

Culture Change Brings Sweet Dreams to Sealy

If executives at Sealy, Inc., sleep well at night, it's probably not just because they have the company's mattresses on their beds.

The fact that Sealy is a successful manufacturer, showing significant gains in revenues and earnings, may also contribute to their peace of mind.

And for those executives involved in Sealy's effort to become a lean company, the major increases in productivity that effort is achieving may make their nights particularly restful.

Even better is the fact that improvements are occurring both at plants using primarily manual processes and one that is primarily automated – demonstrating that the gains from lean production are not limited only to certain methods of manufacturing.

Those gains have been sizable. According to Scott Brubaker, manager of Sealy's plant in Colorado Springs, Colo. (which makes mattress springs and box spring foundations), improvements that have occurred at the plant in the past two years include:

- A 25 percent increase in the number of outbound warehouse shipments, with no increase in staff.
- An increase in production of innersprings of more than 53%, with a 30 percent increase in production of foundations – again, with no increase in staff.
- Reduction of employee turnover by 30 percent.
- Reduction of the plant's OSHA recordable accident rate by 35 percent.

In addition, the plant in 2000 won an internal quality award for Sealy's components division and received the highest safety inspection score in the entire corporation.

Everyone involved says the successes are primarily because Sealy spent considerable time and effort addressing cultural issues, in addition to production processes, so that the majority of employees bought into and actively supported the lean effort.

Eye on the Prize

As a company, privately held Sealy is doing well. According to research firm Hoovers, Inc., Sealy – the largest bedding manufacturer in North America – had sales last year of more than \$1.1 billion, up 11.8 percent from the previous year. Even more impressive is the fact that the company's net income jumped more than 90 percent, to \$30.1 million.

But like all companies, Sealy wants to do better. So in late 1998, Sealy jumped on the lean bandwagon, joining forces with Simpler Consulting to improve its efficiencies and cost structures. The lean initiative was given its own name: Strategic Workplace And Resource Management, or

SWARM.

Sealy has nearly 30 plants in North America, 20 of them in the United States. Initially, SWARM was applied to three mattress plants, located in Orlando, High Point, N.C., and Toronto.

"High Point is our model plant," says Dave Daily, vice SWARM coordinator. "Over the last several years, we made it a very visual, organized, efficient workplace. That's come over time, through the building blocks of communication, meetings with employees."

According to Daily, the number of pieces per day produced by the High Point plant since the start of SWARM three years ago has increased 40 percent. In addition, absenteeism has gone down nearly 35 percent, with an 80 percent decrease in turnover. The amount of floor space being utilized in the 134,000 square foot plant decreased 22 percent – enabling Sealy to use it for a new R&D center.

The results were achieved through a process that began with Simpler's consultants – Spence Wood, John Kim and Keith Sieverding – working with Sealy to map out their value stream, and identify opportunities for removing waste.

"At the beginning, everything (at the mattress plants) was done in batch," notes

Wood. "Nothing was done in one-piece flow. With the map as a guide, we established a calendar of rapid improvement events that would be conducted over the next 12 months. Typically, about three months into the program, after three event weeks, we did an alignment review, looking at what we had accomplished to date, how successful it was, how successful was the plant in sustaining the changes, and for the future, what kind of adjustments we need to make."

The improvements in the mattress plants were "primarily waste reduction from productivity improvements, inventory reduction and space savings," Wood says.

Daily comments, "Generally, we streamlined the operation. We eliminated as much as we can of batching the processes, streamlining to one-piece flow. We eliminated waste and made it ergonomically safer for the employee to do his job. We increased productivity while decreasing cost."

The Importance of People

But while the High Point plant may be a model for other mattress-making sites, company executives point to Colorado Springs as a model of how to implement the culture change of lean production.

About a year into the SWARM initiative, "the early successes were impressive enough that Sealy decided to include the components division," Wood explains. That meant moving from improving the largely manual mattress plants to applying lean techniques in the highly automated Colorado Springs facility – one of three plants that make innersprings and foundations.

The improvements at Colorado Springs involved some sig-

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nificant changes in the manufacturing processes (see sidebar). However, everyone involved stresses that what makes the process changes succeed is the time and effort Sealy put into training employees and gaining their enthusiastic support.

"I don't think you can be successful without working with your people," says Daily, "having them not only understand change, but know that the change is beneficial for Sealy, for them and for the customer. You can't enter this thing backwards. You can't do it to them; you have to do it with them.

"Some plants ask their people to check their brain at the door. Our attitude is, 'we need your brain. You people understand the processes out there.'"

He adds, "The old philosophy was We versus They. The SWARM process has made us more Us. That's a big cultural change, and out of this comes teamwork."

No one involved minimizes the significance of the cultural change. "When you're going into a company, initially there is a lot of skepticism," says Wood. "There's no buy-in; people are thinking it will go away."

Brubaker notes that initially, "employees believe you are capable of production X. When we started to go to X plus 30 percent, some said it was impossible. A few chose to leave. But the concept continues. We have a bedrock group of people on the floor, who have the talent and the motivation to make these increases continue."

Building the Buy-In

In motivating people, several practical issues had to be addressed. One was the fact that the initial steps of producing springs involved employees in three different job classifications. "It became obvious in the course of a rapid improvement event that the best approach was to have one person assigned to the end of each machine who did whatever was required [to make springs] and was also responsible for hanging springs on the conveyer," Wood states. He notes that the three classifications were replaced with a single position of attacher, though the title is subdivided into three levels based on the extent of the employee's training.

(Sealy has both union and non-union plants. Colorado Springs is non-union, though two of the mattress plants involved in the first stage of SWARM are union.)

Brubaker notes that Colorado Springs also "increased the chain of command" by adding material handler positions referred to as "water striders." The phrase relates to the Japanese term *mizusumashi*, which identifies a person who brings material to a production line in a set route in set amounts. That term translates roughly as "water spider," and Sealy chose to call its people "striders" rather than "spiders."

Incentives were also addressed. Brubaker notes that many employees in the plant used to be eligible for production incentives; today, none are. He comments that with incentives, "the plus is you can get significant production from an employee, but you can also push an employee to the point

Putting New Bounce Into Spring Production

Production of mattress innersprings initially involves a series of machines that create coils from wire, then connect them. Employees add solid wire borders to the top and bottom edges and hang the springs on an overhead conveyer – which takes them through a heat treating oven.

Because of the different sizes of mattresses, and style variations within sizes, over 200 different types are being manufactured at Colorado Springs.

Before the SWARM initiative, employees at Sealy's Colorado Springs plant would hang the springs on the conveyer randomly. After the heat treating process, other employees would take each spring, identify its type and place it on a cart with other springs of that type. Fifteen identical springs are then sandwiched between slats of wood and compressed to a fraction of their original size, creating what is called a bale. The bales were taken to a Sealy warehouse, located six miles away, and held for shipment at a later date to one of Sealy's mattress plants.

The machines that formed the coils "were staffed erratically," says Spence Wood of Simpler Consulting. "They had a lot of issues with maintaining machine uptime, a lot of it having to do with staffing. There were formed innersprings waiting for the next operation, 200 to 300, because the next operation was behind. It was a balance of staffing – who does what, tying together the upstream operation with the next operation."

Those involved in SWARM sought to move the operations to one-piece flow – but they defined a piece as a bale, not an individual spring.

"We set up staging areas. We started out with four, and within three months it was across the board," Wood says. "We had staging areas across each machine, so they would do all the work and put all 15 on the conveyer together. This helped the flow of product at the other end of the oven. It totally eliminated the need to put innersprings into carts.

"We put two baling machines next to the conveyer. What the baling operators do now is they take the units directly from the conveyer into the baling machine. It eliminated a lot of inventory and confusion, and saved them 4,500 square feet of floor space." (The plant has a total of 75,000 square feet of manufacturing space; the warehouse has an equal amount of space.)

The improvements didn't stop there. A direct shipping operation was set up on the newly available floor space, so that bales could go directly from Colorado Springs to mattress plants, bypassing the warehouse. Wood says about a quarter of all bales are now shipped directly; he predicts that the figure may rise to 60 to 70 percent in two to three years, so that Sealy "will need less than half the warehouse space they need now."

Wood observes, "The lesson learned is that the principles of lean and flow apply in processes that have automated equipment. It's not strictly for a manually operated one-piece flow cell kind of thing. It's not as easy to see, but if you apply the process and be creative, I think you can get excellent results."

where they hurt themselves, or you have a reduction in quality." He adds that after incentives are eliminated, "you have to make sure that compensation is [still] interpreted and perceived as being fair."

Training was also important. "We have a strategy in a plant. The first three months are all training," says Daily. He particularly stresses the need to train managers. "If you don't teach your management, who are very traditional in nature, you will fail," he says. "For the traditional batch supervisor, all the tools and methods have changed. It's a big change for them. You have to have the right leadership, with the right discipline, and you have to sustain your gains. Those are the three key factors to be successful."

An important part of the right leadership, Daily and Wood are quick to say, was Brubaker. "A lot of the credit has to go to a totally dedicated plant manager," Wood says. "Without that, we would have gotten mediocre results."

Daily adds, "Scott is very supportive, and obviously people benefit from it. It makes it much easier for SWARM to be successful when you have somebody at the top of the organization at each plant not only talking it, but living it."

Brubaker responds modestly, giving primary credit to his managers and employees, including plant SWARM coordinator James Vines. "Any leader who is not surrounded by people who are extremely capable will fail," Brubaker declares. "The supervisory staff has taken hold to a degree that just amazes me. Sometimes I'm astounded at the end of the week how far we've gone."

He adds that his one surprise has been "how people with capabilities that were unknown to me flowered. I have seen some individuals, where I had no idea what their capabilities were, showing an unbelievable capability in programming changes for the plant. They make those changes happen ahead of schedule, which I would never have been capable of. Colorado Springs has an abundance of talent, and when given the opportunity to show what they can do, I honestly believe there is none better."

Looking Ahead

Moving forward, Brubaker wants to work on "our ability to sustain many events and projects. Sometimes we don't sustain them to the degree we want."

He also wants improvement efforts to involve fewer managers. "We had an event recently where we had only one person from management, and the rest floor employees. We had incredible results. I believe that's where we need to head," he says.

Daily notes that the company until now had not gone beyond applying lean techniques to the initial four plants, waiting to go further "until we get the current plants a bit more perfected." But plans for 2002 include implementing lean production at four additional plants, and "I would assume we want to do this each year until all the plants are on board."

Daily concludes, "We are on our journey now." ■

At GM, Parts Distribution Centers Can Be Lean, Too

General Motors has been applying the concepts of lean production to its parts distribution operations – and achieving significant gains as a result.

"We centered on implementing lean and common processes that would produce a measurable, positive impact," said Ronald West, general director of warehousing and distribution for General Motors Service Parts Operations (SPO).

After an initial pilot project about three years ago, the automaker learned that "in order to maximize delivery performance improvement or optimize the related savings, that smaller, less complicated facilities are more efficient," West said at a recent conference. The result was creation of a warehouse template of processes.

According to GM spokesperson Susan Reyes-Nothoff, the initial project took place at two plants: a brownfield parts distribution center (PDC) in Willow Run, Mich., and a greenfield site in Jacksonville, Fla. Since 1998, she said, productivity has increased by 43 percent at the Michigan location and 24% in Florida.

Since 1999, SPO has opened new PDCs in Charlotte, N.C., Jackson, Miss., Los Angeles, Memphis, Columbus, Ohio, Cincinnati and Martinsburg, W.Va. Additional PDCs are either planned or under construction in Fort Worth, Falls Township, Pa., and Chicago.

Reyes-Nothoff said the Charlotte facility has seen a gain of 113 percent, while performance at the Jackson site is 135% better than the old facility.

Overall, West said GM SPO has achieved significant improvements in delivery, responsiveness, quality, productivity and cost by redesigning the interior of its facilities and reshaping exterior relationships.

Those gains came from a strategy that West said initially involved a three-stage improvement of internal operations. First, "we had to improve our quality and responsiveness throughout our existing parts distribution centers," he said. "We looked at various metrics to track performance and set aggressive and measurable improvement targets."

Next came the competitive warehousing pilot, designed to evaluate best practices in existing PDCs – with the conclusion that smaller facilities are better.

Finally, SPO separated its ACDelco and GM Parts business into dedicated facilities. West said this helped improve SPO's customer focus by reducing the complexities of the ACDelco business – reducing order fragmentation and lead time, and improving availability and order response time.

After the internal changes, SPO partnered with Schneider Logistics to improve externally. The partners created a new solution that "modifies inbound material process, levels material flow, communicates schedules and priorities, monitors performance and tracking methods, and provides for



further improvements," according to West.

The result, West said, is that "we have designed-in flexibility with the potential to grow as the business dictates. As our work force applies these new techniques and processes, we are solidifying our competitive position."

SPO, headquartered in Grand Blanc, Mich., markets automotive replacement parts and accessories worldwide under the GM and ACDelco brand names. SPO also provide inventory consultation and recommendations for improvement in parts, accessories and service merchandising under the GM Goodwrench Service Plus banner. ■

GM PARTS DISTRIBUTION CENTER



GM's Charlotte, N.C., facility.

James Judd placing inbound unipacks of parts on a tilt table.



Arthur Hale moving inbound parts into designated locations.



Donald Partridge sorting outbound bulk parts.



Peggy White picking up orders from the dispatch board.



Peggy White sorting picked parts into dealer totes.



Ollie Mitchell distributing outbound parts in a dealer sortation lane.

