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VOLUME 2, NUMBER 2

MEMBER MAGAZINE

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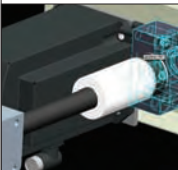
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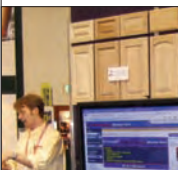
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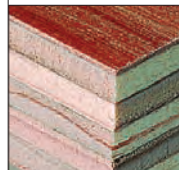
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SELLING

BY KEN SUSNJARA

In the last issue of the Member Magazine we focused on marketing, that is setting up the battlefield in which the selling battle will occur. In this issue we are going to focus on the selling battle itself.

This entire battle occurs in the mind of your customer. It is important to realize this because once you accept this fact, the world is different. Reality no longer matters. The benefits of your product don't count. You can count on absolutely no feature, or advantage. The only thing that matters is what the customer knows and thinks and this may or may not be an accurate understanding of facts or reality.

It is therefore imperative that you learn what the customer thinks now, counter any inaccuracies they may believe and tell your story completely, every detail.

There are a lot of ways to tell your story and position your product in the minds of your customers, so exactly how do you proceed? The key is what we call the "First Law of Selling". The *First Law of Selling* says "The customer will buy the lowest cost product they believe will reliably fill the need". There is a corollary to this law which states "Most customers will pay 10-15% more for a product they perceive to be better". Taken together, the First Law and Corollary pretty well explain and accurately predict what people will buy, but they are not quite as simple as they may first appear. Let's look at some examples.

If you have the lowest cost product, you need to convince your customer it will reliably fill the need and you will likely get the order. If a competitor is offering a product the customer thinks is better, make sure his price is more than 20% above yours. If your price is higher but you can convince the customer it is better you must also be able to get within 10-15% of your competitor's price or you will lose. People will seldom pay more than about 10-15% for

an equal product that is better quality.

If your price is above that threshold, you must find a way to convince the customer that your competitor's product will not reliably fill the need. Perhaps you have a feature or capability or use a material that your competitor doesn't. If you can successfully convince your customer that they need this feature you then become the lowest cost product that will reliably fill the need. If you change the "need" in your customer's mind, you win.

If it is pretty much an equal battle, perhaps you can attack your competitors on the "reliability" factor. There are

two components to reliability in the cabinet business. The first is how reliable the build and install process will be. This is where the eCabinet Systems renderings may give you an advantage. If your competitor shows the customer a hand sketch of the job and you show them photo-realistic images of the finished job, you appear more reliable. You might even be able to get your competitor disqualified in the customer's mind in which case you become the "lowest cost

product that will **reliably** fill the need" even if your price is higher.

You can also challenge reliability if you use a better, more durable finish or higher quality hardware or better joinery. These types of features can offer a clear distinction between your product and your competitor's products and can be used to disqualify them as not offering a "reliable product".

A lot of the sales battle centers around this area. Both you and your competitor are trying to convince them you are "reliable", for example by showing your customer finished jobs or getting references.

There is one more factor in the sales battle that must be understood and that is that if each side offers a compelling

The customer will buy the lowest cost product they believe will reliably fill the need.

argument about a sales point, even if both stories are quite different, the customer will generally consider them equal and then neither side gains an advantage. For example, suppose you offer an automatic electric lift on your cabinets and your competitor offers a counterbalanced manual lift. You talk about the easy of use, push button convenience and smooth operation. Your competitor says the manual lift is faster, simpler and obviously less complex. It's a tie in the customer's mind.

There are two things that can be learned from this. If your competitor has a good counter to your story, you will not gain an advantage from a feature, although you still need to promote it to keep your competitor from gaining an advantage. The second lesson is that if your competitor has an advantage, you can effectively nullify it in most cases with a good counter story. The only way to gain an advantage is to offer a feature and have your competitor simply say "you don't really need that", or, even worse, try to attack it. For example, in the automatic/manual example above, if he attacks the automatic lift instead of promoting the advantage of a manual lift, you will generally benefit since both of you are talking about your product. On the other hand, don't you ever use the argument "you don't re-

ally need that" or attack a competitor's feature because you automatically lose that point in the customer's mind. Come up with a counter, even if it is weak, because most customers will dismiss a point if both sides have a reasonable story.

Selling is normally a battle. Battle tactics can be much better understood if you use the "First Law of Selling" and it's "Corollary" to analyze the selling situation. Once you understand how competing products and features fit the Law, you can fashion a sales strategy that has a high probability of success. You can never be completely sure of the outcome because you can never be completely sure of what is in your customer's mind but your chances improve dramatically if you realize that their thinking is the key to the sale. □



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DESIGNING MACHINE MECHANICS

BY BRIAN SMIDDY

Editor's Note: Brian heads up the engineering team that designs Thermwood's machines. His team also reviews each new order that we receive to verify the mechanical structure.

In the past, the CNC industry has produced a standard product that they squeeze into every application in a "one size fits all" approach. Thermwood realized that we needed to change this way of thinking and design machines around a customer's need for a machine that fit a certain task. The design process today is built based on

what an entire industry, such as cabinetry, needs and what they desire for their future. We strive to offer whole design solutions from the machine right down to the very programming that will produce custom carvings, furniture and cabinets on a very modest budget.

The evolution within our company has sparked many changes especially in the engineering area. We needed to be as fast paced and as flowing as the new structure of Thermwood's products. To do this we incorporated new software as well as some new design principles. Our antiquated

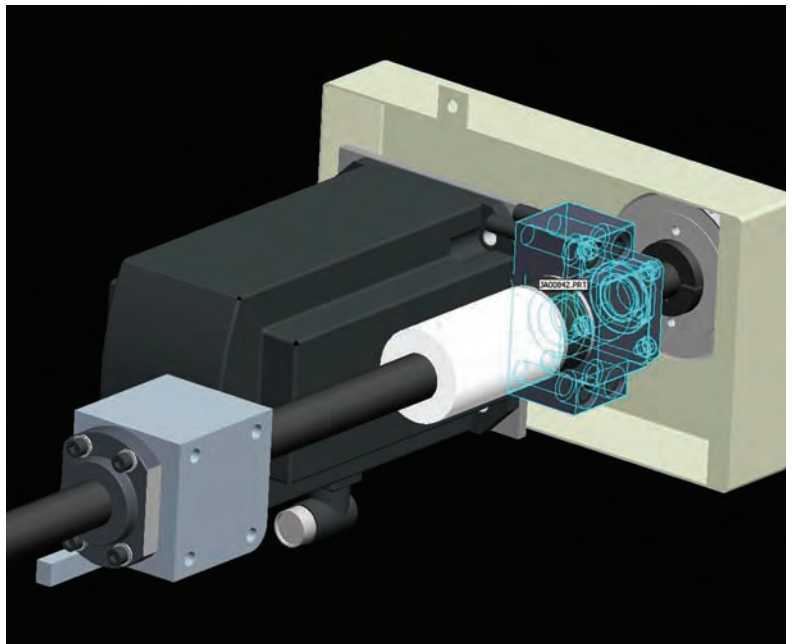
CAD software was replaced with sophisticated Pro-Engineer modeling software which allows us to offer new designs that are highly re-

fined without actually having to build the product first. Many areas of our company have benefited from this, not just the engineering department. The new, more life like layouts help the sales department understand new products quicker giving them the opportunity to offer input based on their experience directly with our customers. The old saying a picture is worth a thousand words is right. Now take that picture and rotate it around and see every aspect of the machine at once. The result is amazing.

Once we modeled a few of the machines we realized how useful these drawings would be to machine owners themselves. If you have purchased a CS45 or a CS41 in the past year, these drawings are available on your con-



This is the image of the Z axis assembly that displays on your control screen for a CabinetShop 45.

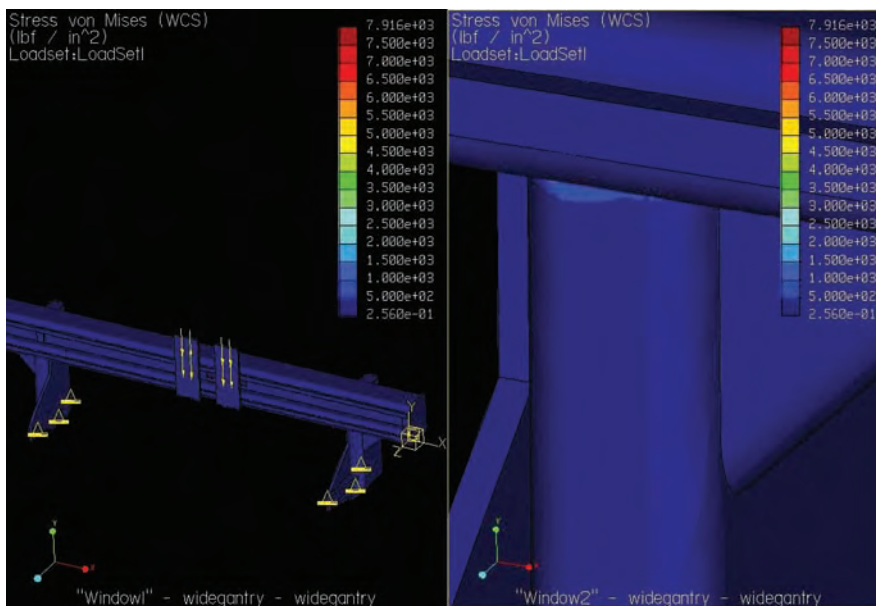


Images like this which can be zoomed and rotated, helps engineers design the best Thermwood machines possible.

trol. You don't need to buy anything to view the drawings you only need to activate the E-drawings we have loaded onto your control. I know this doesn't seem like much at first, but when or if you need it you will be able to look at these drawings, see how the parts fit together and by moving your cursor over any part, get the correct part number. This helps both you and our field service department to get you back up and running as quickly as possible. I suggest that everyone get familiar with the drawings and software before it's needed. An example of a drawing is shown here, take notice of all the tools you can use including measure and explode.

As a further measure, we incorporated finite element analysis using Mechanica. This software calculates and gives accurate representations of how stress and strain flows through the machine structure. I have always believed that the best machines are well balanced and that more weight and heavy construction is not always the best answer. Using this software we have been able to design stiffer structures across the whole product line without adding a lot of performance robbing weight. This also reduces the amount of prototyping required to achieve a specific result, which ultimately results in more affordable machinery. The stiffer lighter structures allow for higher accelerations and ultimately results in higher production from the machine. Shown here is a report exported from Mechanica displaying how the stress is distributed across the assembly.

The analysis shows what happens when you apply the force of two z-axis to the bridge structure. The force is illustrated by the arrows pointing down in the Y axis. In order to show stress, the model must be properly constrained, which is illustrated in the left view by the six small triangles. These points represent the bearing and ball nut mount locations and are constrained to move only along the Z direction of the model as illustrated by the coordinate box. The right view is a close up of where the stress has peaked. This gantry is a finished product that started out with color tones in the yellow and red range, after some experimenting with different leg designs as well as wall thickness of tubing and various braces we came up with this design. This type of "form follows function" designing has been adopted and accepted in our department and applied to all aspects of our design process. □



Stress analysis show engineers how machine structures will react to stresses before ever building them.

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CUSTOM CABINET DOORS

now on the web

BY DUANE MARRETT

Editor's Note: Duane is Vice President of Thermwood's eCommerce Division and he and his people develop and maintain all web operations for the Company and manage all web and electronic sales.

We regularly monitor keywords people use when they search for products on the Member Store. We also monitor search words on the major search engines.

Back in December of 2006, when we were looking for new products to offer eCabinet Systems Members, we used these keywords to determine what people were searching for on the web. One of the phrases that consistently generated the most searches was "cabinet doors". It appeared that there

was a huge demand for a source for high-quality affordable cabinet doors and drawer boxes on the web.

While we have offered Conestoga doors through the software, we believed our Members wanted more vendor choices and the ability to order on the web in a more convenient format. Also, in the near future we plan to integrate purchasing through the software with the web store so it was important to develop a way to define and purchase custom cabinet doors on the web. With this in mind, we began researching a way to offer totally customizable cabinet doors, drawer boxes and drawer fronts to our Members right on the webstore. We looked at the few other sites offering doors on

the web, and found that they work on a quotation format. Basically, they list the product information on the site, and then you download a quotation form and fax it in to them. They then figure out the pricing and shipping, and either call you or fax the quote back. This entire process can be very time-consuming and frustrating when you have a tight deadline to meet, and need to get your doors ASAP.

This approach would not work for us. So, we began development on a method to offer custom cabinet doors to our Members, on the web store with real-time accurate pricing and shipping. We wanted everything to be presented on one page so the customer knew exactly what their custom door

Here is Duane explaining the new door offering during the AWFS show.



would cost (complete with shipping) at the time of purchase. This process took over six months of programming to assure that the end result was a smooth ordering interface.

We completed the development and were ready to launch our custom door program right before the AWFS show in Las Vegas in July. We were curious what reaction this new idea would spark from show attendees. The overwhelming response was very positive, with attendees praising our easy-to-use interface and door vendors clamoring to join our offering. It appeared that the program was a success.

Since the show, we have been fine-tuning the ordering interface as well as adding additional vendors to the program. Our offering currently consists of Conestoga Wood Products (one of the cabinet industry's leading supplier of wood doors and compo-

nents), Arkansas Wood Doors (a dedicated company in the manufacture of quality cabinet doors for the cabinet and furniture industry) and CP&W (Custom Plastic and Wood – a leading source for high-quality wood cabinet doors). Each of these vendors offers many types of custom doors to choose from such as: Shaker Style, Raised Panel, Flat Panel, Applied Molding, Decorative Applied Molding, Mitered Raised Panel, Mitered Flat Panel, Slab, Louver and MDF.

We also offer the ability to order custom matching drawer fronts and drawer boxes.

We designed the ordering process to be as simple as possible, while still allowing a powerful level of customization to your exact specifications. You choose the Species, Profile, Bead, Raise as well as a huge variety of other selectable options to create the unique door you

need. Each door/drawer front can also be ordered Unfinished or Finished from a large assortment of popular finishes. Every option has detailed help available at the click of a button to walk you through the ordering procedure. Finally, you select the size(s) you need, and the Member Store shows the price per door and total price for the order.

Our next step is to add the ability to view a 3-D solid image of your custom door complete with finish and options on the Member Store. We are trying to offer the same door images you find in the software, but on the web. This requires another level of technical effort but we are hard at work to do just that. We are also working to add additional vendors to the program, and will make announcements to our Members as each new vendor is added. If you haven't seen the new door interface on the Member Store yet, check it out.



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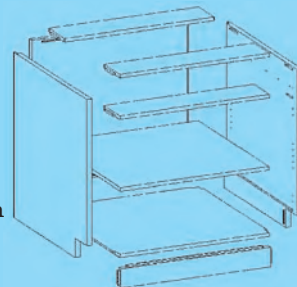
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AWFS SHOW REPORT – LAS VEGAS

This was a **HOT** show in more ways than one

If you were there, you know about Las Vegas summer weather. It may be dry, but 110 is still HOT! The show itself however, also seems to be heating up, at least for those of us in the cabinet business. They say that attendance was down a little from the last show but, if you look a little deeper you find that attendance by furniture companies was way down as fewer actually build furniture in the US anymore. Attendance by cabinet and other custom woodworkers was up and these are the folks we want to see.

This was the first time Thermwood used two separate show booths. The AWFS show is separated into a machine area and a “quiet” area for products such as wood materials, cabinet hardware and design software. Since we offer both machines and “quiet”

products, we decided to try the “split-booth” approach.

We were pleased with the result. In the supplier area booth we were able to talk to people about eCabinet Systems software as well as eCommerce, finishing programs and all the other products and services we offer, and we were able to do it without straining our voices.

In the machine area we had two CNC routers, a CabinetShop 45 and our new CabinetShop 41. The low cost of the CabinetShop 41 attracted a lot of attention and both machines were doing real cabinet work during the entire show.

The CabinetShop 41 was used to show how easy it is to design and then make cabinet boxes. A design station running eCabinet Systems designed custom cabinets right on the spot, most of the time working with cabinet

makers who were attending the show, and then the designs were sent to the machine and cut. It was easy to see the entire process.

The Thermwood approach is much easier than the standard industry approach because the job, one cabinet or an entire kitchen, is sent to the machine as a single job file. A show demonstration like this shows cabinet makers just how easy it is with job level file transfer. The traditional nested based approach requires a multitude of files and a lot of file fumbling at the machine which doesn't make a good show presentation.

The CabinetShop 45 was demonstrating what we call “Kicked up Nested Based”. This is all the other things besides cabinet boxes that a CabinetShop system can make. On a

The “Quiet” booth let us talk to customers about software, purchasing, finishing programs and furniture in a more comfortable setting.

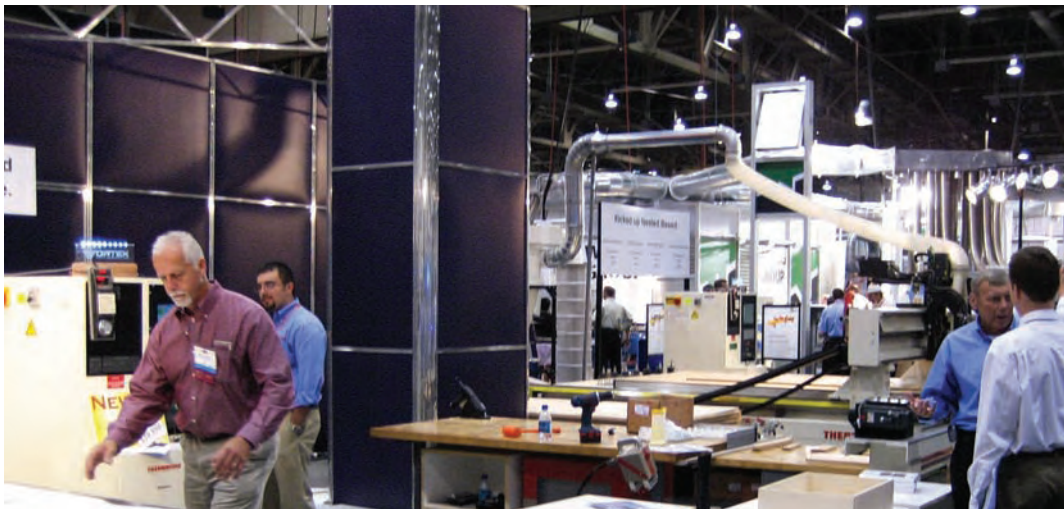


fixed schedule we machined dovetail drawer boxes, MDF doors, five-piece raised panel doors and puzzle joint face frames. These features are critical to smaller shops because they help justify the cost of a CNC router. Smaller

shops find it difficult to cost justify a CNC router based on savings from cabinet boxes alone but find it much easier when they include drawer boxes, doors, drawer fronts and face frames. In fact, many shops can justify a sys-

tem based on about one decent sized kitchen a month.

For Thermwood and eCabinet Systems this was a good show, despite the hot temperatures and cold slots. □



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THE FURNITURE OF THERMWOOD - PART 2

Editor's Note: One unique feature of our new office and showroom building is that we designed and built all the furniture in the building except for seating. These were all built and finished in our furniture training shops using nested based techniques. We thought you might like a closer view of these pieces. We have also included the material cost, machining and build times that we experienced and an estimated retail price determined by finding the closest products to ours on the web. All these designs will be available as a design sharing library.

Large Conference Table

This is a massive 20 foot long conference table for our main conference room. The top is made of two pieces, each made from two 5'x10 sheets of MFD, the top piece is veneered with walnut. We used furniture grade MDF sheets veneered and specified that the veneer come from consecutive slices of the veneer. In this way we could match the veneer in the center and get a more finished look. For large table tops we have found that MDF seems to give a smoother surface which simplifies finishing although it is heavier making the entire table quite heavy. Construction is essentially the same as the small conference table except we use four leatherette covered pilasters instead of two, with the center two turned about 35 degrees into a Vee to catch the internal support braces in the table. This table is not much more difficult to make than two of the small conference tables but the prices that we found for a long table are scary.



▶▶The main conference table in Thermwood's new office.

Material cost: \$897

Machine Time: 2 hrs. 30 minutes (including modeling the edge moldings)

Assembly: 9 man hours

Finishing: 2 hours, 21 minutes (7 min/coat, 10 min/sand)

Retail Value – We could not find a comparable 20 foot table and the closest comparable table we could find on the web was 16 foot long and retailed for \$27,000 !!! Subsequently we had a high end furniture company visit us and they saw the table and said they could supply a 20 foot table like it but the price would be about \$50,000.



▶▶The wall unit is used behind the larger executive desks.

10' Wall Unit

This large and impressive unit is rather simple to make. The base structure is made from two cabinets, one on the top and one on the bottom. The cabinet boxes themselves are made of black melamine covered MDF and the door and drawer fronts are walnut veneered plywood. The front ogee bumper trim is a leatherette covered trim piece that was modeled from solid stock. The doors and drawer fronts were grouped so that the wood grain flowed smoothly through all the adjacent doors giving a much richer appearance. The melamine material we (\$300/sheet) used was quite expensive, and we are not sure most shops would use this same material.

Material cost: \$1,967

Machine Time: 2 hrs (including modeling the bumper molding)

Assembly: 6 ½ man hours

Finishing: 1 hour, 3 minutes (4 min/coat, 7 min/sand)

Retail Value – This one is difficult to value, as we have been unable to find a comparable unit.

12' Cascading Wall Unit

This piece was custom designed for one application. The right hand side was up against a wall and the left side was against a window. To make use of the space, the upper structure was cascaded down until it was at counter height as it neared the window.

Material cost: \$2,227 (not including sink and plumbing)

Machine Time: 2 hours

Assembly: 6 ½ man hours

Finishing: 1 hour (3.5 min/coat, 7 min/sand)

Retail Value – This is a customized item and would likely sell for a premium to the price of the standard wall unit.

▶▶ This piece was custom made for this particular location.



Executive Credenzas

We built two versions of the credenza, an 86 inch long credenza, designed to be used behind the executive desks and a stand alone 56 inch credenza. They are basically cabinets made of walnut veneered plywood, sitting on two leatherette covered pilaster feet. They are finished in the Golden Walnut finish and feature Haefla brushed stainless pulls.

Material cost: \$702

Machine Time: 1 hr

Assembly: 5 ½ man hours

Finishing: 1 hour, 45 minutes (6 min/coat, 10 min/sand)

Retail Value – Credenzas of this size and type typically sell for \$1,200 to \$2,500 for office applications with real wood items such as these perhaps selling for a bit more.

▶▶ The Executive Credenzas were made in two sizes. The 86 inch unit is shown here.

Dining Tables

This is a variation to the boring square dining table shape commonly seen. It uses slight curves, two concave and two convex to give the table some style. The convex curve fits the concave curve so tables can be fit together while still displaying some interesting shape. Each table top is made of walnut veneered plywood with edge support plates and a walnut edge banding. The tops are finished in Golden Walnut but, top coats are conversion varnish because of the harsh environment they must function in. Legs are edge banded melamine covered MDF which offer both an attractive and low cost leg design. These are fairly easy tables to machine and assemble except that we had to hand apply and trim the edge banding on the legs.

Material cost: \$85

Machine Time: 30 minutes

Assembly: 2 ½ man hours (most in hand edge banding)

Finishing: 15 minutes, 40 seconds (20 sec/coat, 2 min/sand)

Retail Value – This is another piece that is difficult to price since there are so many variations in quality and price available in the market. Our best guess is that a comparable table might sell for \$250 to \$350 and possibly more considering the real walnut top.



▶▶ Dining table design adds some style to the simple square café table.

Ruth's Desk

Ruth works in sales and processes all literature requests, inquiries, quotations, and order processing as well as maintaining sales and market statistics for our marketing group. She is one busy gal and we designed a work center for her that is specifically built around the work she does. It consists of an executive desk with a glass center to allow her to see the computer monitor mounted beneath. To her left are cubicles where she can temporarily store jobs she is working on and file drawers are to the left and behind for archive storage. A literature rack allows her access to all current product literature while also providing access to sales folks from the other side which faces the hall. The networked color laser printer is also within easy reach as well as being available from the hall. This specialty work center is made of melamine covered MDF and walnut veneer plywood and is finished in the Golden Walnut finish with a pre-cat top coat.

▶▶ This is another specialized installation that carries the same theme as the other office furniture.



Material cost: \$2,154

Machine Time: 7 hours 25 minutes

Assembly: 10 man hours

Finishing: 6 hours, 41 minutes (27 min/coat, 35 min/sand)

Retail Value – This is a custom piece that is somewhat difficult to price but is probably within the capability of most custom cabinet shops, even those using traditional methods. We believe most shops would charge between \$7,000 and \$10,000 for this work.



▶▶ Occasional tables offer a great opportunity for profit.

Occasional Tables

Our interior designers brought us some occasional table designs that they thought would look good and they offered them to us at half price, \$1,250 instead of the \$2,500 retail. We liked the design but not the price so we made a similar design out of plywood. The legs are solid walnut, which were made from some stock we had lying around. The top is made of four edge banded plywood wedges so that we could maintain the grain parallel to the edge to make it look like solid wood edges. The center is inset to accept a leatherette covered panel and brushed stainless steel rods are drilled into the legs to support the round shelf, also made of edge banded veneered plywood. We used the Golden Walnut finish which is the common finish we selected for the office.

Material cost: \$163

Machine Time: 20 minutes

Assembly: 2 man hours

Finishing: 16 minutes, 20 seconds (25 sec/coat, 2 min/sand)

Retail Value – Although the original tables we modeled these from retailed for \$2,500, we believe that similar pieces should be available for \$500 - \$800 which still offers a lot of profit potential.

Bent Wood Benches

This is a design that is an extension of the thick wood look of the executive desks and conference tables. The benches are three inches thick and look like a three inch thick solid walnut plank that has been bent on the ends. It is actually made of plywood supports machined to the edge shape and then wrapped with 3/8" "wacky-wood", which is bendable plywood. The wacky-wood is then covered with a walnut veneer. The benches then have a CNC modeled walnut ogee edge molding applied and are finished in the golden walnut finish. The bench cushions are covered in the same fabric used as an accent on the seating we bought for the lobby.

Material cost: \$184

Machine Time: 55 minutes (including modeling the curved moldings)

Assembly: 3 man hours

Finishing: 24 minutes (45 sec/coat, 3 min/sand)

Retail Value – These pieces are also difficult to price since we have not found anything comparable on the web. We believe the benches would easily retail for \$1,500 or more and the tables for perhaps \$1,200 to \$1,500.



▶▶ Attractive contemporary design is fairly easy to build in the average shop.

Bent Wood Tables

The tables are two inches thick and are finished using the black base and glaze from the Black Worn Red finish we offer. Construction is similar to the benches above including using walnut veneer over the wacky-wood. The reason we veneer cover the wacky-wood on the black tables is because the wood grain structure shows through the finish and is an important part of the “look”. The metal feet are brushed aluminum disks and the rods on the black tables are brushed stainless.

Material cost: \$2,154

Machine Time: 7 hours 25 minutes

Assembly: 10 man hours

Finishing: 6 hours, 41 minutes (27 min/coat, 35 min/sand)

Retail Value – This is a custom piece that is somewhat difficult to price but is probably within the capability of most custom cabinet shops, even those using traditional methods. We believe most shops would charge between \$7,000 and \$10,000 for this work.



▶▶ Contemporary tables are fairly easy to build and generally command a premium price.

Coffee Centers

We built two coffee centers using some of the design themes from our office furniture. These are typical cabinet design with leatherette covered vertical end supports as well as a leatherette covered front edge. We used left over granite from our lobby wall construction for the counter top giving it a richer look. Note that we grouped the doors so that the veneer grain ran smoothly across the doors.

Material cost: \$958 (not including sink and plumbing)

Machine Time: 2 hours, 30 minutes (including modeling the center and upright bumpers)

Assembly: 5 man hours

Finishing: 32 minutes (1 ½ min/coat, 4 min/sand)



▶▶ Coffee centers are stand alone pieces of furniture that look like built-in.

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BY RADO GAZO

Editor's Note: Rado Gazo is presently an Assistant Professor of Wood Processing/Industrial Engineering at Purdue University where he teaches several classes including Secondary Wood Products Manufacturing, Properties of Wood and CNC Manufacturing. When not in a classroom, he conducts research and extension activities in value-added wood products manufacturing and industrial engineering areas. Rado is involved with student recruitment and building up of Purdue's Wood Products Manufacturing Technology undergraduate program.



In 1997, due to interest from the Indiana furniture industry, the Forestry and Natural Resources department at Purdue University established a new curriculum in Wood Products Furniture Manufacturing Technology.

In 2000, Thermwood donated a Model 40 CNC router worth about \$200,000 to our teaching program. The router was setup with a turret head and enough options and tooling so it could be used as a cabinet machine, as an upholstered frame cutting machine, and as a flexible furniture manufacturing center. The addition of this equipment was critical to success of our curriculum. In addition to being able to teach on the equipment that is state-of-the-art, the CNC router offered us significantly safer learning environment in a woodshop. We are now able to get students to design and manufacture products in a one 3-credit hour course, during one semester – a task not possible before. Since 2000, every student who took our courses learned how to program and operate the router, made several products and many landed jobs using their CNC/CAM skills.



Teaching

In our teaching, we regularly use the CNC router in following courses:

Secondary Wood Products Manufacturing.

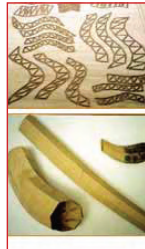
CNC technology is current state-of-the-art in wood products manufacturing. Our program was one of the first major universities to introduce this subject to students. One teaching module is devoted to topics of modern manufacturing methods. Students learn basics of CNC programming, maintenance, specifications, tooling, part hold-down, etc. In addition, each student designs a piece of furniture and manufactures it using the CNC router. These required student projects are presented at an exhibit at the end of semester.

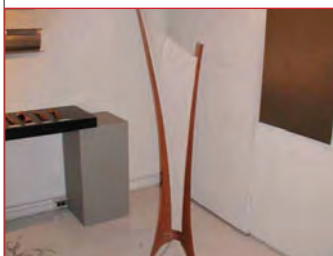
Properties of Wood Related to Manufacturing. CNC router is used in this class for a laboratory exercise to test machining properties of solid wood according to American Society for Standards and Testing procedures. This is an innovative way to test machining properties and results in safer laboratory practices.

Furniture Construction. This is a required course in WPMT major and in Furniture Design minor curriculum. CNC router is used in this class to manufacture furniture test joints.

Wood Composites. This is a required course in WPMT major curriculum. The CNC router is used in this class for a laboratory exercise to test machining properties of wood composites according to American Society for Standards and Testing procedures.

Advanced CNC Manufacturing. Every year





there are few undergraduate students who wish to gain advanced CNC manufacturing knowledge. In this class, students work at their own pace to create advanced projects on the CNC router.

Furniture Design for CNC Manufacturing. In 2001 professors Rado Gazo and Eva Haviarova (Forestry and Natural Resources) and Rick Paul (Art and Design) started to jointly offer a new course **Furniture Design for CNC Manufacturing** and developed a new minor in **Furniture Design** for Purdue students. Students in this class learn basics of CNC operation, programming, and design for CNC manufacture. They also create a project which is exhibited in the College of Liberal Arts gallery at the end of semester. This course has now been taught six times and every year work of some students is accepted at national and international furniture design competitions. For example, in August 2006, one of the students placed first in the Design Emphasis competition at the International Woodworking Fair in Atlanta. Another student's work was exhibited in France. Most College of Liberal Arts students use projects made in this course as a part of their graduating "portfolio."

Work with Industry and Public

Wood is Good. This course is taught mainly to high school career counselors, agriculture and shop teachers. The purpose of this course is to show them that wood products manufacturing is can be a high-tech career in which industry uses state-of-the-art technology. We do this in hopes to increase enrollment in WPMT curriculum. Low enrollment in these programs is a nation-wide problem.

Spring Fest. The CNC router is a center piece

of Wood Research Laboratory display and demonstration projects during Spring Fest. The public can see the use of modern technology. Our student club makes custom signs and products while people wait and watch the manufacturing process. This gives us an opportunity to talk to them about what we do.

Laboratory Tours. Since 2000, we give a tour and CNC router demonstration once or twice a month to groups such as professionals attending other meetings at Purdue University (Advanced Manufacturing Summit, 4H, FFA, etc.), elementary and high school classes, boy scouts, disadvantaged children, etc.

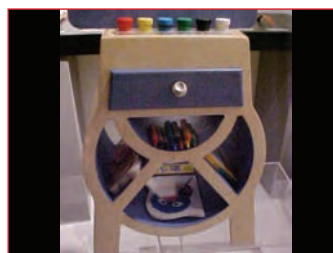
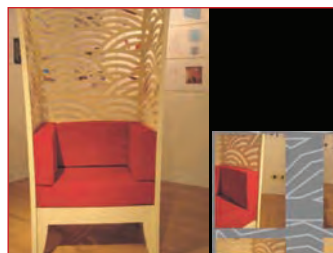
Company Assistance. We help about one company per year to determine whether CNC manufacturing is for them. This may include instruction on operation of advanced manufacturing systems, maintenance, programming, production setup, cost analysis and cutting prototype products using CNC routers.

Research

We just completed three studies in which CNC router played a critical role. One was partially funded by Purdue University Center for Advanced Manufacturing on Tool Wear and the others dealt with Mass Customization in Furniture Manufacturing and Kitchen Cabinet Construction. These studies will result in 5 scientific articles, 2 trade journal articles and about 15 professional presentations. We would not be able to attract funding or conduct the research without the CNC router.

The Future

A CNC router is a critical part of our innova-





tive teaching program. The innovative nature of our program lies in combining three disciplines of furniture design - design for strength, design for manufacture and design for aesthetics in one program. Purdue University has internationally recognized strengths in all three of these areas. This program is unique not only in Big Ten, but it is leading among all other major US universities.

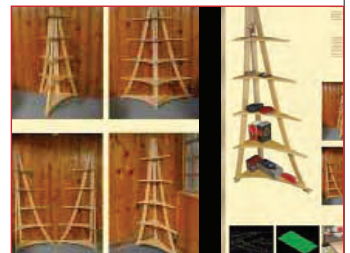
To keep up with times, after six years of operation, Purdue University has decided to update our router to the new Thermwood Model CS45-510 (a CabinetShop 45). As is often the case, university wood products programs can fall short of money. Here Thermwood stepped in again and contributed about 25% of the cost of the new machine.

The CabinetShop 45 is a moving gantry

design, which allows for 56% larger working envelope while taking up 40% less floor space (a critical issue in our shop). The CNC controller has been significantly upgraded and is built around 3 GHz Pentium processor with self-diagnostic and repair features – another great feature where many student first learn how to operate this equipment. Among other things, the latest control allows DXF output (industry format) to be brought directly into the control where it can be nested and run without the need for additional interfaces. Instead of AC servo motors, the new router uses digital drive systems, resulting in reduced cycle times. The new machine incorporates tool changing capacity predominately used in manufacturing today. The vacuum part

hold down is much more efficient than older versions, resulting is higher accuracy and safety with smaller vacuum pumps.

Purdue looks forward to working even closer with Thermwood, especially the prospect of introducing eCabinet System to our students. We hope to build on our past successes and “kick it up a notch” with our new router. □



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

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

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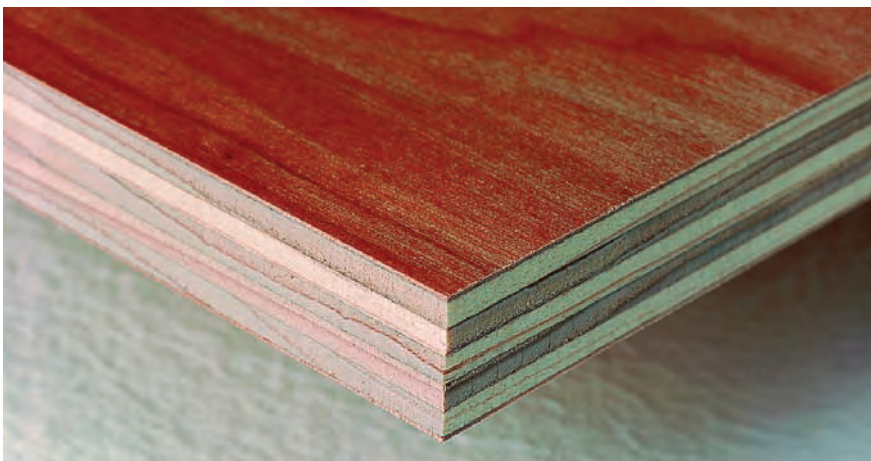
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The Meaning Of Green & Columbia’s PureBond® Recognized Partner Network



▶ PureBond veneer core plywood from Columbia is formaldehyde-free, making it LEED and CARB-compliant.

Editors Note: This article was supplied by Columbia Forest Products, a leading supplier of plywood to the cabinet industry. We have worked with them quite a bit in the past and thought that their aggressive move into “Green” plywood would be of interest to our readers. Their programs can also offer some new and potentially valuable selling tools.

You’ve no doubt heard about the “Green Wave” that has been approaching the construction industry for 10 or 15 years now. But like the boy crying wolf, it’s been said so many times before, that it may seem like second-hand news.

We’re here to tell you that it’s time to grab your surfboard - because this wave has hit shore, and it’s something you can start to ride today. We at Columbia Forest Products have been watching for signs of this wave, and today, we see a market that’s ripe for the members of eCabinet Systems to grab a powerful foothold.

Defining the Topic

The “meaning of Green” is something that seems to change, depending on who you are. To the appliance and automobile companies, it’s how energy-efficient their product can be engineered. To the paper mill, it’s how much recycled content goes into the mix. But what does the consumer think? That’s what we think will be of the most interest to you.

According to research conducted by a leading consumer marketing consulting firm that specializes in female-centric insights, today’s green consumer considers a product to be green if:

- It doesn’t contain pesticides, hormones, or antibiotics;
- It has a less negative impact on the earth; and
- It’s made using a sustainable process.

Furthermore, 90% of the women surveyed said they prefer buying green products, and felt they were helping the environment by doing so. How-

ever, only a third said they’d pay more for green products, and over 40% said they would not sacrifice quality just to get a green product.

What motivates today’s female consumer to buy green? They responded that health concerns and a greener future for their children were the key motivating factors.

The issue of health, as a “personal” reason to buy green, is something that only the organic food industry has really leveraged. Most green product marketers focus on the good feelings associated with issues of sustainability or recycling, and on the potential dollar savings in increased efficiency.

But if health concerns and children’s welfare are key to drawing the attention of today’s female consumer, how can we, in the woodworking industry, take advantage of this insight? Read on to find out.

Origins of Tomorrow’s Hardwood Plywood

Promoting and supporting environmental health and stewardship has been a cornerstone of Columbia’s corporate mission for many years. The company was one of the first North American wood products manufacturers to be FSC-certified (through SmartWood) and was early to adopt low-VOC finishes.

In response to growing concern from the architecture and design community about formaldehyde’s adverse effect on indoor air quality, in 2005 Columbia launched PureBond®, the decorative panel industry’s first cost-competitive, formaldehyde-free hardwood plywood product range.

While PureBond’s commercialization created excitement among

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Columbia's FSC certification ensures responsible use of forest resources. © 1999 FSC SW-COC-065

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

 **columbia**
FOREST PRODUCTS



► Columbia's formaldehyde-free PureBond plywood was selected for use in the USGBC's headquarters in Washington, DC. The product was used extensively throughout the resource library for the custom shelving system. Edgebanding was intentionally left off many panels, enabling the visitor to view the veneer core layers inside.

the “early adapters” throughout the industry - architects, designers, custom cabinetmakers and chemically sensitive consumers, two significant developments have put recently formaldehyde under the microscope on a nationwide level:

- California's adoption of what will be the strictest regulations regarding formaldehyde emissions from wood products in the world—these rules will affect all suppliers who do business in California, no matter the point of origin; and
- The debacle surrounding noxious formaldehyde fumes off-gassing from composite wood products in post-Katrina FEMA trailers.

Never before has this chemical, designated by the International Agency for Research on Cancer (part of the World Health Organization) as a known human carcinogen, generated so much negative press and controversy. This has jump-started demand for formaldehyde-free products and materials, and that demand will increase dramatically as the public becomes more and more aware of the health risks associated with formaldehyde.

Putting It to Work for You

This situation creates a fantastic market opportunity for cabinetmakers and fabricators to incorporate formaldehyde-free materials seamlessly into their processes, and to position

themselves as the smart, informed, and forward-looking local resources for “clean and green” wood products.

Here's a pretty simple visual for you – imagine you have a consumer in a showroom, pointing out the different kinds of cabinets you can build for her. Once you get past the issues of style, budget and quality, what more can you offer? Your reputation has already gotten her to your door. But what is that little extra you can add to your overall presentation that will have you standing out from the crowd?

How about this simple question:

“You'll want these cabinets to be made with formaldehyde-free materials, right?”

Not only does this open the door for you to explain the benefits of such a choice, but it instantly advances you to the role of “consultant,” not just “cabinet maker.” You're in a position to advise this mother/potential customer/PTA member/soccer team mom/book club meeting host/etc on a topic she probably wasn't thinking about when she came in – but that she'll certainly be talking about when she leaves!

Teaming Up For Strength

The concept of like-minded business people banding together to support each other is nothing new to eCabinet Systems members. And to help interested woodworkers engage in this opportunity, Columbia is creating the PureBond Recognized Partner

Network (PBRPN) for cabinetmakers and fabricators, to make it much easier for consumers to find environmentally health-conscious suppliers.

The goal of the PBRPN is to build a directory of fabricators who offer cabinets, furniture, fixtures and other products made with PureBond and other materials compliant with the California Air Resources Board (CARB)'s regs and the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) standards.

A PureBond Recognized Partner will be quality-oriented, have a great local reputation, and will embrace green building principles, including indoor air quality and sustainability. Columbia will help educate these partners as to the latest thoughts around these topics, promote them on our website; and provide signage and literature for use in their showrooms. And partners can benefit by being included in Columbia publicity opportunities as well.

Green building, environmental health and sustainability are not fads; by design they're meant to stay around for a long time. And there is great opportunity for those who lead the movement. To contact Columbia about participating in the PureBond Recognized Partner Network, please contact the representative in the appropriate region:

West Coast

Steve Chaves
(800) 694-9663

Northeast

Kevin Mawson
(518) 861-5713

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WHAT'S NEW?

Technical Service Expands Facilities

Thermwood's Technical Service division, that is, the actual service portion of the division has expanded and modernized its facilities. It has taken over the area where eCommerce, eCabinet Systems, the demo techs and graphics arts were previously housed. With a few moved walls and new doors, the area has been transformed into a comfortable and efficient new home. The Training personnel were moved to the new office building where the new training rooms are in full operation.

▶▶ View of new Field Service area



Electrical/Electronics Operations Moving

Now that our new showroom and office building is complete, the old showroom is being put to good use. The electrical department has moved into this air conditioned area where they will build the wiring harnesses and control cabinets for our CNC routers. The electronics folks, who build the actual control system electronics will be moving into a newly remodeled electronics center which was the old training class rooms. These areas have been refurbished and custom work stations and storage cabinets are now being built. Within sixty days the move should be complete and our electrical and electronics folks will have new modern and efficient work space.

▶▶ View of new Field Service area



New Door Vendors Joint the Program

Two new door vendors have been added to the eCabinet Systems program. They are Arkansas Wood Doors (a dedicated company in the manufacture of quality cabinet doors for the cabinet and furniture industry) and CP&W (Custom Plastic and Wood – a leading source for high-quality wood cabinet doors). Each of these vendors offers many types of custom doors to choose from such as: Shaker Style, Raised Panel, Flat Panel, Applied Molding, Decorative Applied Molding, Mitered Raised Panel, Mitered Flat Panel, Slab, Louver and MDF.

Doors from these new vendors can be ordered through the eCabinet Systems Member Store.



◀◀ CP & W cabinet doors ▶▶ Arkansas Wood Doors

New Vendor Brown Wood Products

Brown Wood Products - Designs of Distinction offers custom moldings, turnings, carvings, feet, legs, posts, onlays and many other wood components. We have begun adding in their Bamboo Collection to our product offering and will continue to add the rest of their product line over the next few weeks.

▶▶ Brown Wood Products offers a line of decorative items.



▶▶ Each piece of Doug Gilford's new metric Design Sharing Library has been machined on a Thermwood CNC router and assembled.

Frameless, Melamine, System 32 Metric – Design Sharing Library Added

We have recently added a New Design Sharing Library to the eCabinet Systems Member Store. This library was developed by Thermwood Dealer Doug Gilford, and features 20 frameless melamine style carcass parts, doors and panels. It was developed in metric and designed for metric use. It is also System 32 compatible.

This is a fully fledged manufacturing library and everything in the library has been cut on a Thermwood Router and assembled to ensure its accuracy. This library features extensive machine drilling and machining operations designed to speed up assembly time significantly.

NorthWoods Manufacturing - Doors added to the Custom Cabinet Door Program

We are pleased to announce the addition of a new cabinet door vendor to our Custom Door Program. North Woods Manufacturing is owned and operated by long-time eCabinets Member Bill Rutherford. Bill is an active Production Sharing Member, and has now begun to offer their custom cabinet door and drawer front line through the Member Store.

Located in Freehold, New Hampshire, NorthWoods offers its customers a one stop solution

for cabinet parts, doors, drawer fronts, drawer boxes, and virtually any other component used in the cabinet or furniture industries.



▶▶ Northwoods Manufacturing cabinet doors

KERRY'S CORNER

When Sales Look Bad, Just Go Fishin'



BY KERRY FULLINGTON

My favorite place to fish is a place not far from home called Kustomer Lake. It is an attractive little lake and although it has been fished heavily through the years; you can usually expect to catch something if you get out early and work at it. There are some huge Lakes down south stocked with enormous "sale" fish, but of course, there are many more fishermen there too, so I try to stay close to home if I can. I have a good looking little shop boat equipped with some fine rods, reels and most all the other tackle of the trade that I need. It isn't all new or state of the art but I get some pretty nice catches using them.

Most any day on Kustomer Lake you can catch a string of little "job" fish without too much trouble. The big fishers don't really want them so they are plentiful and they are easy to catch. The problem is that they are so small you have to catch then clean a tremendous mess of them to have any in the freezer for later. I think today I am going a little further down the lake after a trophy. I have heard rumors that there are even a few tagged fish in the lake that will bring you some big money if you catch them.

As I motor down the lake I pass several old timers fishing from the bank. They have been here a long time, everyone here knows them and they have "baited" their fishing holes so they seldom have to try too hard to keep the freezer full of "job" fish or "Jobbers" as they like to call them. There are also a couple of the professional shop boats out trolling today. They are those colossal boats with crews and all the latest high tech, computer controlled gadgets to locate and catch fish. They have the capability to set out miles of trot lines and catch thousands of jobbers at one time. Some of them run their trot lines day and night working three shifts.

I get along with all of the old timers, (they always release some fish for the rest of us to catch if they have too many) and my shop boat isn't large enough to go out into the deep water with the pros, but lately I have had to compete with the Big Box Boats. These are those flashy high speed imported boats backed by giant corporations that dart all around the lake at high speeds and crowd in when anyone else happens to get a bite. No one likes them much but it looks like they are here to stay.

Today I choose a pleasant spot near a new development in

the lake and notice there is quite a bit of competition already here. I hope I am not too late to snag something. I get quite a few nibbles right off but they are just those annoying little price shopper fish that take your design bait then usually end up in one of the Big Box Boys nets. They aren't good for anything but wasting your time. I anchor not too far from shore when I see two of the best of the old timers casting out madly, using their shiniest lures. They are after a gigantic "sale" fish with a bright red tag in its gill. This could be my big chance so I quickly dig through the tackle box and pull out my brand new advertising lure. It is a beautiful piece of work, four color and glossy. It cost me a lot and I hope it will pay off.

I cast out and lucky for me this fish is out just a little too far from shore for the old timers to reach. He swims towards where my lure hits the water and starts following it in, when out of nowhere, come one of those Big Box Boats. There are three guys throwing their cheap plastic lures at my fish. They are using all of their tactics to distract and confuse him as to run him down deep where they can net him with the bottom feeders. Just when it looks like I will lose this giant "sale" fish, I pull out my secret weapon, a tiny ball of marketing stink bait mashed on the hook. I cast out, one last time, right into the middle of the Big Box Boys and start reeling in. The fish catches scent of the bait and starts coming my way. Every time they try to pull him away I give my lure a couple of artful tugs and have him swimming back toward me. The Big Box Boys get desperate and start chumming the water with talk of soft close doors and drawers when I yell out, "My boat is solid hard maple with dovetail construction and stainless steel hardware!" The big fish bites and with one quick jerk of my rod he is hooked. From here, reeling him in is easy; after all he wants a ride in my solid hard maple boat.

It has been a good day on the lake. The warm red sun is fading to the west reflecting in the clouds and the water ripples to the shore as we cruise past the last of the old timers packing up. Boy what a string of jobbers he has. The Pros are still running their trot lines and of course the Big Box Boys will be darting around till way after dark, but I am through for the day. I still have to clean and cook this big fish but that is another story, so remember, when your sales look bad, just go fishin'. □

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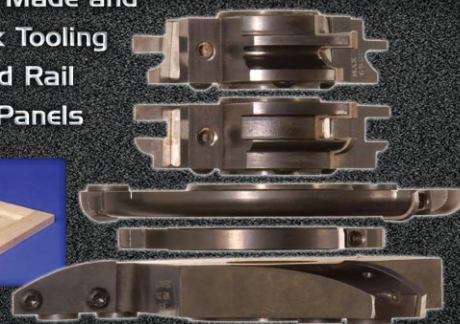
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What do you get when you combine Wood, Music, Harleys, Jeeps, Old Chevy Trucks, eCabinet Systems and a **Thermwood CNC Router**?

OUTLAW CARPENTERS

Hop in your car in Beverly Hills, California, drive 35 miles north, exit the freeway, drive the surface streets a few more miles until you come to Oak Avenue. Make a right turn, drive to the end down by the dry river bed and park. Get out of your car and (depending upon the weather and what they rode in on) make your way past an '85 Jeep CJ-7 Hard-top, a '93 Harley-Davidson FXR, a '53 5 window Chevy pick-up, a '77 Harley-Davidson Shovel-head, an '07 Harley-Davidson Road King Classic or a '54 partially restored Chevy Panel Truck. Open the door with the sign that says "Made In America" and you've entered the world of TLC Woodworks.

TLC Woodworks officially started in 1998, but the history of family woodworking goes back over 50 years for partners

Mike McDaniel, Tom Laux and Mark Fese. Mike, now 50, started building cabinets in his dad's shop when he was 7 years old. Mike says "for many years anybody out here in the woodworking industry

of James, and a few years later grafted himself into this woodworking family by marrying James' daughter (sounds like a sneaky plan by ol' James to lock in employees!) Tom, 49, has been a woodworker

since he was 15. He worked for James for 10 years until 1990 when he broke off and started his own shop out of his garage. In 1998 he regrouped with Mike and Mark and TLC was officially off and running.

More than business partners with a family tie, they're connected by music as well. As you enter their office you're drawn to a poster of a very happy looking fish playing a guitar, surrounded by the words "SMILE-N-FISH

BAND". With a home-grown, bluesy, biker rock sound, the line-up includes Mike on lead guitar and vocals, Tom on rhythm guitar, harmonica and vocals, Tom's wife on flute and vocals and at one point Mark's



▶▶ L-R Mike & 93 FXR, Mark CJ-7, Tom 07 Road King

knew my dad James McDaniel. He was a woodworker as long as I can remember, and actually taught Mark, Tom and I the business." Mark, 49, began his woodworking career in 1984 under the watchful eye

brother on sax. They have fun with their music, playing weekends at local venues, large biker rally's and many fundraisers, including one for 9/11 and the annual "Thunder On The Lot", an event that benefits local children's charities.

When they're not making music or driving their American made vehicles, you'll find them busy designing and building quality custom cabinets and woodworks. Their customer base is primarily "over the hill" as they say it, comprised of movie stars, producers and other hi-profile people in the Beverly Hills and Hollywood areas. Because of the quality of their work, all their business over the years has come by word of mouth, with contractors providing the bulk of it. The mix of jobs is about 25% new construction and 75% remodel (which due to the extremely high price of real estate in the area usually means tearing it all down and starting over!).

The method of operation for years was Mike primarily responsible for sales, interacting with the customer and bidding the job from architect supplied plans. Once the job was landed Mark would usually make a trip to the job-site and measure, then hand draw the shop drawings. From there over to Tom for the very time consuming creation of cut-lists, also by hand. Finally out to the shop and days of work cutting up panels on table-saws. Ask Tom about those days and he simply smiles and says "glad those long and tedious days are behind us." Doing about 12 good sized jobs (averaging about 2 months per job) and many smaller ones per year, they found themselves tapped out.

With only so many hours in a day they hit the limit on what they could produce with their equipment and manpower. It was time to automate, starting with the design and milling parts of the business.

The desire to automate was actually a goal they had from the beginning. They

knew the technology was available, having read about it and watched it in operation at shows and other shops. They also knew that as more shops acquired it and they didn't their own competitiveness would diminish. But the high cost of CNC equipment and design software, the learning curve that came with them and the ability



▶ Tom & Mike getting down onstage at a charity fundraiser

of getting it all to work well together presented a pretty significant challenge. Regardless of the hurdles though, they knew that was the direction they were headed and continued researching what was out there.

As they looked they were drawn to Thermwood. Mike says "the fact that it was

American made really appealed to us, and once we saw it we liked it even more because it was built better than the others. Price was good too." Naturally their interest in Thermwood exposed them to eCabinet Systems, but because it was "free" they wondered if it really was any good. So they poked around the forums and asked others in the business what they thought, including vendors trying to sell them other software. Comments ranged from "it's a great program" to "it's free, you get what you pay for." Eventually, however, they learned it was the real deal.

With their research leading them to the conclusion that, as Tom says "the package of machine, controller and software all together under one roof was the way to go", they made plans to go see it all work up close and personal at the January 2006 regional show in Pomona, CA. After spending some time seeing the machine work, talking with the Thermwood people and getting a thorough demonstration of just how powerful eCabinet Systems really was, they were hooked. Before they left the show they stated "It's time. Let's do it and get er' done." A few months later a freshly built Thermwood CS45-510 found a new home at the end of Oak Avenue, down by the dry river bed right next to all the other American Made products!

There was a learning curve for the machine and the software but they expected it so it came as no surprise. The Thermwood Dealer in their area told them (rather emphatically Mark says) to "not plan on pushing all your production through the machine the first week. Give yourself a few months to get used to the technology and before long you'll be doing just fine." Looking back Mark says "getting it all going had it's painful moments, but all-in-all it wasn't too bad."



▶▶ Mark busy creating jobs with V5.1



▶▶ Tom using overhead vac to clean handling sheet



▶▶ eCabinet Systems rendering of a Beverly Hills closet

Today, as a result of the Thermwood CNC and eCabinet Systems, their business runs much more efficiently, both in the shop and in the field. From the comfort of the office Mark is able to email line drawings, elevations, presentations and other details directly to the customer for review. Other times, with the Dell M70 Laptop in hand, Mark and Mike are in front of customers presenting the job and making immediate changes based on their input. Mark says “What’s great now compared to the old days is how much power and flexibility I have at my fingertips. When I rotate and explode a cabinet to show them joint construction and other details, or stretch and fit instantly, you can tell they’re pretty impressed. This especially helps with new customers because you can see that they have confidence in us and know they’re dealing with a very professional shop. So right out of the gate our status and credibility in their eyes is at a much higher level than it used to be before eCabinet Systems.”

Back in the office Tom takes the presentation files into eCabinets Systems loaded on his Dell desktop. He’ll strip it down to the cabinets, eliminating all the items the machine won’t cut, such as display objects, stone tops, etc. He’ll then usually batch the cabinets, nest with True Shape and send the job to the machine.

Joint construction for the boxes is typically blind dado, which according to Tom

“is now a piece of cake because of the machine.” Depending on the job, they do both Face Frame and Frameless. Face Frames are attached as a butt joint using pocket screws. Frameless is pretty easy using the software and machine. They simply tell it the thickness of the edgeband and the machine compensates for it. Because it’s all automatic identifying parts that need edgebanding is pretty simple as well. Tom says “before it was kind of a pain to keep track of parts to band. Now it’s as easy as looking at a picture on the label and sending it off to the bander.”

Because of the high-end nature of their customers, the cabinet boxes are made with mostly plywood and veneered MDF panels. “Melamine is frowned upon by most of these folks” comments Mark. They don’t use stretchers or stringers, going instead with full backs and tops. Most of their jobs are delivered unfinished, with an outside contractor handling the final finish either on-site or at a finishing house. With stringent California VOC’s and emission standards, having someone else deal with the finishing suits TLC just fine.

Due to the fact that many jobs involve the remodel of residences dating as far back as the early 1900’s, the requirements of matching existing doors, mouldings and crowns usually means making these items themselves. As a result they grind most of their own knives for the shapers and at this point probably have over 1,000

different profiles in their toolbox. Because they’re already so tooled up for machining solid wood they haven’t yet begun to use the Profile Modeler, but can see it being worked into the mix for specific applications sometime soon.

With almost 18 months under their belt working with eCabinet Systems and the Thermwood, TLC has begun cutting parts for other shops. Mike says “our Thermwood Dealer told us when we were ready there was work out there, but we were too busy with our own jobs to pursue it. Lately though we’ve opened our doors to it and it’s worked out great. Takes a little time up front with a new customer, reviewing their job, sizes, construction method etc., but after that it all flows pretty well. With the machine cutting everything so precise, for a good price they get exact parts ready to assemble. It’s good for them because it saves them a whole lot of time. Good for us because we’ve got the system down and as a result it doesn’t take too many customers to help cover the payment on the machine!” (TLC is listed on the Production Sharing section of the eCabinet Systems website).

Looks like the Outlaw Carpenters at TLC Woodworks did indeed “Get er’ done!” □

TLC Woodworks
 Santa Clarita, CA
 661-299-6595
 TLCwoodworks@sbcglobal.net

Established: 1998
 Employees: 7
 Thermwood CNC Router CS45-510

eCabinet Systems
 SCMI Edgebander
 Grizzly Wide-belt
 Powermatic Planer
 2 Moak Shapers
 2 Dell 8400 Desktop Computers

Dell M70 Laptop
 TLCwoodworks@sbcglobal.net

eCab World

We have created our marketing plan, developed first class marketing materials and now it is time to put it all into motion. Its time to sell!!!

By Dan Epps

There are a number of approaches to selling, each with its time and place. Methods that work well in certain industries can be the death knell for other industries. For example, I can't see the "hard sell" approach of late-night television working for custom cabinetry (but wait, if you call in the next 30 minutes...)"

For custom cabinetry, a consultative approach seems to be perhaps the best fit. In consultative selling, you allow the customer to define their needs then you fit your offering to their needs.

I like to think of consultative selling as being two-phased, with each phase having specific steps.

In phase 1 the seller is mostly silent and tries to understand the customer's needs:

1. Listen (to the customer's situation and needs)
2. Clarify (ask questions)
3. Summarize (what the customer needs) to check that there is no misunderstanding

In phase 2 the seller leads the conversation:

1. Propose (a solution that matches the detected needs)
2. Demonstrate (the advantages of the solution)
3. Welcome the objections (let the customer know that you understand them) and be prepared beforehand to answer them
4. Help the customer to decide (bring a sense of urgency)

Let's break this down a bit more. In phase 1, step 1, listen very closely for subtle details that might be important to the customer and take notes. Let the customer do all of the talking at this point.

In phase 1, step 2, refer to the notes you have taken and ask questions to make sure you understand what the customer wants. Then repeat everything (phase 1, step 3) to the customer to make certain you haven't missed something important.

After gathering all the necessary information you need to prepare your proposal, put it all together in a form that

is easily understood by the customer. Take extreme care at this point to be sure you have no spelling, grammatical or specification mistakes in the proposal.

Phase 2, step 2 is where you present the proposal to your customer. Point out the advantages of your product without highlighting disadvantages of others. You want to talk only about your product at this point.

Next we allow the customer to tell us of any objections they might have to the proposal. Do your homework and anticipate the objections. Have your answers ready for each objection and deliver them with confidence, pointing out the advantages of your product. If you choose to point out disadvantages of competitor's products at this point, do so softly. It is always better to discuss the benefits of your product than to downgrade a competitor's product.

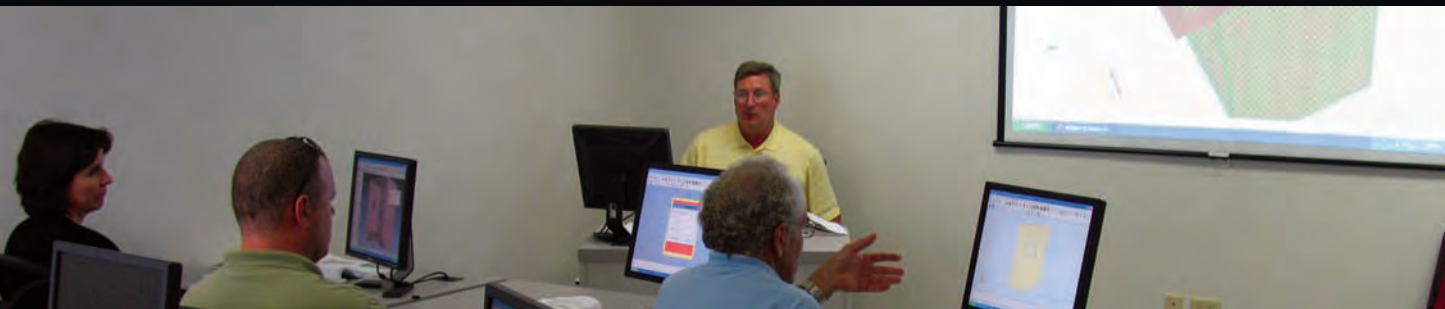
Finally, we get to the close. You have to ask for the sale, but do it in a non-aggressive manner. Let the customer know that you have an opening in your schedule that will allow you to get started on their project quickly (next week?). If it will be a while before you can start the project, let the customer know up front. Don't tell them you can start next week when you know it will be three weeks before you can get to it.

I purposely did not approach pricing in this article because it is such a subjective topic. Basically, the "right price" is when the customer agrees to buy a product at a price the seller is willing to part with the product for. Local conditions also have a huge impact on pricing. In an area with many vendors offering the same product, prices will of course, be lower than in a market with few vendors. Competition from the "big box" retailers comes into play very much. We know the difference between fine custom cabinetry and the big box offerings, but the customer likely only sees the price. Educate the customer by pointing out how your product is of higher quality.

Good luck and good selling.

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

ECABINET SYSTEMS SEMINARS & TRAINING SCHEDULE



2007

October

- 2-3-4 Holiday Inn, Burnsville (Minneapolis), MN
 8-12 Thermwood Corporation
 22-26 Thermwood Corporation

November

- 12-16 Thermwood Corporation
 26-30 Thermwood Corporation

December

- 3-4-5 Orange County Convention Center, Orlando, FL
 3-7 Thermwood Corporation

2008

January

- 7-8-9 Los Angeles Fairplex, Pomona, CA
 14-18 Thermwood Corporation
 28-1 Feb Thermwood Corporation

February

- 11-15 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 tramping 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

Training Classes

During these five days you will learn how to:

- Create a material library and review cost methods
- Design a variety cabinets both frameless and framed
- Incorporate a variety of joinery techniques and materials
- Modify cabinet parts to create specialized cabinets, such as a clipped corner cabinet
- Design a profile for a cutter and add profiles to a part
- Design and apply cutouts to a part, for example for plumbing access and various hardware installations
- Attach and design cabinet parts and display items
- Create furniture from simple cabinets
- Create assemblies
- Incorporate hardware with your door or drawer installation resulting in accurate bills-of-material

- Design a room and install cabinets via the Custom Layout features
- Create special objects for a room, such as curved walls
- Modify cabinets after they've been installed
- Review and print a variety of reports, i.e., buy lists, cut lists, cost sheets, including a nested diagram of the parts to be cut on each sheet and individual part diagrams
- Create specialized drawings, such as plan and elevation views, orthographic projections of a cabinet and part drawings
- Generate sales proposals
- Create sales materials for photo-realistic presentations, as well as generate a slide show
- Purchase your materials from a single source.

The training at our facility also transitions the cabinet project(s) to the machine - You will have smaller class sizes which enables more one-on-one assistance with the instructor. Training Classes are held at our facility in Dale, IN. Beverages and lunch are provided. Training Classes are limited to 10 students. The cost is payable in advance by major credit card by registering online.

Seminars

During these three days you will learn how to:

- Create a material library and review cost methods
- Modify and profile cabinet parts
- Design cabinets both frame and frameless
- Design and use a profile tool
- Work with different joinery techniques
- Create cutouts on parts
- Combine cabinets into assemblies
- Generate Cut Lists
- Create furniture
- Maintain Buy List/Bill of Material
- Design a room and install cabinets
- Generate photo-realistic views
- Create line drawings
- Electronically purchase for a job
- Create sales proposal
- Save and exchange cabinet/job files

Seminars are held from 8 am–4 pm (beverages and lunch are provided). Seminars are limited to no more than 25 students. Cost will be determined before each seminar - payable in advance by major credit card. Sign-up online.

To get the most from the seminar, students should have a computer (preferably laptop/notebook due to space limitations) with the latest version of eCabinet Systems registered and functioning.

Note: Seminars are conducted in English only.

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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

George Noeth – Fort Mill, SC

George brings us a project that is a little out of the ordinary and shows what our software and a little imagination can do. Here he describes the project in his own words:

“The customer came in with a rough idea of what she wanted and the dimensions of a small screened in alcove where she wanted to put it. It was going to require some scaling down of the normal sizes for this type of set. She had been shopping for a set but everything she found was too large. She has a pretty good eye and together we came up with final sizes that would work. I decided on white oak because of its ability to stand up to the weather.”

“Now came the tough part. I had worked with the eCabinet Systems program quite a bit but all my previous experience with it were cabinet related projects. I had some ideas but no plans or drawings. There was no way I was going to

build anything until I had a pretty good rendering that the customer could sign off on. I was anticipating a long and difficult process. There are a good many curved pieces in the project and I hadn't worked a lot with the part editor.”

“I spent some time learning that part of the program and was on the forum a couple of times asking questions. (those guys are great, even when you are asking a question that is so basic that you think they will laugh at you, someone takes the time to explain it to you). Once I was comfortable working in the part editor it went pretty quickly. It turned out that there were not that many different parts, just the same part many times. Once I had a good drawing the actual assembly went well.”

“There were still a few trepidations. (What if the stools collapse the first time someone sits on them?) As it turned out everything is sturdy and solid. The customer is very pleased. All in all it was a very satisfying project.”

Great job George!

Vince Lisanti - Rock Hill, NY

Vince brings us a built in display cabinet designed to house a flat panel TV screen. This unit is intended for presentations so will have high visibility. Here Vince describes the project:

“The entire job was designed in e-cabs, and cabinet box files were sent out to Bill Rutherford at Northwoods for machining.”

“This job is made from solid Black Walnut. The finish is very slightly distressed with a walnut wiping stain, followed by a sealer, ebony glazing, clearcoated and waxed.”

“All the walnut parts and moldings were made in my shop except for the corbels. This Built-In Display, holds a Flat Screen TV for presentations.”

“eCabinet Systems and production sharing have been instrumental in growing my business.”

Great job Vince. If you keep making pieces that look this good your business should continue to grow.

- ▶▶ The finished product looks good and fits the space.
- ▶▶ (Inset) An eCabinet Systems rendering of the table and chairs.





▶▶ eCabinet Systems rendering of the display cabinet.



▶▶ The completed display cabinet is being installed.



▶▶ eCabinet Systems rendering helped Peter sell the upgrade project.

▶▶ Intricate detail add to the interest in this piece.



▶▶ The final result is spectacular.

Geron Stricklin, Stricklin Builders Inc., Slaton, TX

This issue Geron brings us a reception desk he designed and built. Geron has a Thermwood CNC router which he used in the project. Here is a description in his own words:

“We were asked by a local Real Estate company to design a reception desk that was unique. We used the profile modeler to accomplish that. All of the moldings were designed and cut using the profile modeler. We showed him the rendering produced by eCabinet Systems and they were pleased. The only thing that was changed was the material type.”

“We originally designed it with walnut but built it with oak. So one more satisfied customer added to a growing list of successful eCabinet Systems accomplishments.”

You can't help but be successful if you turn out work like this. Great job!



▶▶ The eCabinet Systems presentation view of the proposed reception desk.



▶▶ The finished project made extensive use of Thermwood's profile modeler to make the moldings without special tooling.

Peter Walsh - Palm Springs, CA

This project came to Peter from a customer who moved into a brand new house that had three alcoves in the “great room”. Only one alcove had a base cabinet with a bar sink in it and a stone top.

The customer wanted cabinetry to fill the alcoves similar to what he had seen in a home model. Peter rendered that as asked, but was not happy with the appearance (see “1st draft STD”). He asked himself: “If this were my house, what would I build?” That resulted in a “whole wall” approach, 21 feet long that introduced pilasters between the alcove assemblies and a soffit, making the whole wall appear as a single assembly. Peter presented both “Requested” & “Upgrade” renderings and the customer immediately chose the whole-wall upgrade version and asked for the pilasters to be rope-twist to blend with existing furniture, which was old-world Spanish in design.

The bar alcove was paneled to lend a “Men's Club” feel to the bar, and the glass rack has a flip-up door to conceal the ends of the glass tracks. The existing bar alcove cabinet got a new cherry face, finished to match the rest of the project. The “whole-wall” upgrade doubled the project price. (Sell up!) The project was finished by Peter to match existing fur-

niture with conditioner, stain, sealer, glaze, and two finish coats. Some eCabinet Systems Members may be surprised to note Peter's shop is only 400 square feet! All the cabinets are precision built individually using eCabinet Systems drawings and then fit together on the job. The wall is assembled for the first time on the job site. All the parts fit perfectly.

What a beautiful job, and from such a small shop!

Kirt Bowman - Kirt Bowman Cabinets, Counters and More, St. Joseph, Missouri

Kirt owns a Thermwood CNC router and is sharing with us his first MDF door project.

"This was our first MDF door project with our Thermwood router. We did 3 different face configurations and the client took our suggestion on which one would look the best with glazing. eCabinet Systems software allowed us to experiment with different looks before any door was actually cut. We had a good idea what to approach the client with. It really helped sell this job. We used our shaper setup for the outside profile of the doors and drawers, since we make our own doors this was an easy task."

"Our boxes on this job were blind dado except for some specialty cabinets like the microwave, range hood and custom refrigerator cabinet. I also designed interior rollouts to accommodate trash cans and tall liter bottles. We had numerous built-ins to accommodate also."

"The custom island was done using combination frame and frameless cabinets to accommodate the built-ins. The legs were purchased thru Osborn wood products. We also did a raised panel face frame covered pony wall that separates the kitchen from the family room. We did other cabinets throughout the home in addition to the ones shown here. This was a large remodel."

"As you can see the project turned out beautiful and the



client was very satisfied. This job gave us the confidence to complete another large project right after this one that utilized MDF doors with many custom features. All in all, the Thermwood router really made itself useful and profitable for our shop."

We are happy that things are working out so well for you and the work you are doing is just great.

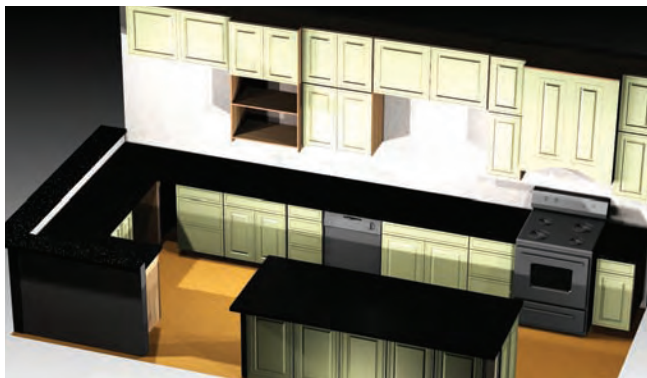
Dale Kern, Manhattan, IL

Dale brings us two projects this issue. The first is a very interesting application that none of us here has ever seen before. Let's let Dale explain it.

"This customer requested a unique modification to his home: Retrofit an existing living room niche into a hidden door, providing access to the bedroom suite. He wanted the door to mimic a build in display/bookcase."

"eCabinet Systems was instrumental in modeling the design to insure operation of the door and to provide confidence to the customer of the final appearance. The casework is a double walled torsion box; top, fixed shelf, sides and bottom are two layers of 3/4" plywood with a 3/4" back. When loaded and installed, the casework racks less than 1/32" from square."

"When installation time rolled around, the hinge side jamb was reinforced with two layers of 3/4" plywood and 6 ball bearing hinges insured smooth operation. The customer couldn't be happier about the entire process and results – and admits that the eCabinet Systems rendered drawings and modeling provided the confidence needed to



- ▶▶ The project started with an eCabinet Systems rendering.
- ▶▶ The island uses both framed and frameless cabinets to accommodate built-ins.
- ▶▶ The finished kitchen complete with custom MDF doors.

proceed with the project.”

What a novel and attractive project!

Dale’s second project was an add-on to other work he was doing for a client. Again, let’s let Dale explain.

“This project evolved from an unrelated bathroom remodel job. Every time I walked down this hallway, I remarked to the customer she needed a nice built in window seat and bookcases to bracket the windows. With nice furniture in place, the customer was initially put off, but after presenting a couple of options using eCabinet Systems, she warmed up to the idea. She asked for accent moldings and contracting wood veneers.

Three grades of Cherry veneer core plywood were used as well as custom moldings and stock appliqué moldings. It was finished with stain and conversion varnish.”

Another great project and good job selling!



▶▶ An eCabinet Systems rendering of what appears to be a built-in bookcase.



▶▶ Even when complete, it still looks like a built-in bookcase.



▶▶ Only now do you realize that the bookcase is actually a hidden door.



▶▶ This eCabinet Systems rendering helped sell Dale’s second project.



▶▶ The hall now has a quality finished look.

ENVIRO

The **Enviro Dust Collector** is a new concept in capturing the airborne dust particles in your workspace. What makes our product unique is the amount of air turbulence it creates and how the airborne particles are captured. Over 60% of the surface of our unit is filter. **A long roll of filter material automatically advances as it**

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- Clean air to breathe.



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NorthWoods Manufacturing is a full service CNC shop, offering custom machining and edge banding. Allow us to show you how to turn your design into machined parts ready for assembly.



Thermwood's Gen2 SuperControl

MORE NEXT GENERATION CONTROL FEATURES



A major advance in CNC control technology, called "next generation control" is emerging, based on modern technology and communications. Thermwood's new Gen2 SuperControl has more next generation features than any other CNC router control today. Next generation controls can do everything that first generation controls can do. It's the other things it does that make it so valuable.

Better Motion and Accuracy

Faster processors allow for advanced motion algorithms which result in better smoother motions. Next Generation controls also allow for three dimensional position compensation. Some first generation controls allow for pitch error compensation on each axis but ignore errors caused by axis interaction. Next Generation controls, including Thermwood's Gen2 SuperControl, provide three dimensional compensation, automatically compensating for all error, regardless of its source.

Easier to Program and Run

First generation controls require you to design the part and then perform additional steps to convert the design to a CNC program that the control can run. Next Generation controls, like the Gen2 SuperControl, accept the design directly without having to convert it to CNC code. This has significant impact on both programming and on running the program. For example, a typical kitchen may require 100 or more CNC programs with a first generation control, one for each nested sheet and an additional program for each part that has a flip operation. The operator must sort and deal with these each job, taking time which dramatically reduces productivity. The Gen2 SuperControl requires but a single file containing all parts in the job. It nests the parts, creates the programs and guides the operator through each step. Design files from multiple CAD and design programs can be sent to the control and processed together in the same nest. If a profile edge is required and a proper tool doesn't exist, the control creates a modeling program using standard tools to machine the profile. If you need simple rectangles, you can send a CP-OUT file intended for a panel saw or an Excel file or, you can simply tell it what sizes you need and it makes them for you. Next generation controls are much

more flexible and forgiving. As an added benefit, you can send the same Next generation control file to any machine equipped with a next generation control, regardless of its size or configuration, and you will get the same parts. First generation CNC programs can seldom be exchanged between machines.

Advanced Communications

Next generation controls are more integrated with the machine than first generation controls. For example, the control keeps track of routine maintenance and lubrication, alerting the operator when it is needed. It keeps track of tool use and alerts the operator when a tool life has expired. Should an error occur, the control displays a diagram of the machine and points to areas to check. It plays video instructions on the monitor showing how to perform maintenance or repair tasks. An electronic manual in the control is fully searchable. You can bring up CAD drawings of every assembly on the machine, move, rotate and explode it to see how it is assembled. Place the cursor on any part to get the correct part number. And if you need even more help, you can access Thermwood technical service right through the control. An audio/video/data link connects you directly to an experienced technician who can do virtually anything with the control that could be done if he were actually in your shop. You can purchase spare parts, supplies or almost anything else you need right through the control. Next generation controls communicate well and the Gen2 SuperControl can do everything we just talked about right now, today.

Thermwood has been shipping Gen2 SuperControls on every CNC router it makes for over a year now and we continue to work on new and better features for the future. If you are looking for a CNC router, don't settle for last generation's technology...select a Gen2 SuperControl, the CNC control with the most next generation features.



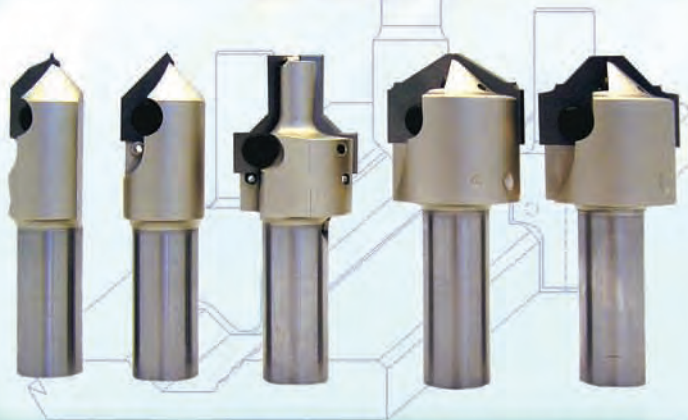
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