ForwardFocus

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Montana Manufacturing Center | University Technical Assistance Program

Big Sky Woodcrafters Cuts Production Time with CNC

By Deborah Nash, MMEC

Komo Solutions, an American-made CNC router, is the latest piece of equipment helping Big Sky Woodcrafters (BSW) in Laurel, Mont., be more competitive and profitable. Acquiring it was one of a number of positive outcomes after owners Kathy and Gerald Barta began using business assistance available to companies across the state.

The couple purchased the custom woodcrafting business 10 years ago, operating it in conjunction with their brick manufacturing business. Because the brick business was seasonal, they began pouring more effort into the plaque, showcase, and custom wood products business, which had been serving a limited, local market under previous owners. They eventually sold the brick business.

Kathy & Gerald Barta with select products.

Data Needed

"When we bought BSW in 1995, we had no clue how to price items and struggled every year. We tried comparing competitor prices and looking at costs, but we were not sure how to break it down by product to determine where to put our energy. We struggled along for a while before we realized we needed help," Kathy explained.

A cost of goods study done by MMEC several years ago to provide Kathy with a financial management tool made her aware of how minutes turn to hours, turn to days and how that pushes up costs. Faced with competitive pressures, more would need to be done to optimize productivity.

"We compete with companies using migrant labor, not necessarily located in Mexico. We also struggle with the increased cost of hardwoods; bunkers of it go overseas and push our cost of materials up," Kathy said of the pressures pushing them toward change. "We knew if we didn't do it right we would fail, so we reached out and got help.

"So much is out there to assist businesses; now, I utilize it. I talk with other businesses who still don't. We tend to think we can do it ourselves here [in Montana]. I was one of those," Kathy said.

But not any more. For instance, the beginnings of their LEAN journey started with this simple question, "What happens if you turn this saw around?" posed by MMEC Field Engineer Dale Detrick who was invited to do a walk through of the plant. The essence of the question was this: What will it do for the footprint needed by this saw (the amount of workspace taken up by the machine and its operating space as it relates to flow through the plant)?

Footprint Changes

"It was quite obvious that we would no longer have to walk all the way around it to get to other equipment, and it was the beginning of becoming LEAN for us," Kathy said. "When we moved it, the footprint changed, productivity increased, and we began getting organized."

Since then the owners began making other changes in the 10,000 square foot shop. They expanded into what had been their brick manufacturing space, and with MMEC's input were able to avoid knocking down a wall by thinking through the process flow, Kathy said. She added that it is always challenging to work within all the city codes and still expand as needed.

I wouldn't remodel again without MMEC," Kathy said. "Dale helped us

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The Balancing Act

This column has touched on external issues that threaten U.S. manufacturing competitiveness like imbalanced trade policies, currency manipulation, and intellectual property theft. China has kept its currency pegged at approximately 8.25 *yuan* to the dollar since 1994. Small manufacturers continue to feel the pressures of exorbitant litigation, ever increasing health care costs, and excessive taxation (a recent study by the Manufacturers Alliance and the National Association of Manufacturers said U.S. industry operates under a 22% cost disadvantage as a result of tax and regulatory burden — NACFAM). You've also read here about internal issues like the lag by small companies in developing internal efficiencies like LEAN or building a strong manufacturing voice.

Staying ahead of the game is really a kind of balancing act. The external and policy issues are disconcerting; we tend to hear more about them. And seemingly, demand for remedies have fallen on deaf ears of late. Certainly, solving external and policy issues is part of the battle, but failure to change, adapt, and improve also leads to, well, failure.

Signs are emerging that policy makers are beginning to take notice of the huge contribution manufacturing makes.

A number of coalitions have been pressuring policy makers for action on behalf of manufacturing. And signs are emerging that policy makers are beginning to take notice of the huge contribution manufacturing makes to the U.S. economy. Potential solutions are looming:

— Both the House and Senate appropriations committees have once again come out in favor of restoring full funding for MEP centers, despite the Administration's proposed budget that cut traditional funding in half. *(Note: Senator Conrad Burns and Congressman Denny Rehberg sit on the respective appropriations committees.)* MEP centers like MMEC provide the technical and managerial support companies count on for internal improvements.

— Legislation is being considered to impose stiff penalties for those possessing counterfeit goods with the intent to sell or traffic in those goods (estimated at $350 billion a year or between 5-7 percent of worldwide trade).

— China has budged on its currency policy, announcing in mid-July a revaluation of the yuan immediately by 2.1 percent and a switch from linking it to dollars to additional currencies. A significant step that will begin to reduce the trade deficit.

— Both the House and Senate have been working on legislation to stop global trade in fake products, some of which goes on right here in the U.S. By taking the lead in protecting intellectual property (IP), the U.S. is hoping to strengthen the hand of trade negotiators.

— The U.S. Manufacturing Czar, Assistant Secretary of Commerce for Manufacturing and Services Al Frink, has been actively visiting manufacturing facilities and talking with industry groups.

Attention is finally being paid to the plight of manufacturers, and we hope to see more, particularly on currency manipulation, IP, insurance issues, and taxation. Inaction creates a potential to sink the economic ship.

But what matters more is what we do for ourselves! We've been winning in business for 150 to 200 years. The U.S. is a model for economic success. Why? Good old "American ingenuity." Or in less colloquial terms — INNOVATION. Most of the innovation in the U.S. comes from the small companies. Your innovations combined with internal efficiencies will continue to be very powerful.

Steve Holland, MMEC Director

CDC/504 Loan Program is a Financing Option for Manufacturers

By Guest Writer Linda Kindrick
Executive Director of the Montana
Community Finance Corporation

Is your business located in a leased building? Are you tired of collecting rent receipts every month, instead of building equity? Is your present building too small and business growth hampered by close quarters? Would you like to be able to get into your own building with as little as 10% down? Does a 20-year term note with fixed rate financing sound good to you? If you answered yes to any, or all, of these questions, read on!

The CDC/504 loan program is a long-term financing tool for economic development within a community. It provides growing businesses with long-term, fixed-rate financing for major fixed assets, such as land and buildings.

MONTANA COMMUNITY FINANCE CORPORATION
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The U.S. Small Business Administration offers a loan program called the 504 loan program. The CDC/504 loan program is a long-term financing tool for economic development within a community. It provides growing businesses with long-term, fixed-rate financing for major fixed assets, such as land and buildings. The primary purpose of the program is jobs creation, with one job to be created for every $50,000 of debenture[1] loaned to the eligible small business. CDC is the Certified Development Company, a nonprofit corporation set up to contribute to the economic development of its community that works with the SBA and private-sector lenders to provide financing to small businesses.

Linda Kindrick

Typically, a 504 project includes a loan secured with a senior lien from a private-sector lender covering up to 50 percent of the project cost, a loan secured with a junior lien from the CDC (backed by a 100 percent SBA-guaranteed debenture) covering up to 40 percent of the cost, and a contribution of at least 10 percent equity from the small business.

Proceeds from 504 loans must be used for fixed asset projects such as purchasing land and improvements, including existing buildings, grading, street improvements, utilities, parking lots and landscaping; construction of new facilities; modernizing, renovating or converting existing facilities; or purchasing long-term machinery and equipment.

While the majority of loans under this program are limited to $2.0 million for the debenture part of the project, loans to qualified manufacturers can have debentures as high as $4.0 million. Taking into account the debenture covers only 40% of the total project cost, this could equate to total project financing of $10 million. To qualify for this larger loan amount, the manufacturer must fall under Sectors 31, 32 or 33 of the North American Industrial Classification System, have all its production facilities located in the U.S. and create or retain at least one job per $100,000 guaranteed by the SBA or meet a public policy goal.

The 10% down feature is attractive in that it lets a company retain valuable cash for operating needs and staffing, an important component to a manufacturing business. The fixed rate financing offered on the debenture helps you budget for the known payments each month. The lender's portion of the project is normally offered on commercially reasonable terms, which may include a variable interest rate.

Montana Community Finance Corporation, an economic development entity in existence since 1984, is located in Helena, MT. The staff of MCFC is willing and able to work with you and your lender in providing a financial package to help you acquire or improve your own facility. The 504 loan program is a powerful tool for your business and for the state of Montana's economy. To learn more about how this program may work for you, check out the website www.mtcommunityfinance.org or call Linda Kindrick at 443-3261 (email *Linda@mtcommunityfinance.org*).

Footnote:
1) "Debenture" is the document the Certified Development Company signs, guaranteed by the Small Business Administration, grouped together with other debentures around the country and sold on the secondary market to investors.

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CHECK IT OUT! Now with a NEW LOOK!

Feel free to contact MMEC about manufacturing topics or issues that concern you and send your company news briefs to dnash@coe.montana.edu

Call MMEC 406-994-3812 or 1-800-MEP-4MFG

WMI Bundles Quality and Lean to Meet Growing Demand

By Deborah Nash, MMEC

Packing and wrapping medical components for surgical team use is no simple task. Learning to wrap a pack so unwrapping maintains a sterile field takes about a month to learn to do efficiently, according to Darci Luedt, a WindStone Medical Packaging, Inc. (WMI) employee. Darci's proficiency is evident as she folds, pulls, and tucks the wraps so quickly that the sequence can hardly be observed.

Vikki Fosjord

Creating even more challenge is the fact that every doctor or surgical team has its own preferences for content, brand and layout of a custom procedure tray (CPT). This creates a need for more varieties of inventory and differences in kit sizes. The contents must be received sterile and ready for use by end users, according to Vikki Fosjord, WindStone's operations manager. The company offers 400 different packs with 6000 different stocking items from which to select.

"We can sterilize and package just about any disposable item for medical use," Fosjord said.

Custom filling orders accurately, completely sterilized, and on demand is what WindStone Medical Packaging is all about. The Billings company does it well and is proud to announce its most recent certification to the ISO 9001:2000 standards in May, 2005.

Meeting Customer Demand

"Re-certification is required by our customers and is one of the ways we differentiate from our competitors," Fosjord explains. "Without it, we could lose a portion of our business."

The Montana Manufacturing Extension Center worked with Fosjord to jumpstart the switch to the newer 2000 standards after the company was acquired by Bekins Logistics in the fall of 2003. The company was founded in Billings in 1978 as Cardio-Pak.

A team of three MMEC field engineers — Todd Daniels, Mark Shyne, and Kreg Worrest — assisted on the project. An ISO gap analysis and conversion plan were provided to compare WMI compliance against the new standards, which are much more customer focused, Fosjord said. A readiness audit helped WMI check its progress during the conversion and a final audit and check of corrected non-conformance areas prepared them for the official visit by ISO registrars this spring.

The MMEC team worked with company employees who mapped their processes to show how each worked and checked that the procedures fit the new standards.

"WindStone is also FDA regulated, so we mapped those requirements together with the ISO requirements so they would complement each other," Fosjord added. "The guys from MMEC had the knowledge and resources to meet our requirements. They showed us several different ways of doing things instead of one 'cookie cutter' product. They took the time to understand our processes and our boundaries and worked to fit the requirements of the ISO standards to our particular business. They were also honest and forthcoming during our readiness audits, not only identifying our 'gaps' but giving us valuable suggestions as well as assistance when needed on how to eliminate them."

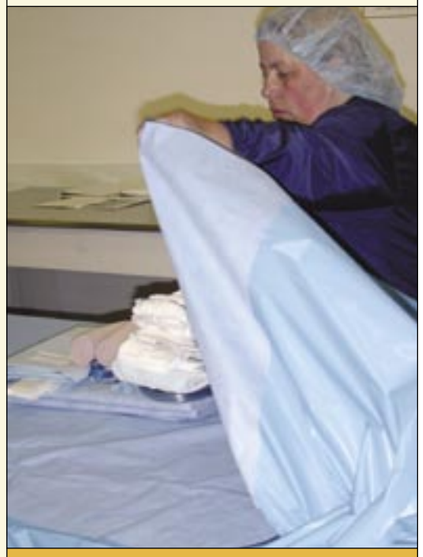
The resulting new company ISO manual uses a new format with more flowcharting, photos and graphics and less text. "It is far less bulky and much easier for employees to understand. MMEC helped us develop that format," she said.

To ensure accuracy for what is loaded into each CPT, WindStone utilizes a visual control system that uses actual photos that workers can visually check for content and proper placement as they prepare packs for each order. Using the photos helps new workers train more accurately than just a written checklist, Fosjord said.

WindStone has also been working with MMEC on several other projects including implementing LEAN Manufacturing techniques to complement logistics expertise the Bekins company brought to the table and improving a bottleneck in the sterilization process.

The warehouse is now off-site, and employees use a batch build sheet to pick daily from the warehouse.

"Before that, it was really clogged up in here," Fosjord said. "MMEC really helped clear up some flow problems and released congested areas so we are not crossing back and forth across the plant like we used to. Things have changed from jumbled, frustrating, and hard work to smooth and much less work."



Darci Luedt wraps one of the WMI surgical packs sent to hospitals nationwide.

WindStone is unique in that it sterilizes individual packs and not in large batches. Items are humidified for 24 hours before CPTs are made up and wrapped in a clean room environment where everyone wears protective gear including lab coats, hair and shoe covers and even mustache covers when needed. Each pack is vacuum sealed and injected with ETO (ethylene oxide) gas. They are then placed in special heat-controlled chambers where the ETO kills any contaminants.

The company uses controlled air chambers where heated air works as an accelerant for the sterilizing gas. The process was taking five days. MMEC brought in environmental and engineering specialists to solve the issues that were creating the bottleneck. The options identified were to increase airflow or temperature, Fosjord said.

Cycle Time Reduction

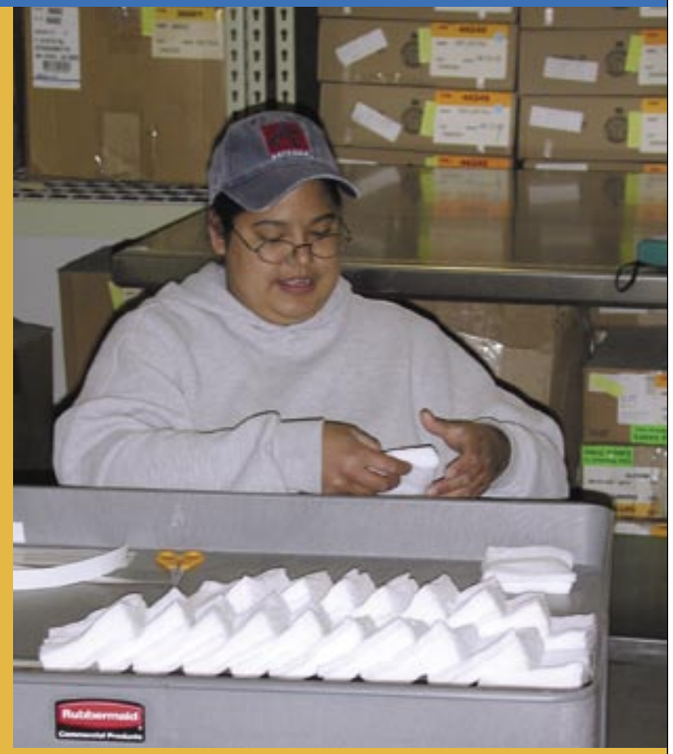
"We did both and our sterilization cycle went from five to three days and a total of 60 percent reduction in cycle time from the time we build, sterilize and ship product."

A lot of training is required to make a pack ready for the sterilization chamber so the right amount of gas is inserted and the right amount of air is pulled through during the vacuum seal. The sterilization machine is calibrated daily with more in-depth calibrations performed on a weekly and monthly basis. The chambers are continuously monitored by WMI staff, calibrating them monthly. They also perform random checks every 25 packs for proper injection of ETO gas. In addition, sterility is monitored by placing several vials, each containing a microbe, in hard to reach areas of a test pack. After the test pack comes out of the chamber, the vials are extracted and placed in an incubator to ensure that no microbe growth occurs. Packs are not released from the shipping area until test results reaffirm that sterilization has been achieved.

A well-thought-out quality system, clear procedures, fast turn around using LEAN techniques, and a user-friendly website for purchasers is helping WMI meet growing demand across the nation for its products.

WMI also makes packs of items to greet new babies and assist new mothers, as well as other administrative uses not requiring sterilization, in response to customer needs. The company is now a minority owned with several government contracts for sterile gloves and ammo kits for the military.

Note: Shortly after this story interview, Vikki Fosjord accepted a position with Employee Benefit Management Systems (EBMS) in Billings.



At the warehouse, Jennifer Galo picks the day's supply of sponges.

Dawn Haase readies a pack for the sterilization chamber.

Big Sky Woodcrafters (continued from cover)

practice LEAN."

Data from an MMEC cost of goods study was used in building a more recent costing model that Kathy uses to manage the business every day.

"The cost of goods project timed the shop's products, 100 items in all," according to Brian Pendergast from MMEC's University Technical Assistance Program who developed the costing model.

"For the costing model, we looked at wood costs, dimensions, time – what it costs to make each product. I then built in sensitivity analysis and scenario building using a spreadsheet so Kathy can see what it will do to costs if she adds an employee or makes other changes. She can also look at how the business is doing over time, how it is doing vs. the budget.

This tool has given her a better look at costs per each product based on wood, labor and overhead, making her more accurate with bids on customer inquires."

Kathy agrees. "If a customer wants a large quantity, I can input and can see my best price based on costs, add a percentage and compare with competitors to see if making it is realistic. I now know which products make best profits, to focus marketing efforts on our most profitable pieces."

With that tool has come important information the Bartas are using to grow their business.

The costing model provided other immediate gains like better accountability of waste when cutting wood, according to Gerald. "We used to estimate 20 percent waste when in some cases it is 35 percent. That's a big difference."

The model has given them the ability to give feedback to employees about why they need to do certain things differently. It has helped improve the utilization of employees – reaching 77% utilization. "Now, we share that with our employees; if it dips below, we can ask why."

The Bartas were also able to evaluate several pieces of new equipment to increase productivity.

A new clamping system used for gluing selections of wood to make larger pieces was added that cuts gluing time in half. A shape and sand machine for processes that used to be done by hand paid for itself in three months.

Gerald poses with the CNC router that uses an Autocad program that accepts and converts the code from many graphics programs. It reduces his drawing time on projects and provides greater convenience for customers. This drawing of a castle was received in Corel Draw.

Information Is Power

Empowered by LEAN to cut wastes and armed with specific time/cost information, the Bartas then began exploring another, more expensive piece of equipment, the new CNC router. MMEC/UTAP helped with an equipment justification for the CNC, Kathy explained. "We were able to show the lender a solid picture of the value of the CNC router to the business based on past sales, sell price, costs, and increased profit on pieces with CNC. With that information, we were able to land a loan."

As of early June, the new router had been operational only a few weeks but was running customer pieces after the first week. It has increased productivity four-fold, producing 16 pieces with clean, consistent cuts in less than an hour including drawing time. Previously, each piece took 15-20 minutes plus drawing time, according to Gerald.

He expects the router to replace two full pieces of equipment — the copy shaper and band saw — after he explores and becomes proficient with its expanded capabilities. The couple expect the machine to pay for itself within three years and will allow them to pursue new product niches.

"Improved productivity with our employees enabled us to purchase equipment that saved time. With MMEC and Dale's help and improved tooling, we

(continued)

Woodcrafters (continued from previous page)

have increased productivity 50 percent," Kathy estimates.

"Dale is like a mentor. He's the reason why our business turned around, sales, productivity, everything. He understands our business," commented Gerald.

"The CNC will allow us to grow. Our goal is to have 98 percent of our wood touch that machine and to keep our staff of nine by allowing them to work on new things and increase production. We anticipate that it will change our price structure on some pieces," the owners said.

Niche Marketing

In a growing awards industry, BSW serves a wholesale market nationwide with 80 percent of its work being custom items beyond what they feature in their catalog and website. The main customers for its hardwood products are awards/engraving stores, bronze foundries and other wholesalers plus high school associations, and corporate accounts. BSW also works with retail marketing companies in providing displays for their products. With all the different markets, sales consistently grow annually.

Because their business is directly affected by overseas imports, BSW sought assistance from another resource, the Northwest Trade Adjustment Center that provides grants for companies hurt by NAFTA. NWTAAC funds are not paid outright to a company but to support bringing in experts to assist with improvements and marketing projects. The grant enabled BSW to utilize the MMEC University Technical Assistance Program marketing service.

"During a brainstorming session with Fraser McLeay, under contract with UTAP[1], a recommendation was made to site visit other companies with similar manufacturing processes. He said we could really learn from observing other companies and looking at various equipment." Kathy did that and asked many questions while she was site visiting. "It is extremely amazing what you can learn from others in manufacturing," stated Kathy. The Bartas also toured customer facilities and saw how they receive goods from BSW. "It gave us ideas on how to help them (enhancing our customer service) – and it increased productivity for both of us and increased their sales, too. That was extremely valuable."

The Bartas are tapping other resources to strengthen business. Their accountant built a sales trends tool that shows them if sales are increasing each year. Through a Job Service Training Program, they were able to hire a new marketing employee, Lisa Hagel. And the business has partnered with Better Business Systems to handle all employee issues and payroll.

"They receive a percentage of the payroll; the better we do, the more they are paid; so they work with us to improve. This helps me utilize my time better as I get paid for manufacturing efforts not for writing paychecks," Kathy said.

Footnote:
1) a UTAP cooperative agreement between MMEC and the marketing graduate program at the University of Montana through the Montana World Trade Center. McLeay has since returned to private consulting.

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Manufacturing News

Prototyping Service Available

Wavelength Electronics *(www.teamwavelength.com)*, Bozeman, is now offering prototype surface mount electronics assembly, minimizing your NRE costs. Parts are built accurately to your spec using processes that Wavelength has fine tuned to 99% yield on 0402 and 15 mil pitch parts. Parts can be provided on reels, cut tape, or in tubes for local, fast, and accurate service. Contact Wavelength at *assembly@teamwavelength.com* for more details.

Equipment Donations

ILX Lightwave *(www.ilxlightwave.com)*, Bozeman, has announced its plan to donate $100,000 in equipment to select colleges and universities over the next five years based on the quality of each applicant's university photonics education program and relevance to future laser diode technology and applications. ILX is a leader in instrumentation and test systems for photonic component research, development and manufacturing.

Exporter of the Year

Simms Fishing Products *(www.simmsfishing.com)* of Bozeman has been named SBA 2005 Montana Small Business Exporter of the Year and Region VIII Small Business Exporter of the Year. The premier manufacturer of fly-fishing apparel, Simms is the only fly-fishing wader manufacturer in the U.S. and exports products to 22 countries in Europe with additional sales in South America, Asia and Canada.

Belgrade Mfg Sold

Quake Industries *(www.quakeinc.com)*, a small plastics manufacturer, will remain in Belgrade, Mont., after being sold to Georgia firearms company Blackpowder Products, Inc. Quake was founded by Ron Pierzina in 1990, making injection-molded hunting accessories, including non-slip rifle and bow slings, optic covers and other items sold worldwide. Quake's new president is Bill Tippins, a retired Bell South executive.

Adding Jobs & Lasagna

Pasta Montana, Great Falls, will add 6 to 8 employees to accommodate a new production line that will increase capacity and make lasagna, an additional product for the plant after its recent acquisition of Costa Pasta in California. Costa Pasta will operate as a division in the company and brings clout in the upscale restaurant industry, according to a press release.

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