eCabinet Systems

VOLUME 1, NUMBER 4

MEMBER MAGAZINE

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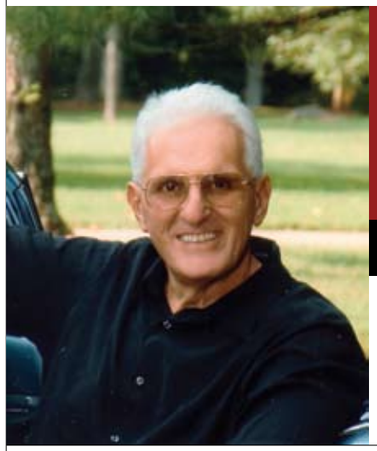

MONEY

BY KEN SUSNJARA

The theme of this issue of the Member Magazine is "Money". I once heard that money isn't everything….but its way ahead of whatever's in second place. Money is why we do what we do. Actually we don't really want money, we want what the money buys. First, there is survival. We need money to buy food, clothes and someplace to live. Then if we can get even more money we can buy things that make our lives even nicer.

So as a cabinet shop, how do we make money? That's easy, we sell something for more money than it will cost us to make. Actually, this is starting to get more complicated. We now need to know how much it will cost us to make something we haven't already made and, we must be able to get someone else to give us more money for that something than our cost. We must actually market and sell the things we make.

To make things even more complex, other people are trying to sell similar things to the same folks we are trying to sell to. We have to compete.

These customers typically want to buy at the lowest price. If there are two items that the customer perceives are pretty much identical, they will buy the lowest priced item because they want to keep as much of their money as they can.

This means that if we plan to sell what we make, we need to make it at the lowest possible cost so we can sell it at a competitive price and yet make a profit. We need to be efficient. We need to buy material at the best price. We need to process it with the least amount of effort and we need to make as few errors as possible.

This is where modern technology comes in. As an eCabinet Systems Member, you already know some of the advantages of this modern technology. The software helps design, helps organize, helps estimate costs and helps you sell the final product. It also should help avoid mistakes.

As good as it is, software is only the beginning of the process of using modern technology to become more competitive and thus make more money. Also, software is only half of the eCabinet Systems technical effort.

A major benefit of eCabinet Systems is that both the design software and CNC control system software for Thermwood machines are written by the same people. The two can be blended in ways that would be all but impossible if they were created by different organizations. This allows us to make it extremely easy for Members to actually make the products they design. The real key to major productivity using eCabinet Systems is having a CNC router which brings us back around to our theme, money.

Traditionally, nested based manufacturing using a CNC router was relegated to making cabinet boxes. If you wanted a CNC router you had to make enough cabinet boxes to justify the cost of a CNC router. This limited its practical use to larger shops that built enough cabinets to pay for the machine. This also eliminated the majority of eCabinet Systems Members who tend to be smaller shops.

To address this we established the Production Sharing Program where Members with machines could make parts for Members without machines. The technical requirements to do this, for both the machine and the software are daunting but we will leave that for another time. The program did, however, offer a way for smaller shops that don't have enough of their own production

requirements to cost justify a CNC router and over 80 shops have already taken advantage of this program.

Version 5 of the software further changed cost justification for a CNC router. It added the ability to design drawer boxes, including a dovetail design, as well as five piece solid wood raised panel doors and MDF doors. Not only can you design these items but you can feed them to the same machine that makes the cabinet boxes and make them too. Version 5.1 adds face frames with puzzle joints to the mix.

Now, savings come from a lot of different areas, not just boxes. Production sharing shops have even more products they can make for others. This also means that a lot smaller shops can justify, really cost justify a CNC router on a lot lower volume levels. The whole equation has changed in the last six months.

We covered the new face frames and five piece doors in separate articles in the last magazine. In this issue, we offer an article that details cost justification of a CNC router where you will hear from shops like yours who have purchased CNC routers and you can see if this really makes sense for you in light of all these new changes.

This business and this industry is about making money. Advances in technology in the eCabinet Systems program we all belong to are rapidly changing the practice of making money. It might be time for you to reexamine the fundamental money making practices you currently embrace. After all, that's why we are in business. ■

CONSTRUCTION REPORT

We are making real progress now. The production building is pretty well complete as you can see in the photos. We began using it in January, which was a good thing. As you can see we had a lot of machines to get through and got the new space just in time. We still have to complete the parking lot, stairs from the parking lot and general landscaping but the building looks like it is going to work very well for us.

The new production building has freed up space in the current plant so we are constructing two modern training shops to teach eCabinet Systems Members how to build and finish high-end furniture. We are trying to incorporate the most modern technology into these training shops so Members can experience the latest and greatest first hand in a real production mode.

The front office, training rooms and showroom are also coming along quite well. Rain was a constant problem until we got it under roof where the rain was no longer a problem. Then it quit raining. There are a lot of electrical wiring, data and communications lines to run as we are moving all our servers to a modern new server room in the new building. A rather large team of construction folks are here every day and progress is steady. We are hoping it will be done and we can move in sometime this spring.

As a final note, we have designed (using eCabinet Systems) and are building and finishing all the wooden furniture (desks, tables, reception, wall units, occasional, etc.) ourselves using our new training shops. This will give us experience with the various new technologies and give us a chance to refine operation of the shops. It will also save us a TON of money! We plan to make the office furniture designs available in the Design Sharing area once we are finished. ■


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1. New production facility is complete and in production – just in time.
2. New office/showroom is progressing nicely too.
3. View of the lobby of our new office from the upper level.

HOW MUCH SHOULD I CHARGE?

PRICING YOUR PRODUCT

Nothing has more impact on your business than how you price your product. Too low and you lose money, too high and you lose business. What is too low or too high depends on your costs. The objective is to make money.

There are a lot of different pricing methods in use in the cabinet industry. Some are incredibly crude and potentially dangerous. One example is pricing a kitchen by the running foot or the number of doors in the job. These quick and dirty methods work for many shops but only because they are based on experience and they rely on nothing changing. They build essentially the same product, essentially the same way. Change products, material cost, assembly time or any of a thousand variables and this approach quickly breaks down. The only really good way to price your product is to understand, really understand your cost.

Understanding your costs is complex but important. If you don't understand costs it is difficult or impossible to consistently make a profit. You could price your product high to insure a profit, but you will certainly miss out on sales. If you are aggressive in pricing and you don't truly know your costs, you will certainly accept business at a loss sometimes.

In the most basic form, there are four components to price, material, labor, overhead and profit markup. If you are accurate in determining material, labor and overhead, the profit markup is how much you make on the job. Then the government takes it share and you have the after tax profit. So the trick appears to be accurately estimating material, labor and overhead.

Luckily, eCabinet Systems software has provisions that help with this estimate. If you use the software to develop the job and the costs you input for materials are accurate, you should get an accurate material cost for the job. The same thing goes for labor. If your labor estimates for each cabinet are accurate, you should get a fairly accurate estimate of labor cost for the job, but there is one caution here.

As long as you have enough work to keep everyone busy all the time, these estimates are accurate. They tell you how much labor it will take to build the job assuming you are actually working on the job. If you don't have enough work to keep everyone busy all the time, these labor estimates may actually be too low. This is because you may have people that aren't working on a job that you are paying anyway. After all, you can't just send them home every time you hit a scheduling bump. The cost of this unproductive time needs to be spread over jobs that are actually being processed if you want to know the actual cost of those jobs in the current economic atmosphere. Thus, the labor portion of your cost is not as consistent or predictable as material.

There are a couple of ways to handle this. You can pad your labor estimates in the software to account for this unproductive labor, but this padding number can vary, becoming near zero when things are busy and becoming larger when things are slow. This also makes your cost and possibly your prices high when things are slow which is probably the wrong thing to do.

Another possible approach is to assume that your direct labor is a fixed cost each month since you will likely pay your people regardless of activity level, within reason. Then it can be handled like overhead.

Overhead cost is the one area that really confuses things. Material, and to some extent even labor are direct costs. If you build twice as many cabinets you will need twice the material and twice the labor. Cost varies directly with the level of business, hence the name direct cost. Overhead is different.

Overhead cost is time based. It is a cost that occurs each month, whether you build a lot or a little. It includes rent, equipment payments, utilities, administrative and selling costs and anything else that is paid monthly. Determining how to apply these costs to each job gets a little tricky because it depends on how many jobs you process each month.

This cost can vary substantially on essentially the same job depending on how busy you are. If you are building four jobs a month, each job can be assigned one fourth of the monthly overhead cost. If business falls off and you only process one job a month, overhead cost quadruples since that one job now needs to absorb the entire overhead cost. If business doubles to eight, overhead per job is cut in half.

As you can see, when you are busy, your cost per job is low and profits high. When things slow down, the cost of each job gets higher just when you don't need that.

We have been acting like each job is assigned the same overhead cost, but that is not how it is normally done. Bigger jobs generally absorb more overhead and smaller jobs less. A typical way of distributing overhead cost is by tracking direct labor hours. A job with twice the labor hours gets twice the overhead. This is easy to do on a monthly basis by dividing the total overhead cost by the total number of labor hours that month. This gives you an overhead cost per labor hour. Then multiply that number by the labor hours in each job to determine the overhead cost for that job.

This approach assumes that the ratio of labor to job price is consistent, that is if a job sells for twice as much, it will have about twice the labor hours. If this is not the case in your shop, for example if some jobs use high cost materials and others low cost materials and this accounts for much of the price difference, you will need to include material cost in the calculation used to distribute overhead cost. This can get a little tricky, but you get the idea.

The final result is that you really do need to know your cost and you need to be able to project that cost onto new jobs if you want to consistently make money. eCabinet Systems software has some really valuable tools that can help with this, but what it really takes is some time and focus.

It is in this environment that we created the Dynamic Cost/Price System found in eCabinet Systems. Let us start with some definitions.

Throughout the program, Cost is how much you pay for something and Price is how much you sell something for.

The most basic item is Material Cost. This is how much you pay for something. Although this seems simple enough, this, along with the rest of the financial area, is not all that straightforward. If a cabinet pull costs you five dollars the cost is five dollars, right?

Not really. The pull actually cost you more than five dollars. Five dollars is how much you paid someone for the pull. It is also likely that you paid to have the pull, along with other items, shipped to your shop. A portion of that shipping cost represents cost for the pull. The pull, then, costs somewhat over five dollars.

This is still not the cost of the pull mounted on your finished product. After you received the pull, someone had to locate it, unwrap it, figure out where it is to be used and then mount the pull on the product. All of these actions require labor, and labor is something you have to pay for. The cost of doing these tasks also needs to be added to the cost of the pull. After all, if there were no pull on the door, none of these costs would occur so it is just right that they be considered part of the cost of the pull.

Are we finally done? It depends on how accurately you want to track your costs. There are other components to cost. Each year you might lose, damage or scrap some pulls. The cost of these items must be spread over the items you actually used to get a true cost. Then, the amount of time you keep the pull on the shelf affects its cost.

If you purchased the pull a year before you used it, you tied up

IN THE MOST BASIC FORM, THERE ARE FOUR COMPONENTS TO PRICE: MATERIAL, LABOR, OVERHEAD AND PROFIT

five dollars in inventory for a year. If you are paying 9% to borrow money, the cost of the pulls actually increased by 9% or $.45 during that year. Even if you don't borrow money, the five dollars could be put in an interest bearing account and you could have made some interest on it for the year. Therefore, the lost interest should be added to the cost of the pull.

Although these sound like pretty small numbers on a five-dollar purchase, if you apply them to everything you buy, the number becomes significant. The cost of the five-dollar pull alone could have easily increased a dollar to a dollar and a half. This is twenty to thirty-three percent. Even for small shops, undervaluing material cost by twenty to thirty-three percent is a serious problem.

When you try to determine the cost for material such as sheet stock or wood, the problem becomes even more involved. For items such as pulls, if you need one pull, you buy one pull and use everything you bought. With wood, however, you never quite use it all. There is always cut-offs and scrap material from any process. This is the material that you discard.

When you try to determine the cost for items made from these materials, you know the amount of material in the final product. You do not necessarily know how much wood it required to make those pieces. To help properly cost these items, the accountants have come up with a term called yield. Yield is the percentage of the material that turns into the finished product. If three-fourths of a sheet of material is used in the final product and the other quarter is scrapped, the yield is 75%.

Yield is used as a kind of a backdoor way to determine the cost of the final product. For our example we will use some easy numbers. Assume a 4' by 8' sheet costs $32. The sheet contains 32 square feet (4 X 8). Material costs $1 per square foot ($32 divided by 32 Sq Ft).

Let's use a 50% yield number. Half the 32 Square foot sheet or 16 square feet is used for the product and 16 square feet is scrap. The final product has 16 square ft of material in it.

If we take the final product and try to calculate cost, you would take 16 square feet times $1 per square foot for a material cost of $16. This, of course, is wrong.

It required a full sheet, which cost you $32, to make the product, but we calculated a $16 cost. To get an accurate cost we must not only calculate the cost of the material that ended up in the product but we must also add the cost of the material scrapped in making the product.

You could try to track your cost by counting the total sheets of material used for a job times the cost per sheet. We actually do just that when we calculate the cost of an entire job, however, it would be difficult to determine the cost of any particular item in the job using this method. Instead, when we deal with a single cabinet we will use the number of square feet in a finished product and then divide that by the yield, to determine the amount of material required to end up with the finished product.

Let's look at our example. If we take the calculated cost of $16 and divide it by the yield (50% or .50) we end up with $32 which is the actual cost of the material used in the product plus the material scrapped in making the product.

Although in our simple example it is easy to calculate the cost using the starting raw material, in real life, the calculations are much more complex and using the yield figure simplifies costing.

Most of you already know this, but it is important to understand all the underlying facts so that there is no confusion as to how we present our costing numbers. We will try to explain exactly how we handle these costs so that there is no confusion that might cost you money.

So far, we have only covered Material Cost. Luckily, this is the most complex of the terms we will deal with.

The next area is Labor Cost. As you might expect, this is the cost of labor needed to manufacture a product.

Next comes Overhead. This is all your expenses not directly tied to producing a product. It includes management salaries, travel, phone, advertising, insurance, rent, copy costs and a host of like items.

If you add the Profit you want on this job to the Material, Labor and Overhead, you get the Selling Price. This Profit number is actually more accurately, pre-tax profit. To get to the real bottom line we still have to subtract taxes.

This provides a very quick overview and some background to help determine the approach we want to use and how to determine the cost parameters we will need.

We will now go back and revisit the material area, focusing on the cost. Select the Settings/Preferences icon from the toolbar and then select Define Stock Material. This will bring up the material input sheet.

To obtain accurate cost estimates we must carefully specify the costs for various materials. It is these costs that form the basis of our cost estimates and therefore, it is quite important that they be correct when first entered and that they be adjusted whenever we learn of a change in material cost from our suppliers.

We have covered the basic input of material cost in the material area so now we will switch to the Dynamic Markup dialog where the core information is added.

From Settings/Preferences select Define Costs.

This dialog is used to specify basic information and choose the costing method you wish to use for cost estimate calculations. Once the information is entered in this area, the system automatically keeps track of Material Cost and calculates an estimate for Labor and Overhead costs for each Job. You can also determine the estimated cost of a cabinet or assembly in the Cabinet/Assembly Editor.

Cost estimate information is available from two sources, a Dynamic Cost Display along the bottom of the screen or a Cost Sheet report that can be generated from the Cabinet/Assembly Editor or from Custom Layout or Batch Cabinets. Note that a Cost Sheet for a Job includes costs for items added in both Custom Layout and Batch Cabinets. ■

CARVING WOOD

MEET THE MASTER

Many of you have seen the exquisite carved tables and mirror frames offered through our program from a carver/designer called Arno Schadt. Arno is actually a wood carver by trade, considered by many the preeminent original wood carver in the furniture industry. He has personally had a significant influence on the look, feel and style of the entire modern furniture industry because he has created many of the original patterns still in use today by many of the major furniture manufacturers. We thought you might like to meet him here in the pages of our Member Magazine.

It is surprising that Arno did not start his career as a wood carver. With degrees in Illustration and Design from the Ontario College of Art in Toronto and formal training in biology, he worked for the Canadian Department of the Interior in his twenties. He was flown into Canadian forests and national parks to document flora and fauna through writing, photography and sketches. This experience imprinted an intimate knowledge of flowers, leaves and nature into Arno, which would later contribute to his unique carving talent.

Although Arno loved the nature work, he was not as fond of working within a government. About this time, his father moved to the US and set up shop in High Point, North Carolina.

Arno's father was a master carver "in the old tradition". At one time he was the head carver for the King's Palace in Romania and was an incredibly talented and capable artist.

As an apprentice to his father Arno soon learned old world carving techniques which he combined with his commercial design talent, business sense and intimate knowledge of nature to develop a unique one-of-a-kind talent.

Arno applied his talent to create and bring to life original master carved parts for the multitude of major furniture companies. They have and still use Arno's creations as original patterns to mass produce their furniture.

Arno created designs that appeal to the American buyer and their lifestyle using design themes that range from Chippendale and French to Italian provincial and heavy Baroque.

The exodus of furniture manufacturing to China has impacted Arno's business like so many others so he has started to branch out. He views eCabinet Systems as a promising area of future business and plans to add new carvings and designs through both the professional design program and the carving rental program. We have added an area in the carving rental program for Arno's offerings.

He also sees architectural carvings as a promising new area to focus on. In a recent visit he told us that he plans to address this market in two ways. First, he will offer new architectural pieces through eCabinet Systems and showed us a carved fireplace surround that he had just finished as an example. The CNC programs for this piece will soon be available for rent and can be run on a Thermwood CNC router. We discussed other new items such as

carved moldings and eagerly await the new things Arno envisions.

In addition to these open offerings, he is also offering to hand carve original, one of a kind pieces for high end homes. Many eCabinet Systems Members work on high cost homes and often use architectural carvings from a catalog. Arno is now offering a step up from this by providing the ability for eCabinet Systems Members to supply original designs and carvings for an even higher value offering. This can be very appealing to a certain type of customer. If you have an interest in this service, just call Arno direct at the number shown below.

We at eCabinet Systems are very pleased to have Arno as part of our program and hope that many Members can benefit from his extraordinary talent. ■

TO CONTACT ARNO:

ARNO SCHADT
1215 W MARKET CENTER DRIVE
HIGH POINT, NC 27260
336-883-0051

1. Here is Arno with a fireplace mantel he is preparing for the eCabinet Systems rental program.
2. Detail of Arno's latest creation, a fireplace mantle.
3. Part of Arno's shop in High Point, NC.
4. More details of Arno's mantel.

CAN I AFFORD A CNC ROUTER?

The machine we selected for this analysis is a fully equipped Cabinet Shop 45 as shown here.

"I will buy a CNC router as soon as I can afford it". Surveys indicate that 40% to 60% of cabinet shops say this, depending on which survey you read. A CNC router is automation, it is productivity and is on every cabinetmakers short list of things they would really, really like to have.

So exactly when can you afford a CNC router? We are going to try to address this question right now.

The answer is simple and complicated at the same time and the answer changes over time. The simple answer is that you can afford it when it will make you more than it costs. The complex part is knowing, ahead of time, when it will make you more money than it costs. There are a lot of factors that must be considered and we will try to visit each of them.

The answer is further complicated by the fact that CNC routers and nested based manufacturing technology is advancing, doing more and more things for the cabinet shop. These new capabilities each save and make you more money and they must be considered in the formula.

The first thing we need to do is figure out how much it costs. Then how much it will make or save us. Then we can compare the two and see if it makes sense. Let's start with the cost.

In our analysis we are not going to try to scrape by with a starter system. We are not going to try and do this on the cheap. We are going to evaluate a good system, with all the options and consider all the costs. If you are going to move to a CNC, do it right. A good, well equipped system is a lot better investment with a lot better payback than a minimal starter system.

We will start with a Thermwood CabinetShop 45. This is not the lowest cost cabinet system offered by Thermwood, but it is the best for cabinet shops. It has a fixed table (5' X 10') and a moving gantry (you can get a 5' x 12' or a 7' x 12' table but this generally only makes sense in special circumstances). It is quite a bit faster than the lower cost moving table systems and the slight additional cost pays dividends every day.

The machine we selected has vacuum plumbing and an 18 HP vacuum pump, automatic pop-up pins, automatic lubrication and auto tool length sensor (makes accounting for tool length MUCH easier), a combination tool change bar (to accommodate the larger tools used for five-piece doors), the five-piece door system (clamps and $1,800 in tooling), $1,000 in assorted tooling, eCabinet Systems and machine training, and installation travel (priced to Denver, will vary if closer or farther). The total is just under $106,000, but we are not done.

If you don't have 440V electricity, you will need a transformer which cost an additional $3,950 and you will need an electrical contractor which we estimated at $1,000. We added these just in case. You will also need a rigger to unload and place the machine ($1,500) and freight ($2,500, again to Denver). This totals $8,950 which we will round off to $9,000.

Then you need training. Two people, two trips each from Denver (one week eCabinet Systems training and one week machine training) is about $5,000.

Finally, there is state tax, either sales or excise or whatever your state calls it. This varies for each state but we will use 7.5% which is a good average for an additional $9,000.

This totals about $129,000 and this should be pretty accurate. A typical 60 month lease for this amount will cost you $2,600 per month. You will need to come up with one or two payments up front to close the lease.

These payments represent both interest and principal since you will generally own the machine after the lease term is up. In accounting terms, the interest is a cost, but principal payments are not considered a cost since you are paying for an asset that has value. You are simply trading cash for an asset but are not really losing anything. Then, the overall cost of the machine is depreciated each year and this depreciation is a cost.

While this approach is technically correct, it doesn't take into account cash flow and cash flow is very important to small shops. Therefore, for our analysis, we will take the entire monthly payment as the cost. In other word, to justify a CNC router we need to make or save more each month than the payment on the machine. Once the machine is paid off, the payment amount simply becomes more profit.

Now that we have the cost pretty well pinned down, we need to turn to savings. This is where it gets tough because each shop is different. For this analysis, we will examine a "typical" kitchen. We will look at traditional costs versus costs using a CNC and try to determine the savings for this one kitchen. You will need to take our "typical" kitchen and adjust it for the kind of kitchens you build. Then, take the savings per kitchen times the number of kitchens you build each month to determine your total savings.

So, how do you save or make money with a CNC?

There are several areas to consider:

- machining and assembling cabinet boxes
- making instead of buying drawer boxes
- making instead of buying door and drawer fronts
- making face frames
- new business that the CNC router makes possible

Let's look at each and see what impact a CNC router can have.

We start with the cabinet box. Nested based manufacturing has been making cabinet boxes for some time now so there should be some good numbers available about the savings, but there aren't. To try to develop accurate numbers we sent a survey to about 200 shops that are using a Thermwood CNC router for nested based cabinet boxes to see what their experience was. Quite a few shops responded and the results varied ….. a lot.

The shops that responded had anywhere from 2 employees to 40 (average numbers of employees was 12.5) and apparently built different levels of product based on their responses. For example, one shop with 10 employees said a typical job went from two months to one week and that they saved 800 to 1,000 hours on a typical job. These are apparently large and expensive jobs and this appears to be a special case. While it is interesting to note, we left this particular response off of the remainder of the calculations since it would skew the averages too much.

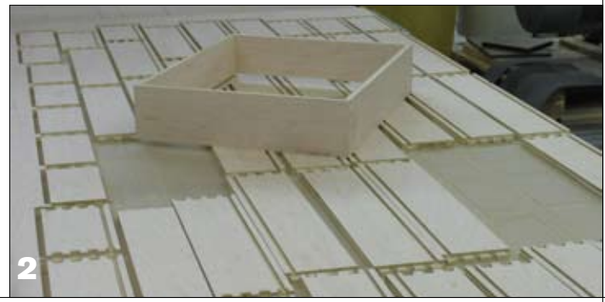
Most claimed savings on a typical kitchen as either a percent savings or a labor hour savings.

Those that responded with a percentage averaged 41% savings with a low response of 20% from a shop with 20 people to a high of 70% from a shop with 5 people. Those that responded with hourly savings averaged 19.25 hours saved per kitchen (note we used the center of a range if they responded with a range, ie. for a response of 10-15 we used 12.5). Other than the special case above, the highest response was 30-40 hours savings per job and the lowest was 6 – 8.

There were a lot of open comments about other savings that were not expected, mostly around additional things the router was doing. There were several comments about curved and arch parts, custom moldings, drawer boxes and complex cabinets.

Based on these numbers, you can loosely estimate a savings of $400-$500 a kitchen for a typical shop on the cabinet boxes themselves. You can plug in your specific numbers and possibly come up with a better estimate than this, but it does give us a starting point.

1. **Nested cabinet boxes is the most common use of Nested Based Manufacturing.**
2. **New developments allow nested machining of dovetail drawer boxes making cost justification even easier.**

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3. Five piece raised panel doors can be made on the same system, saving even more.
4. The package we are evaluating has the optional 5 piece door option shown here.

If you are going to justify a CNC router on cabinet box savings alone, you will need to build about 5-6 kitchens a month. Now, let's look at the other possible savings/profit areas.

Here we will need to get a bit more theoretical since these new capabilities have not been in the market long enough to get a real feel for the actual impact. For these next analyses, we will use a kitchen with 35 cabinets, 20 drawers and 40 doors. Again, if your "typical" kitchen is different you can adjust the numbers. For the drawer boxes and doors we will try to estimate the cost to build them with the CNC router and compare that to the cost of buying them. Then, for those that use face frames, we will try to guess the savings from using nested, puzzle joint face frames.

For these areas we will need to take a different approach to estimating cost since they are relatively new and there is not a lot of field data available. For production times on these items we asked our demo folks to give us a good feel for how long it would take for each item in a customer shop. We cut these items for demos and at trade shows so we do have some realistic numbers. If we have feedback from customers, we added that into the mix.

Let's start with dovetail drawer boxes.

It takes us an average of five and a half minutes to cut the parts for a typical drawer box. Customers tell us they average six minutes a drawer so we will use six minutes. We can get 9 - 13"x22.75" drawer boxes from a 5' x 5' sheet of birch plywood ($22.50 per sheet). It will also take a sheet of ¼ inch material ($27.50 per sheet) for bottoms but you will have quite a bit left over. If we add the cost of the two sheets we get $50 and divide this by 9 drawers for a material cost of $5.55. In addition to the 6 minutes cutting time it requires another minute and a half to assemble a drawer for a 7 ½ minute build time. You can assemble while the machine is running but we will ignore this. This means you can make 8 drawer boxes an hour. At $16 per hour this gives you a labor cost of $2 per box of a total cost of $7.55.

This same box purchased through the program from Conestoga ranges from $25 to about $35. Subtracting $7.55 from an average $30 purchase price gives us a savings of $22.45 or a savings per kitchen of about $450.

Now let's look at the doors. We will ignore the drawer fronts here but they will add to the savings.

Here are the approximate times to process a 15" X 21" Cathedral door.

Machine rails and stiles – 4 ½ minutes
Machine raised panel – 2 ½ minutes
Assemble door – 1 minute
Machine exterior profile – 1 minute

Total time - 9 minutes, for a labor cost of $2.25. Note that this is a somewhat more complex cathedral door which takes a little more time to machine than a straight door and the times we used are pretty conservative. We will use a material cost for oak of $ 4.50 per board foot which is the local cost for S4S white oak. You really only need the two faces sanded for this process so it might even be a little cheaper. There is about 1.8 bd/ft in a door and using an 80% yield, we have a door material cost of about $10.12 and a total material and labor cost of about $12.38.

This same oak door from Conestoga costs $43.23 for a door savings of $30.85 a door. This translates to a kitchen savings of a bit over $1,200.

Thus, for our typical kitchen we have a cabinet box savings of between $400 and $500, drawer box savings of about $450 and door savings of about $1,200 for a total savings of between $2,050 and $2,150.

Again, you need to substitute your actual current costs for the estimates we used here but this shows that you can almost justify a machine with one kitchen a month and three kitchens every two months more than pays for a machine. It is clear from this analysis that many smaller shops can now cost justify a CNC router because of all the new things they do, but we are not finished yet.

If you build face frame cabinets, the machine can possibly save you some more money by machining face frames from the nest. There are two approaches to this. For traditional solid wood frames, you nest them on a board. You can also make them from sheet stock where they are cut from the same material as the cabinet boxes. These then need to be edge banded.

The basic savings here are from faster processing and assembly. Typical pocket screw face frames require 4-5 minutes to cut on a chop saw, primarily because it takes time to sort out sizes and lengths. They then need a couple of minutes to pocket and about 3 minutes to assemble.

Nested face frames are cut with the nest adding maybe two minutes to the cycle. They assemble in 2-3 minutes and you are done for a savings of about 5 minutes or about half the time.

Next comes more intangible things such as the ability to model moldings, add carvings or cut curved parts. Each of these can have a significant impact on cost compared to traditional methods, if you happen to need them for a job.

Finally, there is Production Sharing. This is a program where you sell production time on your machine by making parts for other eCabinet Systems Members in your area. We provide an area on our web site where you can advertise your services (there is no cost for this). You are also encouraged to use our booth space at trade shows to meet potential customers (also at no cost). You then work out arrangements directly with other shops. Thermwood is not involved in these sales. It appears that a typical rate for machine time is around $100 an hour but each shop is free to set whatever rate they like.

These are the best numbers we could come up with. You can certainly find exceptions to each one of them but they offer a good faith starting point to help you determine if you can afford a CNC router. We will sum this up with a quote from our survey from a three man shop, "After 1 ½ years we can't live without our router. We use it daily panel processing, making drawers and custom moldings. We also cut for two other shops in town. We went from making a living to making money". ■


4

SHILOH HIGH SCHOOL'S
INDUSTRIAL TECHNOLOGY/WOODLINKS USA PROGRAM ADDS ECABINET SYSTEMS TO THE CURRICULUM.

BY MARK SMITH

1

Editor's Note: Mark created and heads the wood technology program at Shiloh High School and is the driving force behind what we believe is the most advanced high school program of its kind.

Due to changes in technology, worker security in the workforce is best achieved by providing a foundation of practical education, based on the knowledge and skills needed by business, industry, and communities in our society. Unfortunately, many high schools across the nation have not embraced the changes in technology. Instead, they continue to teach antiquated curriculum using old methodologies with outdated equipment and irrelevant industry skill sets. Not only is this not meeting the needs of industry, society, and students, but it further compounds the problem resulting in high schools around the nation closing their Wood Manufacturing programs altogether.

These changes have prompted Shiloh High School's Industrial Technology/WoodLINKS USA Program to pursue three goals: address workforce challenges identified by Industry, employ progressive goal oriented methodologies, and adopt a motto that has become the underpinning philosophy of our decision making paradigm, "Linking Education with Industry." This has led to exceptional educational opportunities at Shiloh High School such as;

- Industry recognized skill set certification through Wood LINKS USA, a School-Based-Enterprise which simulates the manufacturing environment.
- Students experience the manufacturing of value-added products for consumers and industry.
- We offer dual credit with local community colleges.
- We provide educational opportunities for local industry, and develop partnerships with Industry to provide, in the words of Ken Susnajara, "a kicked up" educational experience.

For the student, this dynamic shift reinforces the impact education has on their future career and addresses many core workforce challenges such as: developing a pipeline of young workers, keeping workers abreast of rapidly changing skills, developing innovative learning methodologies, and providing career guidance. Thermwood and its eCabinet Systems program have been an important partner in leaving the antiquated behind and embracing the future. To fully understand how eCabinets has changed our program, let's talk about the history of the Industrial Technology/WoodLINKS USA program at Shiloh High School.

When the program first began back in 1996, we had very little equipment and tooling. The students and I took inventory of our situation and began reorganizing the shop, making repairs to machines that were not working, and building some of our own machines and jigs. We also requisitioned for what we needed to make the lab functional. When I say "functional" I mean operational to teach the most basic skills.

Since that time the program has grown to offer three levels of CAD/CAM including eCabinet Systems, three levels of manufacturing, and two levels of production. Students who advance to the upper level CAD classes spend their class time learning, as well as working for the school district, local businesses, and contractors, producing architectural drawings and shop drawings. The students also learn manufacturing skills in the 3 manufacturing classes. By the end of each year, the students have a project they can take home with them. Our CAD/CAM classes teach machine code and CAD/CAM generated code, as well as the basics of CNC machine operations. The students also learn to run our Thermwood CNC router which we purchased in October of 2000.

All of the classes previously mentioned prepare students for our production class. Every year we build and install custom kitchen cabinets locally and around the state, cut carvings for the Amish furniture and cabinet industry, and make wooden sunglasses for iWood Ecodesign. All these endeavors raise funds for our program. In the production class, students face many of the challenges and pressures a company would face such as: floor plan design, cut lists, shop drawings, material handling, safety issues, quality control, time management, precision measurement, separation processes, surface preparation processes, combination processes, assembly processes, coating processes, and customer service.

2

Here is where we will see the impact of eCabinet Systems on the Industrial Technology/WoodLINKS USA program. Before eCabinet Systems we generated all floor plans, cabinet box plans, cut lists, shop drawings, customer visual aids, and cabinet parts by hand. This was cumbersome at best and did not teach the students skills presently being used by innovative companies in the cabinet industry. After a few years of cabinet making the old fashioned way I started looking for a cabinet program that would update our production class skill set and method of manufacturing. I began looking as cabinet builders do, at the IWF and the AWFS fairs. I found a number of companies that offered a cabinet program but the price was cost prohibitive for a small school. I talked with a number of these software companies about a price break expressing, "the software students learn on they tend to promote and use once they get out into industry," but no one was interested. This was very discouraging to say the least.

Then Thermwood came out with eCabinet Systems and it was free: I couldn't believe it. This software was going to change the way my production class was taught and the skill set the students would be exposed to. All of the afore mentioned tasks are now generated by the eCabinet Systems software. The students are still exposed to the procedures and calculations involved in building cabinets, but the heavy lifting is left up to the program. The individual or business for whom we build the cabinets can come in and see their kitchen on screen before they make final decisions. Parts made incorrectly have all but disappeared with eCabinet Systems doing the majority of the calculations. Students are also starting to use eCabinet Systems to create one-off projects in their manufacturing classes. They design the product and create all the necessary drawings to complete the product right on the computer. Now that the students are using eCabinet Systems, they think computer-integrated-manufacturing is normal for the wood industry. They can't believe it when I tell them it hasn't always been this way and that there are individuals and companies that haven't embraced computer-integrated-wood manufacturing such as eCabinet Systems or the use of a CNC router.

Now that we have been teaching and using eCabinet Systems for a few years we have noticed that students are talking about purchasing their own Thermwood CNC router and using eCabinet Systems as a career or side business. Not only are they talking about it, they are doing it. A former student, Emory Luth, has purchased a used Thermwood CNC router and is starting a side business with his father called Midwest Precision Parts. He will be coming to Shiloh High School for a refresher course on eCabinets Systems. Emory and his father also sent one of their employees to Shiloh High School for AutoCAD, Mastercam, and eCabinets Systems training. Stephen Gilbert, a former Shiloh High School student, is talking about purchasing a CNC router when he graduates from college. We have also noticed an increase in the number of Thermwood CNC routers in our area and an increase in industry coming in for eCabinets Systems training.

Thank you Thermwood and eCabinet Systems for helping Shiloh High School's Industrial Technology/WoodLINKS USA program develop industry relevant skills in our future furniture/cabinet makers. ■

1. Student Lyle Gordon using eCabinet Systems.
2. Production class building a kitchen.
3. Shiloh High School students do some pretty professional work.

3

A NEW APPROACH TO FINISHING

MIX YOUR OWN

eCabinet Systems has been offering high-end furniture finishes to its Members for some time now and many Members have successfully applied these sophisticated furniture finishes to their products. For others, however, the stretch from their current simple stain, seal, topcoat to a 15-18 step furniture finish seemed like too big a leap.

There does seem to be a general desire for better looking finishes among our Members, but we needed a new approach. We now believe we have that new approach, and it's done the eCabinet way.

When we decided we needed high-end furniture finishes for our Professional Furniture Program, we set up a small blending station at Thermwood. The cost was surprisingly modest and it gave us the ability to blend virtually any finish we wanted, all we needed was the formula, what we call the "mix numbers". Valspar's International Design and Color Laboratories working with our designers developed the initial finishes and gave us the mix numbers.

The only real problem with this approach is that to get a finish to our Members required that material first ship to Thermwood, where it was blended and then shipped again to our customer. This not only meant two shipping costs but two hazardous material (HazMat) shipping fees. It also offered precious little flexibility. Then the idea came.

Why not set up the mixing station in our Members' shops and then give them the mix numbers so they can mix their own finishes and have the material shipped directly from Valspar to them? This would mean a single shipping cost, much more flexibility and overall lower costs. Our new approach was born.

This approach allows custom shops the ability to completely control cabinet and furniture finishing. Instead of relying on third-party finish vendors to blend their colors and being restricted to simple finish schedules, now they can have it all for a surprisingly small investment.

1. Valspar's Color Choice System offers the equipment you need to mix your own finishes. eCabinet Systems provides the training and mix numbers.

The program starts with ten basic stain colors. These are purchased pre-mixed. Since there are only ten stains, Valspar can mix these in large batches so cost is competitive. Interblend these ten stain colors to create 30 interblend colors. These interblends can then be modified to create an additional 50 custom colors. Then by reducing the intensity of certain pigments, an additional 68 stain colors can be mixed for a total of 158 supported colors. There are 8 common glaze base colors that you can mix but you can also use any of the 158 stain colors with a glaze base to broaden the offering. There are also 4 pre-mixed dye stains to be used as sap stain or equalizers. Finally, there are 50 opaque colors that represent the most popular solid colors today. We have been told that soon mix numbers for Valspar's entire 1,300 color fan deck will be available.

We worked with Valspar to develop this program for our Members. It includes Valspar's Color Choice, a complete blending station. We added color pigments, measuring and mixing equipment. This is the same system we use to blend the furniture finishes we offer and the same system that many of their dealers use.

The next requirement is the mix numbers needed to mix the materials. The Color Choice program has mix numbers for the stains, dyes and glazes covered above along with printed color chips for each.

This takes care of the basic finishes but how do you put these together to get really sophisticated results?

There are actually two ways. First, we will train you to sequence the materials and develop furniture quality finishes yourself. Second, we will make available finish schedules developed by real professionals in the business.

We will make the mix numbers for the furniture finishes that are part of our professional furniture program available to our finishing customers. This includes all the wood tone finishes plus the solid colors we have been showing on MDF doors. Then, as part of the training we are about to discuss, we can teach you to combine dyes, stains, glazes and dry brush into your own unique finishes using the standard mixed colors. Finally, we will continue to work with industry experts to bring to our customers the latest, hottest and best selling furniture colors as they develop each market.

The next step is training. There are a lot of new things to learn for the average shop. Not only must they learn about new materials and new levels of coating but they must also learn to mix and apply them. To address this we set up two cabinet/furniture shops within our plant at Thermwood. Each of these is an independent, full-functioning shop capable of building and finishing cabinets and furniture. These training shops include the mixing system we are talking about here.

Each of these shops is equipped with the most modern

technology including a Thermwood CNC router, RF glue systems, airborne dust cleaners and efficient material handling systems. These training shops will be used to teach high-end furniture manufacturing and finishing to our Members. We will conduct formal hands-on classes in all aspects of finish mixing and application so Members can learn how to use the new system we are offering.

The Color Choice program includes extensive documentation including professional color chip cards for all the standard blended stains, dyes and glaze colors.

Once a Member has completed training, they can determine how much of the newly available technology they want to apply to their own products. They can start small and build until they achieve the level of quality and appearance appropriate for their market. A full furniture training program will also show them exactly what is necessary to build and finish professionally designed furniture in their shop.

This program offers cabinetshops, for the first time, complete control over their finishing process. And as an additional feature, not only can they improve their product but they can save, and even make money in the process.

Color mixing generally has a high markup. Using this new approach, Members can save money on every batch they mix because their cost is before the markup. In addition, it is only necessary to mix what is needed. If they need a gallon, they mix a gallon. If they need a quart, they mix a quart. If they need a pint they mix only a pint. There are no more minimum requirements. No more half cans of unneeded material sitting around. No more wasted money.

In addition to mixing their own finishes, Members can even make money with the program by mixing and selling finish material to other eCabinet Systems Members in their area through a Color Sharing program. To do this legally, they need to supply their customers with an MSDS sheet for each formulation they sell. We have developed and will supply these sheets for each of the formulas in the program. We can even make custom MSDS sheets for any finish they create themselves. We plan to offer a Color Sharing space on our web site where Members can advertise their offering for free, just like our popular Production Sharing program.

Note that from a practical standpoint, these sales need to be made to customers that are within driving distance. There are numerous requirements and regulations concerning shipping these materials including the need to be trained and certified to do it legally.

This program works like most other programs in eCabinet Systems. Members order materials through the Member Store which are shipped directly from the vendor. This offers the lowest cost approach while giving access to the highest quality materials from Valspar, the leading finish supplier to the furniture industry.

In addition to color material and the associated bases, you also source all your clear coats through the program including washcoats, sealers, and top coats in lacquer, pre-cat or conversion varnish. We will also offer waterborne finishes as the program matures. You can buy all your supplies including cans, sand paper, mixing cups and even spray booths, conveyors, finishing carts and spray equipment through the program. Everything you need is available from eCabinet Systems.

And, you can get into this with a fairly modest investment. We will offer two packages to begin with. The first offers a quart of each of the ten basic wiping stain colors plus the pouring and mixing lids for just over $300 (plus shipping). The second full package includes pretty much everything you will need including a mixing station, mix pedestal and work surface, a one gallon precision electronic scale, a variety of stains, paints and pigments and a two day mix and finish training class for around $5,000 (you need to add shipping and travel to Thermwood for training to that number). You can get a full five day furniture and finishing class for an additional $500 which might make sense if you plan to build any of the professional furniture designs offered in the program.

This is a really new approach to finishing and there are some subtle but important differences between what you might get from a dealer and what we offer in the program. Our approach is a scientific, formula based program with no judgment or "color-eye" involved. We are creating colors and finishes from scratch and supplying precise mix numbers for making each finish and color. Follow the mix numbers and you will get the proper result. We are not trying to match existing colors or duplicate existing finishes.

While the mixing system is fully capable of duplicating virtually anything, this type of duplication is an art, not a science. It generally requires years of experience. The approach we offer allows almost any shop to effectively, efficiently and reliably mix specific finishes and get specific results immediately. Color matching is another level. If you have experience in this area, you have all the tools needed, but this is not something we can address in this initial offering.

Despite this limitation, this approach brings to eCabinet Systems Members an unprecedented level of flexibility and control to an area that is vital to producing their products. It also offer them a path to higher and higher quality finishes and yet another way to make money from eCabinet Systems. ■

2. This approach puts a rainbow of colors and finishes at you fingertips

KERRY'S CORNER

IT'S ALL ABOUT MONEY

BY KERRY FULLINGTON

Some of us don't like to admit it, but "It really is all about money". This isn't necessarily a bad thing. As business owners we have chosen to become "Cabinet Farmers" and as cabinet farmers, our ultimate "Cash Crop" so to speak, is money. This is what we reap during our harvest for the year. We try to grow enough money so that our families can eat and if we have a bumper crop we can put some back for seed and maybe even save some in the granary in case next years crop isn't as good. Hopefully we can store enough through the years so that as we get older our families won't have to take care of us and we will still have plenty to eat.

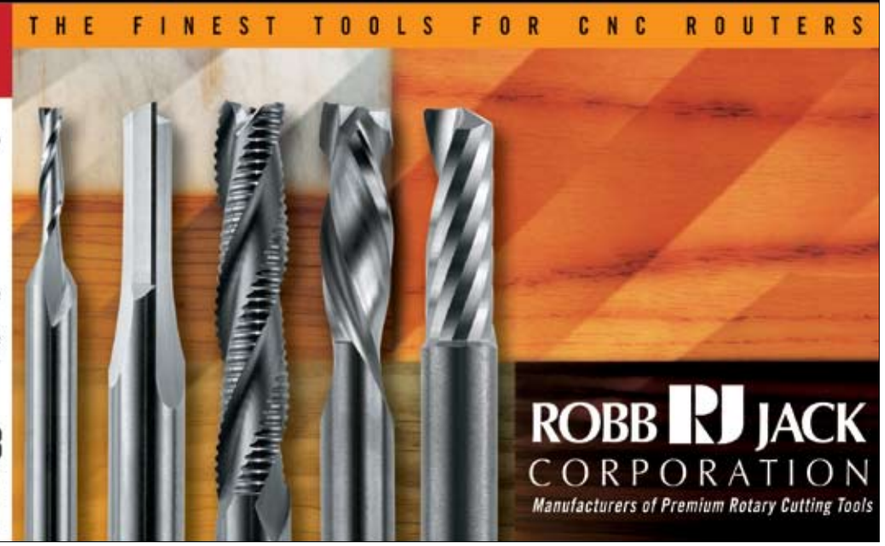
To run any farm we need machinery. There is always a debate on the Internet Farming Forums about how much machinery you actually need to grow a crop. Many say that all it takes is a good horse or ox or mule, (We can discuss the virtues of all of these different pulling systems later) the knowledge of basic farming techniques you learned while serving your farmers apprenticeship, the old plow you inherited from your granddad and lots of hard work. This is probably true, but can you work enough land this way to raise food for your family and still be able to put back some for that year of drought. You could always take in a hired hand and get two mules, but then you would then need to grow an even bigger crop to feed his family. It is at this point we need to consider investing in a tractor, because a tractor can do as much work as four hired hands. After adding the tractor we find we can get new plows and planters that are much better at tilling the soil and placing the seed which increase our yield and we can now grow enough grain to feed that hired hand and his family.

With our tractor and hired hand the farm does well for several years. Our family is happy. We have kept up the maintenance on the tractor and other machinery and even though they are getting a little bit old, they still get the job done. To ease our own work load and give us a little more time to plan and manage our crops, we decide to add another hired hand that happens to have a really large family. He is a good worker though, so it looks like it will work out. This addition puts us in a little bit of a strain to feed everyone and we decide that we will either have to work a few more hours each day or look into getting another tractor. It is here that things start to turn down. Our original hired hand doesn't like the fact that we added a new man and he has to work a couple of extra hours each day. He starts to pressure us to get that new tractor, and thinks we should get one with an air conditioner and because he has been with us so long, he shouldn't have to do any of the other chores on the farm. When we don't agree, he gets mad and doesn't show up for work on time or at all some days. We now have to do our crop planning at night and weekends to get enough work done and feed his family. There is so little time to plant the crops and manage the farm we aren't sure we will even have seed for next year.

As grim as things look, our story doesn't end badly. Even though there is way too much work backing up, we decide it might be wise to go to the big Farm Show in Las Vegas and look for that new tractor. Maybe the one with the air conditioner is the answer, but as luck would have it while looking at dozens of tractors with air conditioners, we come across a company that sells a Computer Controlled Tractor or CCT for short. It has tracking capabilities that tell exactly where it is on any of our fields. You simply get it started and it steers itself and is able to detect the load on the plow and adjust ground speed to get the best tillage and leanest fuel consumption. It is able to adjust the amount of fertilizer placed in every part of a field so that you are not wasting any. To top it all off, these guys will deliver this tractor to your farm, set it up and show you how to run it. Later, if there is a problem, you can contact a company service technician right from the cab of the tractor and there is even a little camera the service guy can use to inspect parts and get you running in no time.

Our story now has a happy ending. We get the new Computer Controlled Tractor and let the lazy hired hand go. The other hired hand is able to get the tractor started doing its work and still get all of his other chores done. We are raising enough grain now that we don't need the kids to help on the farm and they are able to attend college and learn the latest computer controlled farming techniques so maybe they won't ever have to stand behind a mule.

The moral of this story: We, like the farmer, need to keep up with the latest technology and tools to compete. We like to think that our craftsmanship and hard work are enough to make a go of it, but these days it just takes too big of a crop of money too feed everyone. We have to exercise the great business skills and cabinet making techniques working with the best machinery to grow the best crop. And like it or not, for us, "It's All about Money". ■



TAXES & A CNC ROUTER

BY CHRIS KELL

Editor's Note: Chris is Thermwood's Corporate Controller and is an expert on tax matters having worked as a government tax auditor in the past. We asked her to write an article about tax consequences of the purchase of a CNC router. Note the disclaimer at the end of the article and don't use this article as you sole tax advice, however, it does give you an overview of the current tax situation and we hope it helps.

In considering, both costs and benefits when purchasing a CNC router, taxes must be a part of the formula. Income, sales and use as well as property taxes must be considered. However, tax considerations should always take a back seat to the operational needs of your business.

Income tax considerations:

Uncle Sam wants to encourage you to invest in your business, and offers a number of tax benefits for doing so. For ownership of machinery, all regular operating expenses such as utility costs, repair and maintenance costs, property and use taxes, insurance premiums, and hired labor costs can be deducted. The machine purchase payments must be capitalized and recovered through a depreciation deduction, but interest charges on credit purchase payments can be deducted as ordinary operating expenses.

Depreciation is an annual income tax deduction that allows you to deduct the cost of the property over the time you use the property. It is an allowance for the wear and tear, deterioration, or obsolescence of the property.

How fast or slow you can deduct the cost of the equipment depends on a number of factors. Equipment such as we are discussing is usually classified as MACRS property. Usually, you would deduct the cost of equipment, used in manufacturing, over 7 years for tax purposes. For the first year that you use an item in your business, you'll usually be allowed to claim six-month's worth of depreciation, regardless of when you actually start using the item.

However, you don't want to wait too long because if more than 40 percent of your purchases falls in the last quarter of your tax year, the rules change and the purchase is subject to the "midquarter convention." In English that means that if you place an asset into use during the year, you compute the full year's depreciation and then multiply it by the following percentages, depending on which quarter it was placed in service: First quarter-87.5%, Second quarter-62.5%, Third quarter-37.5% and Fourth quarter-12.5%. Consult your tax advisor for further details as this can get very complicated.

Perhaps the biggest tax incentive that's available is your ability to elect to immediately expense (deduct in the current year) the cost of certain equipment you purchase for use in your business. In other words, rather than having to recover the cost for tax purposes over several years via depreciation deductions, you can deduct all or a portion of the cost on your return for the year that you start using the equipment in your business. This is called Section 179 property. In general, you can expense up to $112,000 in equipment costs for purchases in 2007. There are several limitations to the Section 179 property deduction including a business income limitation and threshold for Section 179 property placed in service.

The Section 179 deduction is enhanced in certain situations. The Gulf Opportunity Zone Act of 2005 addressed business located in affected areas of the Gulf zone (GO zone). For property located in the GO zone, the maximum 179 deduction is increased by the smaller of $100,000 or the cost of qualified section 179 GO Zone property placed in service during the tax year. This property must be placed in service on or before December 31, 2007.

Additionally, the Gulf Opportunity Zone Act of 2005, allows businesses in affected areas in the Gulf zone to claim an additional first-year depreciation allowance equal to 50 percent of the adjusted basis of the cost of qualified property acquired on or after August 28, 2005, and placed in service on or before December 31, 2007.

The state income tax laws of most states track the federal laws, so you'll get the same expensing allowance or depreciation deduction on your state tax returns. You should also be on the lookout for other state income tax incentives. For example, your purchase of certain manufacturing machinery may entitle you to a state income tax credit or a state property tax exemption.

Property Tax Considerations

Although the administrative process of levying property taxes varies greatly from state to state and even within states, the basic concept is the same everywhere: the property owner must pay a percentage of the property's value to the local government each year. Of the total amount of annual taxes a business owner pays, the largest percentage is for property taxes. However, business personal property is exempt from tax in many states.

In states where business personal property is assessed, property taxes are normally levied on a modified "assessed" value of equipment. This can be based on anything from purchase price to federally depreciated value. Many jurisdictions also have minimums, below which tangible property cannot be decreased.

Many states and local jurisdictions have incentives to entice business to invest in equipment and facilities. These incentives often include property tax abatements. Abatement is, basically, a waiver or reduction of the property tax on new equipment for a specific period of time. In most cases, the abatement is tied to an increased employment commitment or commitment to stay in the same location for a specific period of time.

Sales and Use Tax Considerations:

Currently, Alaska, Delaware, Nebraska, New Hampshire and Oregon do not have a sales (or similar) tax. In all of the other states, sales (or its corresponding use tax) must be a consideration. Use tax is due when the seller did not collect sales tax at the time of purchase of the property. Use tax is paid directly by the purchaser to the taxing jurisdiction.

As with property taxes, sales tax exemptions vary a great deal by state. The following is a partial list of exemption in some states:

1.) Anything used or consumed in the manufacturing process
2.) Repair parts for manufacturing equipment
3.) Property consumed in the manufacturing process, such as bits, lasting less than 1 year.

Some states grant specific exemptions only when the exemption is applied for. These exemptions are often required to be in place, prior to the purchase of the equipment.

Yet, other states offer a reduced rate of tax for specific purchases.

Disclaimer

The above information is taken from sources believed to be reliable, but is not necessarily complete and its accuracy cannot be guaranteed. Any opinions expressed are subject to change without notice. The information contained herein is presented for discussion purposes to be used by a taxpayer and his or her own personal tax advisor. Taxpayers are advised to retain their own tax and investment advisors and should not rely on the information contained therein without the guidance of appropriate competent counsel. ■

eCab World

Do you confuse money with value?

By Dan Epps

When Ken told me the theme for this issue was money I thought "I don't have any, so what will I write about?"

Once I got my brain warmed up with about a half-pot of coffee (house brand from America's favorite super store), I started thinking about just what money is.

Songs have been written about money. People have been killed over money. What is this thing that can drive one human being to take the life of another? Why do we value money so much? After all, it is nothing more than near worthless metal or printed paper.

As Ken says in his editorial, it's not what money is, but what we can do with it. Someone once summed it up like this: "Money is not the object of the game, it's just a method of keeping score." Now this person just happens to have his name on half of the buildings in New York City and casinos bear his name in Atlantic City, NJ. Most of us (any of us?) don't have enough money to view it from that perspective and probably never will.

People often confuse money with value. I often hear "My customers don't really look at the value they are getting in my cabinets, they are only interested in the price."

You on the other hand, know what value is and quickly explain why buying your cabinets is a good investment compared to the store-bought ready-made variety. If you did your job well, the customer understands and buys your cabinets.

When the tables are turned and you become the customer, do you understand value versus price? I suspect most of us are just like the aforementioned customer and look no further than the price of something like a CNC router.

Do we fully understand the value a CNC router would bring to our business?

What is value? How do we measure value? How do we decide whether something is of value? How do we assign value to something? How do we know whether something has any value?

The first thing we need to understand is that value is a perception. In terms of trade, the perceived value of an object is arrived at when the seller agrees to sell it at a price the buyer is willing to pay. The more the buyer wants the object, the higher its perceived value to both.

One person might perceive a particular object to be more valuable than other people would perceive the same object to be. Why? Because that person perceives the object to be a good measure of their success.

Let's take a more realistic look at money and value. In business we want to sell our product at a price that is high enough that we can make a profit but still low enough that customers will purchase it. How can we do this consistently?

Economy of Scale

One way is to use the economy of scale in our production. If you can produce say, one kitchen per week using standard shop tools, you have to set the price high enough to cover material costs and overhead plus your profit. Let's say this method allows you to stay busy but that you have a three month backlog of orders. Everyone loves your quality and your prices are reasonable, but they don't like waiting so long to get their kitchen. As a result, you are only getting 5% of the jobs available.

What if you could produce five kitchens per week and get 25% of the available jobs? That would certainly increase your "score" in the money game. But what about the quality of your cabinets? Would it suffer because you are building five times as many in the same amount of time? After all, your reputation for quality is why you have a three month order backlog.

This where perception comes into play. You, and perhaps your customers, perceive quality to be something that takes a long time to achieve. This may be true when using conventional tools to build cabinets but is not the case using the modern manufacturing technology of a CNC router. You are still creating the same high-quality work as you always have—you are just using a different set of tools to do it.

Now you can look at the value of using conventional tools versus a CNC router. If upgrading your tools provides a 20% increase in production output you can service far more orders in the same period of time as you do with conventional tools.

Does this mean you have to rush out and buy a CNC router to increase your business volume? Of course not. Buying a CNC router is a large investment that requires careful analysis of your current business and its future potential.

Unlike the movie line "…if you build it they will come…", just buying a CNC router itself will not increase your business volume. It will, however, increase your capacity greatly. What you have to do is have the business volume potential to justify the capital outlay.

Update Your Business Plan

When it is time for you to consider buying a CNC router the first step you should take is to closely examine your business plan.

- Is your business plan up to date?
- How has your business performed toward your current plan?
- How well did you stick to your plan as your business evolved and matured?
- Are there goals in your plan that cannot be achieved without a CNC router?
- What hard evidence do you have that indicates continued growth in the future?

After answering these questions you have the basis for updating your business plan to accommodate adding a CNC router to your operations.

Once your business plan has been updated to reflect the addition of a CNC router into your business, you can put the plan into action.

Please send questions or comments to depps@ecabworld.com ■

ECABINET SYSTEMS SEMINARS & TRAINING SCHEDULE

April 2007
16-20 April 2007 at Thermwood Corporation

May 2007
1-2-3 May 2007 at Radisson Kansas City Airport, Kansas City, MO
14-18 May 2007 at Thermwood Corporation

June 2007
18-22 June 2007 at Thermwood Corporation

July 2007
16-17-18 July 2007 at Hampton Inn Tropicana, Las Vegas, NV
23-27 July 2007 at Thermwood Corporation

All courses conducted at Thermwood are 5 days and all seminars are 3 days.

To enroll in a Seminar or Training Class sign up online through the Member's Store. You can access the Member's Store through the eCabinet Systems software or at www.ecabinetsystems.com.

Please visit the Member's Store for the latest information on course schedules, cost and availability. Additional seminars will be scheduled for 2007.

Dates are subject to change or cancellation.

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:

Master Cam Router Entry, Router and Router Pro
Art Cam Insignia and Art Cam Pro
Panelmetrix

Product Training
While training is included with the purchase of a Thermwood CNC router and accessories, 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.

Thermwood will soon be offering professional furniture manufacturing training to support the manufacture and finishing of its professional furniture designs. Topics include machine carving, techniques for sanding difficult parts, high-tech adhesives and assembly techniques, and mixing and application of sophisticated furniture finishes. Methods and techniques can be applied to both high-end custom cabinetry and furniture.

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

WHAT'S NEW?

New Furniture Display and Training Area Being Readied
We are assembling a new area just inside our factory where we will display samples of each of the pieces of professionally designed furniture available through our program as well as teach eCabinet Systems Members how to build and finish the furniture.

The training area consists of two cabinet/furniture shops, each with a Thermwood CNC router, assembly, sanding and finishing equipment. The two shops share a spray booth and overhead door/drawer conveyor. These shops will be equipped with latest technology in every area to show students just how efficient modern technology can be. And, of course, all the technology can be purchased through the eCabinet Systems program.

The shops will be used to build and finish the office furniture for our new building. This will provide us with time to train our training folks and give us all some experience with the new equipment. Actual classes should start in late spring or early summer. If you are interested in these classes, give us a call.

Thermwood adds Three-Dimensional Volumetric Laser Interferometers to its Production Tools
Thermwood has purchased two three dimensional laser systems for use in its production operations and aerospace installations. These state-of-the-art systems are three to four times as expensive as traditional laser interferometers and represent a major capital investment, but should usher in dramatic improvements to not only the production process but also improved machine quality.

Where a traditional laser can measure extreme accuracy along a straight line, three-dimensional lasers, which are quite new, can measure with the same accuracy in all three dimensions at once. It can give the X,Y,Z position of the sensor with extreme accuracy anywhere in the working envelope.

Thermwood personnel have been undergoing the rather extensive training needed to use these leading edge tools while the software people have been working to interface the machine control to the new laser. These new tools will go into production in the next few weeks and should quickly replace the conventional lasers now used. They also hold promise to make every machine flatter, straighter, squarer and more accurate than is even possible with current technology and maybe even do it at a lower cost. It also opens the possibility of building even larger machines than our current Model 70 which tops out at 10' wide by 5' high by 60' long. Aerospace, defense and boating have all been asking for these larger machines.

eCabinet Systems to offer New Finish Program
eCabinet Systems, working with Valspar, will soon offer a new approach to finishing. The finishing practice today consists of three basic steps, obtaining the materials from the manufacturer, mixing the colors and applying the materials. In the past material shipped from the manufacturer to a local dealer. The dealer mixed the colors and sold them to local shops and the local shops applied the material.

In our new approach, the material ships directly from the manufacturer to the cabinet shop who then mixes the color and applies the finish. Purchasing is efficiently handled electronically through eCabinet Systems and the overall process is expected to be more streamlined, lower cost and more flexible. There is an article in this magazine that describes this program in more detail.

Dan Voges to Train Furniture Making and Finishing
Dan Vogus has been promoted to a new position within the company where he will provide hands on training in the new technologies we offer for furniture making and finishing. Dan has an associate degree from ITT in Electronic Computer Engineering Technology. He first joined Thermwood as a Service Technician in the Technical

Dan Voges will conduct classes on using the latest technology to produce furniture.

Services Division where he traveled, installing and servicing Thermwood machines. Dan later began training eCabinet Systems software and is currently assisting in establishing the training facilities and curriculum for the upcoming furniture and finishing training programs.

Mike Kowalchuk, Thermwood's new documentation and technical writer.

Mike Kowalchuk Hired to Develop Improved Documentation

Thermwood's software development team has added a new member. Mike Kowalchuk. Mike has joined Thermwood as a technical writer to develop better and more comprehensive manuals for software products and machine processes. Mike was a CAD Department Manager for a bio-medical electronics company for 15 years before deciding to go into business for himself. He learned that Jasper, IN, a town near us was designated "One of the Best Small Towns in America" so he moved here and spent ten years as an independent consultant, which included developing documentation for electronic products. We are now happy to have Mike on our staff and look forward to his work.

Version 5.1 of eCabinet Systems Software Released

The latest version of eCabinet Systems software was released with the following features:

- New simplified edge banding interface replaces the previous approach
- You can now band edges with Part Editor cuts
- Board stock material area modified to include board feet calculations and define board stock by length and thickness with width defined by the application
- Added features to the face frame area including:
- The ability to define and display board stock face frames with mortise and tenon construction
- The ability to nest face frame components from sheet stock

- The ability to define edge banding for face frame components made from sheet stock.
- Addition of a new joint for nested face frames called the "Puzzle Joint".
- Ability to incorporate construction joints (full dado, blind dado and KD/RTA) between the cabinet and face frame.

Software development efforts are now being focused on both simplifying and optimizing overall operation of the application.

New Vendors Join our Program

A number of new vendors have joined the eCabinet Systems program since our last issue. Here is a list of the new additions.

Spaceballs – product is used as an expansion joint in the construction of five-piece doors. We offer a kit of these.

Workrite – their products are the Titebond® HiPURformer glue gun kit and several different types of adhesives. We offer the gun kit as well as four different types of replacement glues.

Enviro Technologies – they offer two dust collector/filtration units that hang in the work area and capture the breathable airborne dust particles that are too fine for regular dust collectors. These improve the quality of the workplace and enhance processes that are susceptible to airborne dust such as finishing. We offer the two models plus replacement filters.

Liftbox – their products are television lifts. We offer their lb-a-2.s unit which can accommodate televisions up to 50". This lift is an industrial strength lift with a 2-year warranty.

Leuco – they sell standard router bits as well as custom tooling. We are in the process of adding their products to the store.

Elliot Equipment – they have an extensive offering of spray guns, regulators and spray booths.

Fillon Technologies – They sell the racks, table, mixer, mixing lids, scale, shaker and hand cranks that are part of our new approach to finishing program.

Apollo Sprayers – they sell a huge line of turbine HVLP spray guns, hoses, kits, spray booth, components, compressors, etc. ■

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

Peter Firth – Hawkenville, Ontario, Canada

Peter is sharing a wine cooler he completed. It is a beautiful piece but there is more to it than what you see in the photos. Here are Peter's words: Regarding the cooling. I put

1

1. Here is Peter's wine cooler as designed in eCabinet Systems.
2. The finished product – great work!
3. Unique placement of the bottles allow easy viewing of the label.

3

2

an evaporator unit in the top of each tower with a walnut grid to hide it but not obstruct the flow of cooled air. The main compressor sits in a crawl space directly bellow the cooler. It has been up and running for about ten months and is working perfectly. Both sides are maintaining an even 57 degrees perfect for red wine and the customer can adjust up or down by ten degrees. If a person wanted to cool for white wine a pair of dehumidifiers should be added, stronger evaporators and a double glassed front door. In this case the customer requested a set up for red wine only. Each shelf holds 5 regular wine bottles and the bottom shelf in each tower is set to hold 4 mags.

The doors on the cooling towers have magnetic seals (seal built into the case work and a metal strip rebated into the back of the door and painted black). The sides, bottom, top and backs are insulated with one inch SM (polystyrene foam insulation) built into the millwork. The finish is a Jacobean stain and catalyzed lacquer on walnut veneer. According to the manufacturers specs on the lacquer it is fine for this purpose as long as you leave it to gas off and cure for forty days. We left it for sixty just to be sure. One other detail that doesn't show well in the pictures is the way we built the drawers. Traditionally you set the bottles slopping down to maintain a wet cork. In this case the customer wanted to show off their wine and display the

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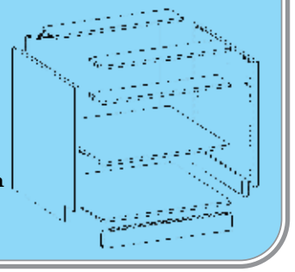


5

4. Here is Mike's display wall for Tour Edge – Great Job!
5. Here we see the eCabinet Systems software image next to the finished product.
6. eCabinet Systems rendering of Kerry's Prairie Windswept Bed.

labels. As a result I designed the shelves so they hold the bottles on about a 2.5 degrees incline and the bottom of the bottle facing the door. This worked perfectly in making the labels easy to see and the air bubble in each bottle is sitting neatly in the shoulder of the bottle maintaining a wet cork. On top of that we used an Accuride eclipse slide on each pullout shelf for a little added bling. This design does work well and I would be honored if this has inspired you to pursue a market in you area. I just last week sealed a deal for a $150,000 - $250,000 (customer wants what he wants) job for the new year based on what this new customer saw of this job with the cooler.

Mike Seisser - Lake in the Hills, Illinois

When Tour Edge, a custom golf club manufacturer located in Batavia, Illinois, built a new facility they contacted Mike for some custom cabinetry that was as nice as their custom clubs. Mike built a display wall in the conference room as well as a base to support the 16' granite top of their conference table. He also built a niche display for their lobby. As you can see, the result is beautiful. In fact, to a cabinetmaker they look better than the clubs.

Kerry Fullington – Dalhart, Texas

Kerry brings us a unique and beautiful bed he calls the "Prairie Windswept Bed". We will let Kerry tell you about his project.

"Some of the eCabinet members may recognize the design drawing for this bed from over a year and a half ago. (This project was supposed to be completed before Christmas 2005.) The design began using Version 3 and was later finished and rendered in Version 4. It would have been nice to redo the drawings in Version 5.1 and include the mortise and tenon joints.

The design for this bed was collaborative effort with my customer. He wanted a massive, rustic look to place in the master suite of what he calls his "Villa". We accomplished this by "weathering" 4/4 and 6/4 knotty alder for the beds construction. Because I didn't have access to a sand blaster, I used two different wire brush cups in angle grinders and a rasp to produce the heavy wind worn texture of the wood. This proved to be quite time consuming but allowed for a lot of artistic expression creating splits, etc.


6

The head and foot boards use mortise and tenon joinery with walnut square tapered pins to tighten the joints. The bed rails have conventional bed rail fittings so that the bed can be easily taken apart. We were originally going to have door nails for the accent pieces but decided they were too small and opted to use the square head bolts. These bolts were aged by a local farrier who heated them in a forge,


7

hammered the tops and dropped them into wax while red hot to create the patina.

The finish was an eight step process which included worm holes, a little chain and then different stains to create the range of color on the piece, all topped off with buffed lacquer and wax.

This style of furniture probably isn't for everyone but has become very popular in my area and was a fun project to work on." Great job Kerry!


8

John Franzino - West Milford, New Jersey

John brings us a really nice kitchen he completed. Here is his description of this great project. "This is one of two kitchens I did in a mother daughter house. This is the mother's side. The kitchen is solid maple with raised panel doors with an applied molding. All base cabinets have solid wood cherry pullouts with dovetail construction. Drawers are solid cherry also with Blummotion undermount slides. All cabinets and moldings were built in house the drawers were purchased with a clear finish applied. The finish is a custom stain with lacquer."

Joe Soto - Cicero, Illinois

Joe has designed and built a beautiful and functional home office. Let's have him tell us about it. "This is a home office I designed with eCabinet Systems and created with my Thermwood CS-40 router. Everything was cut on the router including the doors, drawer fronts, crown and base moldings. The center section face was cut from one piece of MDF with the flutes and curved raised panel routed in to it.

7. Here is the actual bed – note the distressing and finishing work.
8. Close up of the distress and finish detail – a real masterpiece.


9

My customer needed a home office that was functional, but wanted more of a furniture look to match beautiful style of their home. After a few layout and color changes that were easy with the software, and easy for them to see, they decided to go with a painted white with a chocolate glaze." Great project Joe!


12


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11

9. eCabinet Systems rendering of John's kitchen.
10. Here is the finished kitchen – beautiful work!
11. Close up of the center island.
12. Here is Joe's design rendering in a darker finish.
13. The final product is white with a chocolate glaze – looks beautiful! (pg. 36)


13

Jeff Norris – Columbus, Ohio

Jeff is sharing a 9 month job he completed in Columbus, Ohio on a 1930's era home. The home owner wanted everything to look like furniture and Jeff did a great job.

Here are some comments from Jeff about the project: "The cabinetry was a classic cherry design with raised panel inset doors and a beaded face frame to add an extra level of design detail.


14


15


16

Several features which were incorporated to this design included; columns, a wine storage cabinet, an integrated bread board and three period glass doors over the bar."

"There were many challenges on this project, the biggest involving the coffered ceiling. The homeowner lived in the house and were concerned about the fumes from staining and finishing the ceiling. We designed a coffered ceiling using eCabinet Systems. We then assembled the ceiling into a kit that was then installed on site. We were able to gain many advantages by building this in our shop verse the field. Our joints were tighter and more precise and the finish was superb. Another unique aspect of this project was having granite counter tops manufactured while we built the cabinets. We did this with eCabinet Systems by generating templates for the granite company to make the countertops. The granite countertops were installed two days after the cabinets were installed. After nine months of eating out, the homeowner really enjoyed this as they were able to start using the kitchen sooner than if the traditional installation method was used. View more pictures of this project at: *http://www.jeffreyredmond.com/proj_all.cfm?id=56&ptype=6&rtn_pg=1&rtn_proj=56*

Great job! ■

14. Jeff's eCabinet Systems image of the fireplace area.
15. The actual fireplace and bookshelves.
16. Another shot of Jeff's great work.

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