

Forward Focus

Montana Manufacturing Extension Center

FALL 2001

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For log furniture artisans...

Space Gains, Flow Get Products Out on Time

by *Deborah Nash*

Rustic furnishings of superior strength, durability and beauty are the calling card of Pine Ridge Log Furniture, a family-owned company that manufactures a full line of high-quality, handcrafted log furniture.

The company is located in the densely forested area of Superior, Montana, where harvesters seek out logs offering unique character such as mineral stain, exposed and darkened core wood or pieces with especially artistic curves or twists. Each is pieced into furnishings to showcase Mother Nature's rich diversity, providing the unique, one-of-a-kind charm in Pine Ridge Log Furniture. Even the insect and larva trails found under the bark are used to advantage to face a dresser, armoire, or nightstand.

Last fall, owners Lisa and Rick Lloyd returned from the renowned semi-annual High Point, North Carolina furniture trade show with a large number of wholesale orders to fill. The company was operating out of a former pizzeria. Considering an option to buy it while facing a need for increased production materials, workstations and additional staff, the owners called in the Montana Manufacturing Extension Center to



Lisa Lloyd

help assess a revised layout to fit the limited space. After much work, MMEC Field Engineer Kreg Worrest and The Lloyds deter-

mined that the pizzeria would not provide the space needed for the increased production. Worrest was familiar with another vacant shop in Superior with the necessary room. It would also provide excellent flow from raw materials delivery in one end to finished goods out the other. The company leased it, made the move and in the first quarter of 2001 produced an amount equal to the entire previous year. Employment at the company expanded from three to ten with seasonal fluctuation.

(continued on page two)

The Lean Advantage

Tuning in to what adds value from a customer perspective, Gibson Guitar, Acoustics Division in Bozeman, Montana, made significant gains in a Lean transformation while retaining its famed custom design work. Becoming Lean began almost two years ago with help from the Montana Manufacturing Extension Center/ University Technical Assistance Program. See inside story, p. 4.



Gibson craftsman Mike Mills works on kerfing, thin wooden strips added to the guitar ribs to provide support for gluing a top and back on an otherwise very thin surface.

Director's Comment

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The loss felt in Montana's political circles by the untimely death of House Majority Leader Paul Sliter in mid-August is also a loss felt here at the Montana Manufacturing Extension Center. Sliter joined the MMEC Advisory Board this spring and was looking forward to participating in board activities for the Center in its efforts to strengthen the manufacturing sector in Montana.

The Board, primarily made up of manufacturers, provides insights and suggestions to the Center to help keep us focused on our mission to improve the competitiveness of Montana manufacturers via direct, unbiased engineering and managerial assistance and through partnerships with other public and private resources. His contributions will be missed.



Sliter, age 32, from Somers, was killed in a one-car roll-over near Helena on the evening of August 15 while returning from a dinner club. In addition to being a fourth term Republican legislator, he was credit manager for his family's

lumber company and business supply store in Big Fork. Friends and colleagues report that he was an emerging force in Montana politics, with a winning smile and a great admiration for the Montana people and commitment to the state. One colleague has been quoted, "He wanted to make things happen, not watch things happen."

The MMEC staff and other Advisory Board members extend our sympathy to the Sliter family, his wife Elaine and young daughter Morgan.

Steve Holland
MMEC Director

Pine Ridge... (continued from page one)

"We worked out a new layout in less than one day. Kreg understood our processes, how we use equipment, and the motion space needed," Lisa said. A typical bed frame might weigh over 300 pounds when assembled.

"We really brainstormed. I especially liked that the MMEC suggestions, coming from outside the business, were embraced. It was great to see how Kreg enlisted his services to help; he infused the organization with enthusiasm to adopt processes that made sense and cut processes that did not. He expedited getting orders through the shop and allowed us to get orders out in a timely manner."

Reflecting the general slowdown in the economy, furniture buyers at the spring High Point show were more cautious, not just at the Pine Ridge Log Furniture booth but at most display booths, Lisa reported. She and Rick are gearing up for the fall show, again inviting customers to "bring nature into your home" with unique furnishings made in Montana.

See Web site www.montanacybermall.com/pineridge.htm



Log peeling is still a very hands-on procedure.



Three energetic engineers, l.to r., Robin Kerbel, Tom Davidson, and Nikki Erickson, make up the latest University Technical Assistance Program (UTAP) team. Each is working toward an advanced engineering degree at MSU.

Getting manufacturing space at the price you want

By Heidi Dornier
Gallatin Industrial Park

Shopping for space for your growing business can be complicated and intimidating. But it's not really as difficult as you might think. Here are some simple tips to keep in mind when considering properties.

When looking for a location for your business, look first in your local area, perhaps convenient to your home. Get a feel for what's available by driving by buildings and calling phone numbers listed on "Available" signs on properties that look like what you want. Also, contact local realtors who stay abreast of available properties that could meet your needs. The landlord typically pays realtors to list rental property, so this is also an economical way to conduct your search.

Your local Chamber office frequently knows what properties are available and can refer you directly to the owner. If there is a Small Business Development Center (SBDC) office in your community, its counselors can give you a range of rental amounts for available properties in the area.

Understanding Rental Quotes

Rents are quoted in a number of ways. Typically rents are quoted as annual square footage amounts, such as \$6.00/foot, and are derived from a formula. When comparing available properties, make sure you're making a dollar for dollar comparison of rates. Once you know how the rate is quoted, you

can use the following formula to convert different quotes into similar numbers.

Total rental amount * 12 months / Square footage = Rate per foot per year.

$(\$750 / \text{mo.} \times 12 \text{ mo.} = \$9,000 / 1500 \text{ ft}^2 = \$6.00/\text{ft}^2)$

When looking

If you choose to look outside your local area, you may find better rates. However, make sure you consider the cost of commuting and other expenses when making your comparison.

When negotiating the lease, ask if your rent includes CAMS (common area maintenance), taxes and insurance. This is called "triple net," and may be written \$6.00 NNN. Frequently landlords will have utilities charged directly to the tenant, but not always. If you're getting charged for utilities, make sure you check with local utilities to identify the estimated monthly utility costs. In shared facilities, understand how the utilities are disbursed, so you aren't unknowingly paying a portion of a neighboring tenant's costs.

If your equipment has special needs such as three-phase power, it will be important to discuss this issue with the landlord to ensure that your power access needs will be met. Availability of DSL or T1 lines might be an important consideration. Many property owners/landlords may not be aware of the difference between DSL or T1



lines. Qwest can answer that quickly, as they typically know where the fastest connections are located. For a manufacturer who will be selling worldwide, or perhaps nationwide, or doing detailed work with suppliers, having the fastest speed of service without an additional connection charge can make a big difference.

How to Handle Improvements

Another consideration is the scope of improvements that may need to be made to the property to ensure it meets your needs. Have a discussion with the landlord to determine how improvements will be made and how to or who will pay for them. Some landlords will pay for improvements up front and amortize the cost over the life of your lease.

Landlords will sometimes pay for interior improvements such as sheetrock and labor for dividing walls, relocation of heating units, air conditioning (this is rare) and plumbing for different types of equipment. Some utilities are more cost effective than others - radiant heat versus another type of unit and might be a discussion point.

Also, after moving in, retain good

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Gibson Guitar Plays it Lean for Gains

by Deborah Nash

Lean Manufacturing focuses on value-added activities. Tuning in to “value added” has empowered Gibson Guitar’s Montana Division in its continuing tradition of hand-building Gibson Acoustic Guitars with the vibrant sound, high quality, and creativity that have earned it a place in the hearts and hands



Lori Rydberg, Director of Operations at Gibson, points out a CNC carver shaping intricate guitar necks

of America’s greatest artists for over a century. The company, located in Bozeman, Montana, employs about 140 people and is the sole acoustic guitar division for Gibson Musical Instruments out of Nashville.

Gibson Montana decided to play it Lean last year at the recommendation of Lori Rydberg, current Director of Operations. She had attended the Montana Manufacturing Extension Center’s Lean production strategy work-

shop and live simulation, “Play the Lean Game,” and with her CPA background immediately recognized the cash power of one-piece flow and eliminating wastes. She convinced General Manager Eric Klotz to try implementing it using guidance from MMEC and the University Technical Assistance Program (UTAP). These two programs offer assistance to manufacturers across the state from the Montana State University College of Engineering and other locations in Montana.

Sixteen months into its Lean transformation, Gibson’s production has nearly doubled without a \$1-2 million dollar facility expansion that had been in the works. Inventory turns have doubled, and factory order-to-delivery time has been cut in half.

“Our facility expansion had been planned in order to exceed what was considered production capacity of 50 guitars per day. We’re now producing more than 70 per day in the current facility and working toward corporate’s even higher goal of 100. I think we’ll get there,” Rydberg predicts.

Refocus Perspective

Using value stream mapping, Gibson initially tackled Lean transformation in the back plant where raw wood is transformed into the body, neck, and fretboard components. Gains there were not translating significantly to the delivery side. Undaunted, the innovative company changed its perspective,



A final polish and quality check by Sue Ebret readies this richly inlaid Gibson model for shipping.

becoming customer focused. Letting customer demand dictate what adds value (a basic tenet of Lean) and working that back through production was the turning point when measurable impacts began to be realized.

The company asked the questions:

- What product mix is in the highest demand?
- How can we maximize that mix or schedule production to optimize flow through the plant?

The value-added focus then triggered more balanced process flows and expedited manufacture and delivery in what are still very manual production methods for sanding, edge banding, bridge work, and inlays. Production scheduling was re-gearred to the largest constraint, the paint booth.

Custom design is what Gibson sells, so the value-added focus

GAIN MORE WITH LEAN



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FOR INFORMATION



made sense but created some challenges.

With five basic guitar body styles, 30 models and then combinations of color and accents, it will take time to get 100 part numbers all into one-piece flow or get that number down, Rydberg said. "We've already made a lot of progress, and we've only scratched the surface without any real process changes or reaching true single piece, continuous flow, just by eliminating high-end wastes. We still have a long way to go to reach one-piece flow. As a matter of fact, John Shook, another Lean specialist and co-author of *Learning to See* and a large contributor to *Creating Continuous Flow*, visited the plant in July to help us take the next step to do just that."



Initially, working with three UTAP engineers Scott Hertoghe, Chad Gilliland and Travis Baar under the supervision of MMEC Field Engineer Mark Shyne, the compa-

ny became educated about Lean manufacturing and how to apply it inside the plant. The engineers attended management meetings and helped Gibson examine the issues. They asked important questions; now Lean is helping Gibson ask the right questions as they work toward one-piece flow, a pro-

duction ideal in lean manufacturing.

"*Play the Lean Game*" training was provided for all key production staff. "The course was essential. It is excellent hands-on training and provides the understanding of where we are trying to go with all of these changes," Rydberg says.

The Lean tool, value stream mapping, helped to visualize non-value-added activities like overproduction, excess motion, defects, excess inventory, underutilized people, etc., and to evaluate changes. A thinking/planning tool, it will help continue to move the lean transformation forward.

"Value stream mapping is the best," Rydberg said. "Bob Cass is now our value stream manager for continuing Lean transformation.

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Lean impacts so far

- ◆ Process flow time cut from 6-8 weeks to just 15 days (approximately 8 days of required rest times, leaving yet more improvement potential in lead times.)
- ◆ Unit production time cut from 15 hours to 11.5.
- ◆ Production increased from 35 units per day to 70-plus with minimal increases in the labor pool.
- ◆ \$500,000 freed up by doubling inventory turns.
- ◆ Achieved a much smoother, balanced flow, especially in neck work where the most intricate, complicated steps in the back plant take place.
- ◆ Added a professional look in the administrative offices and break area, plus a general plant clean up to improve image for staff and visitors.
- ◆ Cut materials handling time and effort by adopting point of use storage (POUS) and some "supermarket" storage where variation is too great for POUS. This also freed up floor space

previously used for raw materials.

- ◆ Scrap costs cut by at least half.
- ◆ A quarterly bonus plan for employees put in place tied to lean objectives.

Today, the lean journey continues for Gibson, striving to reach or exceed 100 units per day and ultimately on to one-piece flow. Essential to the journey have been upper management buy-in, a willingness to risk mistakes, and not letting constraints stop you, Rydberg said. She compares lean implementation to life, "You don't always have everything you know you need, as an ideal, to move ahead, but we're always moving ahead. Maybe a jig here and a jog there, but always ahead."

For more about Gibson MasterBuilt Acoustic guitars, visit their Web site <http://montana.gibson.com>

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NAICS vs. SIC Codes:

How is NAICS Better?



You've probably been hearing about the North American Industry Classification System (NAICS, pronounced "nakes") replacing the U.S. Standard Industrial Classification system (SIC codes). So what's it all about?

First, from a marketing information viewpoint, the codes are one key way for a manufacturer or service provider to begin sorting customer types and profiling customers and prospects. Economists use this coding to view trends and track growth patterns.

According to the U.S. Census Bureau, change to NAICS will make economic statistics more useful in today's changing economy. It will improve basic benchmark and current performance statistics like manufacturing shipments, retail sales, and service receipts, according to a Census Bureau news release, by providing an all-new industry class system that is more:

Relevant: NAICS identifies new industries, revises concepts, and reorganizes classifications so that industry-classified statistics highlight businesses that contribute most to our economy.

Consistent: NAICS classifies businesses into industries based on one principle instead of several; the principle that businesses using

similar production processes be classified together.

Comparable: NAICS provides first ever comparability in North American industry classifications and economic statistics; it was developed jointly by the United States, Canada, and Mexico.

Flexible: NAICS classifications are to be updated regularly to keep pace with changes in the economy; every 5 years, all three North American countries will review NAICS and make needed revisions.

Change to NAICS will make economic statistics more useful in today's changing economy by providing an all-new industry class system that is more relevant, consistent, comparable and flexible.

- Census Bureau news release

In Manufacturing Sector

This sector substantially restructures previous manufacturing classifications, primarily to recognize emerging businesses and increase comparability with Canada and Mexico. The sector has 474 industries, of which 79 are new, and 186 are revised. It features a new Computer and Electronic Product

Manufacturing sub-sector, which covers makers of computer peripheral communication, and other electronic products. It also includes on-site bakeries (and transfers publishing and logging industries to non-manufacturing sectors).

Numeric codes for each NAICS classification are very different from those of SIC. The new numbering system... provides five levels of classification (up from four in SIC); new detailed codes with a maximum of six digits (up from 4 in SIC) and detailed classifications called "U.S. Industry" (instead of just "Industry" in the SIC) to allow for country-based variations in classification detail. These changes require new numbers, even for industries that continue without change, according to the Census Bureau news release.

Though NAICS numeric codes are new, like SIC, they are organized into multi-level, hierarchical classification groups that build up from the detailed industry level. The sixth digit of the new classification may be used differently in the U.S., Canada, and Mexico, as the agreements fix only the first five digits for use by all three countries. The sixth digit is for optional use by each country to reflect economic and information differences. The U.S. and Canada have agreed to use many of the same.

Adapted from www.census.gov/naics/publication
New Data for a New Economy

THINK ABOUT IT:

◆
Is it acceptable to continue repairing/reworking poor quality?
◆

Space...
(continued from page three)

landlord/tenant relations by seeking landlord approval prior to installation of any major item/equipment. Changes they might entail are a very negotiable item, sometimes called “TI’s”, or Tenant Improvements and a landlord may be willing to share the cost.

There are many options for financing improvements. Landlords will want to review the types of improvements to be sure they are done in a professional manner and will enhance the value of their property. Ask your accountant or banker for advice on handling improvements.

Leasing offers many options. It will be less intimidating if you ask lots

of questions of your realtor(s), current or prospective landlord, accountants, bankers and friends. It is likely that you know someone who knows more about this than you and will be willing to help. Look at all the options, consider the various factors, and make the move based on what is best for your business. This is an exciting time for your growing business. Enjoy the ride!

Gibson Guitars...
(continued from page five)

He really understands the mapping process and the business. It takes vision; he has that.”

Klotz calls Rydberg the company Lean Champion. She calls herself cheerleader and credits the production managers and supervisors, most notably Tod Christensen, for actually getting the job done. Christensen was recently promoted to Plant Manager, largely for his hard work on the lean program.

“The enthusiasm and dedication of the production team in handling the difficulty of ramping up pro-

duction so dramatically while implementing significant changes in flow related to Lean must be mentioned,” Rydberg said.

Bumps in the Road

“We set aggressive goals and sometimes met resistance on the floor related to not wanting to let go of the way things were done. But, if you have ownership of a process,” she pointed out, “you also have control and can recommend changes that work.”

“With anything this big, you make mistakes along the way. For our operation, there were so many areas where lean could be imple-

mented, we got bogged down,” she admitted.

That didn’t stop the commitment to Lean. Instead, management learned about key constraints and then became empowered to choose to focus on one key constraint at a time, elevating it (since desired output was known) and taking steps both up and downstream to overcome it using lean manufacturing tools.

Ramping up also created a few problems with external vendors who had not ramped up as fast. Improved projections of demand to those suppliers helped resolve that problem.

Value Added

Any activity that increases the market form or function of a product or service. (Things the customer is willing to pay for.)

One-piece flow

One-piece flow, a Holy Grail in Lean Manufacturing, eliminates or reduces batch sizes to an ideal of one moving through each work station, pulled through the plant in response to a customer order rather than by forecast.

Value Stream Mapping

Value stream mapping is a simple pencil and paper tool where the flow of materials and information processes are recorded, or mapped (current state), to help see and understand how a product makes its way through production from raw materials in through the finished product out the shipping door. It helps one see non-value activities that take place like where bottlenecks occur, wastes like scrap build up, when parts go

to storage several times while waiting for the next step...(things a customer would not want to have to pay for). The mapping is a recurring process where a “future state” iteration shows ways to improve (by cutting wastes, shortening distances, changing decision patterns, etc —other Lean concepts). When those changes are made another current state exists and the mapping process begins again — a great thinking, visualizing tool for Lean transformation.

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A no-host social and **Pitchfork Steak Fondue** will kick off a special statewide event, the **Montana Business Information and Technology Conference**, in Great Falls starting the evening of Wednesday, Oct. 3. The pitchfork fondue will be served by the Great Falls Area Chamber of Commerce at the University of Great Falls Commons.

Beginning Thursday at the MSU-Great Falls College of Technology campus, sessions for expanding your revenue stream start with **"From Invention to Innovation,"** a four hour exploration of how to develop a commercialization plan for new technologies and products. This topic is a must for all manufacturers interested in new or expanding product lines. Business consultant Marcia Rourke will lead the audience through the process of aligning and allocating business resources and tracking your progress. She will share tips and resources for developing investment strategies to finance the start-

up or expansion, as well as how to deploy a risk analysis and avoid pitfalls in new product development.

The Director of the Montana Department of Commerce (DOC), Mark Simonich, will deliver opening remarks, **"Creating Opportunity — Tools for Building Montana's Hi-Tech & Manufacturing Economy."**

Following lunch, afternoon concurrent sessions will offer additional business information and tools to help companies succeed. These will be presented by the DOC along with co-sponsors the Montana Manufacturing Extension Center, High Plains Development & Port Authority (SBDC), the MSU-Great Falls College of Technology and Technology Education Task Force of the Great Falls Area Chamber.

Registrants can choose two sessions from topics including: how to locate R&D capital, marketing strategies, a look at product costing, lean manufacturing, or quality

systems opportunities. A two-part session on **"Digital Dexterity & E-Business"** is available to give you the facts you need to make decisions about e-business technology and where to find resources.

Conference goers will have an exciting opportunity to attend the Thursday evening **"Storefront University"** in downtown Great Falls where city businesses become learning centers, offering tips on purchasing the right kayak, framing favorite photographs, or understanding the stock market and more. You get to choose and enjoy a trolley ride from workshop to workshop, plus you can take advantage of special dinner savings coupons at local restaurants.

If you are interested in attending this statewide conference, the registration fee is \$35, before Sept. 19, and \$55 thereafter; cost for the Oct. 3 fondue is \$20 per person.

Call Carol at the Great Falls Chamber, 406-454-2995 for more information or to pre-register.

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