.

ECABINET SYSTEMS SEMINARS & TRAINING SCHEDULE

February

11-15	Thermwood Corporation
12-14	Utah Valley State College Orem, UT (Salt Lake City)

March

10-14	Thermwood Corporation
10-12	Fredericksburg, VA

April

8-10	Mesa, AZ
21-25	Thermwood Corporation
29-May 2	Hartford, CT

Nested-Base Furniture

February	25-27
March	31-April 2

Custom Finishing

February	28-29
April	3-4

The Nested-Base Furniture class is a three day class, while the Custom Finishing is a two day class. These classes are only offered at Thermwood Corporation. Sign up online at www.ecabinetsystems.com by selecting the "Training" tab, then click on the "Following this link" to enroll or review cost and schedule. As an introductory offer, these classes will have a 25% discount for a limited time.

All eCabinet Systems courses conducted at Thermwood are 5 days and all seminars are 3 days. Sign up online at www.ecabinetsystems.com by selecting the "Training" tab, then click on the "Following this link" to enroll or review cost and schedule. Those registering 30 days early will merit a substantial discount. Please enter the discount code provided. Classes may be cancelled if there are insufficient registrants.

Software Application Training

Thermwood offers training in the following applications with the focus of the training tailored to coordinate the application with the operation of a Thermwood router:
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Art Cam Insignia and Art Cam Pro
Panelmetrix

Product Training

While training is included with the purchase of a Thermwood CNC router, we also provide training for newly hired personnel and ongoing training for upgraded/updated equipment. The emphasis of training for the CNC router is to initiate the user in the Operation of the router, to familiarize the user with the machine language and programming methods, and to provide the user with a basic understanding of the options available through the control of their Thermwood CNC Control.

While the standard class for Operator/Programmer training is for five (5) days, other types of training, such as maintenance and tramming can be arranged on an as needed basis.

For further info you may call us at 1-800-221-3865 or via email training@thermwood.com

WHAT OUR MEMBERS ARE DOING

Editor's Note: In this area we showcase some of the jobs that eCabinet Systems Members have built using the software. If you have a job you are particularly proud of please email us some comments and photos and we will try to include it in a future issue … Thanks

Ray and Gabe Jorgensen – Hampton, IA

"The story behind this project started shortly after my father purchased a Thermwood CNC Router for his business, Classic Custom Wood. Being familiar with CNC Routers, I bragged to my wife that there was no longer anything that I couldn't do. Me and my big mouth!

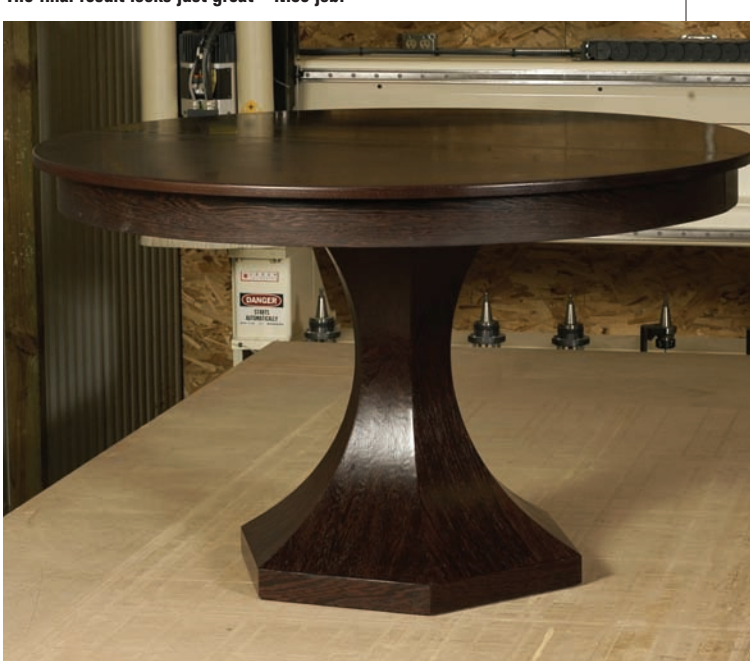
Within days she brought me pictures of multisided - arched table bases. She said she had seen all sorts of these, but all were covered with leather, or some other material; she hadn't been able to find one with exposed wood. "Since you can do anything now, make me one out of wenge!" she said.

Shortly after getting back from the training for our new machine, I began to design the table in eCabinet Systems. I quickly realized that I wasn't good enough with the software to make the program generate code for the machine (though I did get a pretty good visual rendering, which I could base my measurements from). That's when I decided that the ability to create a spline with the handheld was just the ticket. I created a fixture that I used to mark my points on the work piece, took it to the machine, plotted the points and all 6 sides fit perfectly on the first try! In fact, almost every part for this table was programmed with the handheld and cut on the machine. I did use eCabinet Systems to make the forms for bending the aprons and the six pieces that make up the base.

The base is plywood that I glued up from 1/8" bending plywood and 1/8" thick "veneer" that I flycut to thickness on the machine. The rest of the table is solid wenge.

This is a challenging project, especially with all the new technology.

The final result looks just great – Nice job!



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Thanks to the folks at Thermwood for the great training we got, and for the help with designing and ordering the custom tooling that I needed. Without you this project wouldn't have gotten done. This was one time I "COULD" backup my big mouth!"

Michael Rice – Madison, GA

Michael brings us an elaborate bar that he built for a long time customer. Here is the project in his words.

"I finished this basement about 5 years ago. At that time the owners didn't want to build the bar, but we went ahead and framed in the space with ceiling beams, in pine, to match the paneling.

Once the decision was made to build the bar, they approached me to do the job. They said they wanted it to have the look of a small pub. I had to tear out the pine ceiling beams and replace them with mahogany to match the design of the bar. eCabinet Systems gave me the ability to design the exact look they were after, and only minor changes were made after I began construction."

The final result looks really nice. Congratulations on a job well done.

The final result would make any homeowner proud.

The eCabinet Systems presentation helped to develop the look the client wanted.

Mark Taylor – Bluffton, SC

Mark has a great story behind his project. Here he describes it in his own words.

"Our church recently celebrated its 50 Anniversary – we were chartered by the Presbyterian Church on Nov. 11th 1957. Then, 17 charter members and the preacher came to the island by ferry each Sunday morning. They met in a small chapel on Honey Horn Plantation, which is now a community park. Needless to say we have gone through several capital building projects and today have a sanctuary seating 1,000 people with a membership of approximately 1,650.

My father was instrumental in the last building campaign along with the minister at that time, Rev. John Miller. Dr. Miller

The finished case – what a great donation.

envisioned a sanctuary with a large multilevel platform for the chancel area of the church. This was to provide a space not only for our congregation to worship, but for the community to gather for other events. My father agreed with his vision and he and my mother pledged 50% of their income for the next 5 years to start the "Forward in Faith" building campaign.

Today the sanctuary is not only a place of worship but it provides a space for the Hilton Head Orchestra to rehearse and perform, the Choral Society holds their performances here and many other civic and community organizations utilize the sanctuary for a variety of events.

To celebrate the 50th anniversary – Nancy Bottone, a

The inlaid crosses fit so accurately you could hear the air escape as they were pushed into position

Carvings enhance an already beautiful piece.

friend and the director of volunteer ministries at the church, came up with the idea for a "history wall" in the narthex (entrance/lobby to the sanctuary) of the church. She took the idea to our buildings and grounds committee and with much deliberation (you know decision by committee) they finally approved her idea and told her she could buy 3 of the aluminum glass cased bulletin boards to hang on the wall. Well this wasn't at all what Nancy had envisioned – she wanted it to be wall hung, but something attractive which would catch your eye and enhance the surroundings of the narthex. That's when she came to me and asked if I could build a wall mounted case with glass fronts out of wood – and she had a budget of $2000 from buildings and grounds. I told her I would be happy to make them and to give me a few days to get back to her.

I sent her the eCabinet Systems illustrations a few days later and told her Ginny and I would build her "history wall" for the church under two conditions – first that we would not accept any money for the project, it was to be our gift to celebrate the 50th anniversary and secondly we would like the piece of furniture to be dedicated in honor of my parents, Charles & Ellen Taylor.

Nancy was elated when she saw the illustrations (of course the illustration doesn't show the carvings that we incorporated into the piece and when Nancy saw the finished piece, she was – for a moment, actually speechless.) Obviously she accepted our proposal and the rest is history… the presentation case was presented to the congregation and dedicated in honor of my parents Nov. 11th, 2007.

The presentation case is made of cherry solids and plywood. The finish on the case is a stain called Fireside, with a black glaze and a 10 sheen precat Lacquer topcoat finish, all by Gemini Coatings. The decorative pilasters are solid hard maple with a natural finish. We physically didn't have enough time to complete this project producing all the parts ourselves, so the maple pilaster parts were purchased in order to allow us time to complete the other carvings we wanted to do. The carvings on the casework are from several sources; the decorative toe kick has a carving from the Thermwood carving library, the praying hands are an Artcam relief file I purchased from Vector Art 3d and the linenfold was a sample file included with Artcam software. The crosses are cut from solid walnut and as a side note, they are actually inset into the block of maple approximately 3/16". We used the inlay process in Artcam to carve and cut out the crosses and then to rout out the pocket in the maple block. The fit was so close that you could actually hear the air escaping from behind the cross as it was pressed into the maple pocket. We produce our own 5 piece doors, so the door frames and raised panel cabinet ends were cut and assembled in our shop as well as the balance of moldings including the top crown molding.

eCabinet Systems image of the job.

The final installation, new, modern and beautiful.

Lamar Horton – Kennedale, TX

Lamar brings us a remodel job that dramatically transformed a kitchen.

This job was completed by Lamar Horton working with Daniel Whitworth, Lamar's only employee. As you would enter the old kitchen the refrigerator was the first thing you saw and it dominated the entire kitchen. The cabinets were 30 years old and were very dated.

Now as you enter the new kitchen you are warmly greeted by the angled cabinet with the glass door and light inside. The kitchen has been opened up and additional counter space was provided and now the once dominating refrigerator will now be nestled neatly in the corner subdued by the cabinetry. The pantry with roll out shelves was a welcome addition as well.

Kerry Fullington – Dalhart, TX

Kerry, a well known personality to the eCabinet Systems program and a contributor to this magazine brings us an interesting re-model job.

"This was an interesting job because of challenges I faced in building it. For this re-model, the customer wanted to save as many of the old cabinets as possible. After they enlarged the room we were able to re-use five of the original cabinets. Two of the challenges were matching the edge and panel profiles of the original doors and using different construction to match the originals. I also added end panels, radius corners and a five piece stacked crown as well as bump-outs and bump-ups to disguise the transition from the old to the new. Fitting the vent hood in the given space was also interesting."

"My customer does all of her own finish work so I loaned her my copies of the Thermwood Furniture Finishes videos and she was able to use many of the techniques to help blend the old and the new. She used chain, worm holes, and a little rasp for distressing and went through a multi-step process to get both old and new cabinets to the final finish. I think she did a great job because even I can't tell which of the cabinets are original and which I built (Until you open a door or pull out a drawer)".

"The island has casters recessed into the legs so that it can be rolled up and down this long narrow kitchen. The finish was originally to be "Black Worn Red" but I think the black turned out so well she couldn't bear to do the rub through."

"Usually when a customer wants to finish their own cabinets it is a disaster but this job was a pleasant surprise. One thing we did both learn is, next time; throw out all the old cabinets."

One of Kerry's famous renderings of the remodel job.

Detail of the custom vent hood.

eCabinet Systems rendering of the new window

Dan Epps – Rocky Face, GA

Here is another project from a long term eCabinet Systems Member. Dan primarily makes parts for others but sometimes has to do some work for himself.

"We have lived in this house for 14 years and haven't been able to find a look we liked for the living room window. It is 11 feet high and 13 feet and the arch goes right up against the ceiling. This made it very difficult to find draperies that would work."

The vent hood in real life

The final installation – what a great job!

The final result is absolutely beautiful, nice job Dan

"After several attempts to use draperies on this window, my wife came up with the idea of using eCabinet Systems to design something for the window. I thought it would be a lot more difficult than it actually was."

"Many of you have read my mantra on the eCabinet Systems Forum…"use common objects in uncommon ways" and that is exactly what I did here."

"The each box valance is made up of two cabinets and a display panel and the center arch is a display panel. Since all of our woodwork is painted I chose to use ½ inch MDF. The "carvings" are some cast resin items that my wife picked up at a local craft supply store."

"Now the only thing left to do is make the draperies!"

Al Navas – St. Joseph, MO

Al brings us a sharpening station to help support turning on a lathe. Here Al tells us about the project.

"As many of you already know, LOML is the wood turner, and needs sharp gouges and chisels, etc. During her turning episodes, she might just barely touch up an edge, or hone it. But, from to time, she also must sharpen during her wood turning, to

get good results on the lathe. As a result, the sharpening station remains close to her, and to the lathe."

"On my end, I have a need to keep chisels sharp, and the hand plane irons, too. For the most part, I use the Scary Sharp technique. But, to quickly get the steel edges ready for scary sharp, especially on many of the older tools laying around, I prefer to use a grinder and a suitable jig."

"For the most part, this sharpening station will remain close to the lathe. But (I hope) that, if I ever have the need to use it for an extended period, say an hour or two, I can roll the entire thing closer to me."

An eCabinet Systems rendering of Al's portable sharpening station.

The finished cabinet, ready to work.

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EXPONENTIAL GROWTH

Thermwood CNC Router Helps Business Double its Sales

By Cita Smith

If there is one word that can summarize the past few years for Skinner's Millwork of Eight Mile, Alabama, it is growth. "In the past four years,"says owner Richard Skinner, "we have doubled our sales." From a yearly sales volume of $250,000 in 2004 to last year's total that topped one million, Skinner's company has indeed undergone phenomenal growth.

Starting the business in 1997 with his son, Richard and his staff operate out of two buildings that comprise their 7500 square foot work space. Their main product is cabinets, though they do build an occasional mantle or piece of furniture. Skinner says their focus has been in apartments and condominiums, mostly within 100 miles of home. Their south Alabama location has certainly been to their advantage in allowing them to do work along the Gulf Coast, an area booming with condominium construction.

Purchasing a CNC router has made all the difference to Skinner and his business. Before the router, they used table saws and often found the production process to be slow. With the upgrade to the router, they have seen great changes. "I never would have made the schedule with these condos if I hadn't had the router," says Skinner. "It really helped with the timing. We went from building one unit a day to two units a day."

The router has also strengthened the cabinets and improved the whole process, explains Skinner. "Now we do a lot of dadoing on the cabinets that we didn't do before. We dado the shelves, the backs, and the stretchers." And the router also eliminated the need for a

Skinner's Millwork has more than doubled in size.

Higher sales means more higher volume that can increase productivity.

Photo: Library in the U.S. Green Building Council's new, LEED® Platinum headquarters; fabricated using PureBond® formaldehyde-free veneer core hardwood plywood with bamboo veneers.

columbia FOREST PRODUCTS

cut-off saw for the person putting the cabinet together. Before they had the router, they would cut the parts out and then assemble them later, sometimes having lots of errors. "We don't run into that problem anymore because the machine cuts all the parts," says Skinner. "When we put the cabinet together now, we have no delay–we go ahead and put it all together."

The router has, in short, eliminated a lot of error, sped up the process, and made it easier to put the cabinets together. Skinner adds that the next piece of upgraded equipment he'd like to buy is a finishing sander for use on all his doors and frames. Currently, his staff runs those through a big belt sander and then does all the finishing with palm sanders.

eCabinet Systems has also played a part in the growth of Skinner's Millwork. Skinner does all his design on eCabinet, so everything that's cut on Thermwood is done through eCabinet. He finds the software efficient and easy to use.

Scheduling, finishing work, and finding the right people are challenges Skinner continues to face today. But his current crew is, in his own words, "the best I've ever had." He hopes to expand his business soon by adding a separate facility for a door shop. He is also interested in becoming part of eCabinet Systems Production Sharing program, using his router to cut out parts and pieces for other companies. Skinner is quick to say how much the CNC router has helped his business grow. "That's my baby out there," he says smiling. "I guarantee you." □

Quality products like this have brought growth to Skinner Millwork.

Richard Skinner credits the CNC router for being able to profitably handle the growth.

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