

# Hearth & Home Technologies in Mount Pleasant, IA: Bias for Improvement

*Change for the better and a sense of urgency in this flexible organizational culture.*

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Comfortable with communications from others in your organization when you're making decisions about improvements? Is flexibility about finding a better way to do things part of your repertoire? Do you have a personal stake in the customer satisfaction and financial performance of your company? Do you look to many sources for good ideas and innovation, including nature? If your answer is "Yes!" to all of these questions, you just might feel right at home in the Hearth & Home Technologies in Mount Pleasant, IA. During a recent AME workshop at Hearth & Home, Members shared their "lessons learned" about organization-wide, customer-focused improvement processes. All workers at parent HNI are considered Members.

Training and education focuses on building individual and team-based capabilities that will continue to distinguish the company from its competitors in what has become a volatile market. "We offer internal and external technical school training. Our members are well-engaged and trained. They understand sales and inventory turns, and they have a personal stake in the company through profit sharing. Even though sales are down 22 percent in the past 14 months, and the 'pie' (market) has gotten smaller, we are operating at the same percentage of profit," said Lee Benjamin, general manager and vice president of operations at Hearth & Home in Mount Pleasant.

Members understand their

duty to meet customer needs. Short delivery times keep customers happy. "We have excellent customer feedback, helping us to retain customers and grow our business," Benjamin said. "We also carry less inventory than some of our competitors, so our improvement efforts have helped reduce costs. With a well-trained work force and well-documented (standardized) processes, we can pick up the work faster and move from one area to another according to demand. We have also been using RCI (see "Rapid Continuous Improvement") for many years, which has helped us to deal with steel price increases and outsourcing pressures that all U.S. companies have to deal with."

## **Broadly-Shared Accountability for Results**

Members (employees) at Hearth & Home continue to craft a culture marked by support for one another, even as they are being challenged to improve their performance on a day-to-day basis.

### **In Brief**

Hearth & Home Technologies members (employees) in Mount Pleasant, IA share accountability for continuing improvements that will buoy long-term competitive strength. Their culture reflects pride in team-based progress on many fronts. Using 5S, 3P, and other improvement tools gives the plant an edge during volatile market shifts.

### About Hearth & Home Technologies

Mount Pleasant, IA-based Hearth & Home Technologies is the world's leading fireplace manufacturer. A subsidiary of HNI Corporation, it is known for brand names such as Heatilator, Heat & Glo, and Quadra-Fire brands.

They foster a culture emphasizing lean manufacturing, safety, and continuous improvement. The operation's member-owners recently celebrated 1.5 million hours without a lost-time incident. "We will be a great place to work" is a key element of their vision statement. People working here are encouraged to contribute improvement ideas and management responds to these ideas.

The Hearth & Home culture is built on the use of Rapid Continuous Improvement (RCI) in all areas of the operation, and the expectation that all members have value to contribute. RCI processes engage members and result in many performance improvements such as inventory turns, customer leadtime, and other areas.

Among Hearth & Home's "industry firsts" are air circulating fireplaces (1927); the first factory-built fireplace system, eliminating the need for masonry construction (1946); remote-controlled fireplaces (1988); wall heater fireplaces (1991); and outdoor zero-clearance gas fireplaces (1999). They received the 2000 Iowa Governor's Achievement Award, and they were recognized as the Builder Brand Leader by the Builder 2006 Brand Use Study (they received it during 14 of the past 15 years). More information about the company and its products is available at their website ([www.hearthnhome.com](http://www.hearthnhome.com)).

Organizational strength reflects the commitment, understanding, effort, and ideas of *everyone* in the organization, Benjamin believes. "As a manager, you don't make decisions on your own," he said. "You need to get comfortable with hearing from many people in the organization."

This philosophy of broadly-shared accountability for results stems from parent company HNI's vision statement calling for business simplification and continuous improvement (CI) in everything members do. "We will be a great place to work" is an important element of this vision as well. Some organizations don't link this strong commitment to people with improvement efforts, Benjamin noted.

### Rapid Continuous Improvement and Policy Deployment

Members' consistent, dedicated use of Rapid Continuous Improvement (RCI) events/tools ignites progress throughout Hearth & Home, according to Nichole Malin, team lead for wood products assembly. "Members started working on improvement events back in 1992," Malin said. "It is definitely ingrained in our culture, in the shop and in office areas. For example, in the human resources (HR) area, members worked on streamlining our member review process." (Members at Mount Pleasant are reviewed by supervisors and managers every six months.)

"We pick RCI targets through our policy deployment," Malin said.

Goals for progress in leadtimes, service call rates, safety, inventory turns, changeovers, member turnover, floor space, and other areas are set at the corporate level (typically a three-five year plan) and then cascaded to the division and plant levels. Factory managers have their own specific goals and so do people reporting to them, tied back to the corporate goals. In turn, these goals and current performance direct RCI attention to specific value streams and product lines (Figure 1 shows organization of suggested kaizens awaiting approval, completed kaizens ready for RCI, and other improvement initiatives.)

"We develop our strategic plans and one-year plans, then use our value streams to find 'starbursts' or opportunities for specific goals attainment," said Lee Benjamin. "For example, we may look for improvements in flow and better inventory turns. Another objective might be to reduce steel scrap by 20 percent. We ask ourselves, 'How do we go about doing that?' Then we lay out a schedule of RCI activities and events. We consider the resources that we have available, and whether we are looking at a high-speed or a lower-speed line. We listen to the leadership of people in those areas where we are looking for improvements. We need ideas from everyone to accomplish what we need to do."

Hearth & Home has five focus factories: gas burning, wood burning, pipe factory, and support factory, plus the logistics group. During a monthly "kaizen hour," Benjamin and his staff discuss kaizen activities planned for the coming month in each of the focus factories. Kaizen events are selected to support the company's lean vision and policy deployment (plant goals).

A typical RCI or kaizen project lasts one week and is made up of



**Figure 1.** Kaizen and RCI initiatives reflect plant-level and corporate policy deployment goals.

volunteers from throughout the facility. Teams are generally five to ten members who spend one week on an RCI project. Team members typically are from the area where the RCI is performed, along with others from the facility. The team may include management, office personnel, design, etc. Teams have a Monday morning kickoff followed by leaders' meetings Monday, Tuesday, and Wednesday evening and a Friday report-out. Work not completed during the week is put into a kaizen newspaper with due dates; there's followup at 30, 60, and 90 days and review at the monthly kaizen hour meeting. One benefit for participants during an event is lunch provided to team members. They run about 80 events a year.

### ***They're Flexible and Motivated, and Some Are "Kaizanimals"***

Material flow and delivery is a typical challenge tackled by RCI members. In one case, receiving members used to build a bill of materials (BOM) pick list and then would assemble an entire day's worth of materials the day before production of a particular model was slated. This large "shipment" would be delivered by forklift or otherwise to the assembly line, where members would sort through all the materials to get the parts they needed. RCI members devised a method to deliver parts to the line on an hourly basis. When receiving gets back empty containers, they send back parts as needed. Less parts to sort through on the

line (reducing cycle time), lower WIP numbers, and other benefits resulted.

Another RCI example offered by Malin: "Recently we did a kaizen project on one of our assembly lines where there were five people working," she said. "One of the stations on the line supplied parts to two other lines. If one of the 'customer' lines was down, we still needed people to be on the supplier line. By creating dedicated lines, we eliminated the need for a larger line, and in turn reduced WIP. Now we can do one-piece flow. Also, on the original line, people had to get their own parts. Now they get delivery of one unit's worth of parts at a time instead of getting four hours' worth. This helps us to reduce parts on the floor and balance flow. Our 'water strider' parts delivery (delivery as needed) gives us more flexibility and higher quality.

"RCI is our umbrella concept, and kaizen is change for the better," Malin continued. "Like each HNI unit, we have an RCI manager, and we continue to learn how 5S, standard work, looking for hidden wastes, and other tools can work better in our culture. We have a sense of urgency, doing what is needed to compete. RCI has helped us during the past year, when demand was dramatically lower. It is a strategic tool for competitive advantage." Despite significant progress in performance (net sales, operating income, leadtime reduction, inventory turns, productivity, etc.), members recognize that more improvements will be needed on a day-by-day basis. This realization and the willingness to build on earlier progress is part of their culture. One-piece delivery, fabricated parts, finished goods, and returnable containers are among areas tagged for future improvements.



To make this vision a reality, all Hearth & Home members are expected to learn and live the kaizen way — continually scouting for better ways to work together and meet customer requirements. Some volunteer for additional 13-week kaizen training through internal hands-on and classroom training along with some external college courses. They're called "kaizanimals;" during their 13 weeks they spend time practicing learned lean tools by participating in and leading RCI events. At the end of the 13 weeks, they return to their previous job and are given opportunities to continue using these tools on a daily basis.

Sometimes there are thorny issues to resolve. A single RCI event may not eliminate all of the problems or challenges. "For example, we use RCI for safety and ergonomic issues," Benjamin said. "We can videotape and try to improve the steps in a process, but feel that we have a ways to go. We may want to revisit an area two or three times, to look for ways to prevent repetitive stress injuries." The operation's "Ten Fundamental Rules for Improvement" are shown in Figure 2.

New product launches/lines also draw RCI (kaizen) focus. For example, a kaizen event focusing on a new product line set for January 2008 launch evaluated start-up work for operators, quality checks, materials and equipment used on the line, and other factors affecting startup speed and throughput. "We did this sort of planning on our Element wood-burning fireplace," Malin said. "We only shut down production of our older model fireplace for one week. A lot of equipment changes are required for a new fireplace, and now we can handle that in less time than we used to with little or no disruption to our customers."

### Ten Fundamental Rules for Improvement

1. Discard conventional, fixed ideas about how products should be designed and produced.
2. Think of how it can be done, rather than why it can't be done.
3. Don't make excuses. Start by questioning all current practices.
4. Don't seek perfection. Take immediate action, even if it's for only 50 percent of the target.
5. Correct mistakes at once.
6. Don't spend a lot of money on improvements.
7. Wisdom is uncovered and rises to the surface when faced with hardship, frustration, or bewilderment.
8. Look for "root causes" by asking "why" at least five times.
9. Seek the wisdom of ten people rather than the knowledge of one.
10. Improvement ideas are limitless.

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*Figure 2.*

### Gearing Up 5S

Hearth & Home members are intensely involved in making such improvements happen, and one of the "tools" they employ is 5S. (It's hard to improve your process if you can't see where things are.) "We started challenging members, did training for each 'S' (Sort, Set in order, Shine, Standardize, Sustain), and began related audits for each work area," Benjamin recalled. "It tied our members together and got us into second gear in our CI efforts." In the shop, 5S audits cover aisle lines and floor markings to correct placement of tools, whether or not unneeded materials or documents are present, whether safety hazards such as spills exist, etc. Work area 5S audit results are posted prominently. A sample audit form for the shop is shown in

Figure 3 and work area organization is reflected in Figure 4.

"After our Sort training, for example, we gave out tokens that people can redeem for T-shirts and other prizes," said Benjamin. "Then we tied our 5S efforts to a racing team. Work areas have a checkered or green or yellow flag (yellow means that help is needed in that area).

"We got to Set in Order and stayed on that one for six months," he continued. "We continue to work on Set in order — cart development, painting work areas in a standard way, putting supplies in the best standard spot, etc. We didn't exclude anything in the building. Every office in the plant and every inch in the plant adheres to some standards."

Four years ago they added an audit process to give more "oomph"

# Creating an Audit Form

## SHOP - 5S for Safety & Quality Audit Form

One Violation Per Occurrence

Audit Area:		Date:	X for each violation			
Sort Organization	1	Distinguish between what is needed and not needed				
	2	Unneeded equipment, tools, furniture, etc are present				
	3	Unneeded or outdated documents are on walls, bulletin boards, etc.				
	4	Unneeded materials (inventory, supplies, parts) are present				
Set in Order Orderliness	5	Item over an aisle line or blocking an aisle/exit/fire extinguisher/eye wash station				
	6	A place for everything & everything in its place				
	7	Correct places for items are not obvious (or contained to avoid contact with sharp edges)				
	8	Items not put away immediately in their correct places (combustibles not stored in explosion proof cabinet)				
Shine Cleanliness	9	Airlines, hoses & electrical cords are not neatly bound & off the ground.				
	10	Height and quantity limits are not obvious or followed (parts, scrap, trash, etc. overflowing container)				
	11	Cleaning and looking for ways to keep it clean				
	12	Walls, poles & handrails not kept clean. (all 8 foot and below)				
Standardize Adherence	13	Equipment is not kept clean. (including eye wash stations, carts, racks, & furniture 8 foot and below)				
	14	Floors, stairs, and walk surfaces not kept clean				
	15	Sources of leaks not tagged or controlled				
	16	Maintain and monitor Sort, Set in Order, & Shine				
Sustain Self-discipline	17	Aisle lines and floor markings are not to standard (*see Standards Book)				
	18	Equipment (railings, dumpsters, carts, racks, machines) is not to *standard				
	19	Documents (Std Work, JSA, Lockout) do not exist or are not presented to *standard for each workstation				
	20	Labels and signs (location identifier) are not to *standard				
Process	21	Stick to the rules				
	22	Cleaning diagrams are not posted, sufficient, up to date, and signed off for each work station				
	23	Cleaning supplies are not located in an obvious location in the audit area (towels and spray bottles refilled)				
	24	Labels, floor, floor markings, documents are not maintained, identifiable, & legible				
	25	Latest 5S Standards book not available in the audit area or correct 5S flag not flying (yes or no - 0 or 4 points)				
violations		score	Yellow Flag = 79 & below			
0		4	Green Flag = 80 - 89			
1		3	Checked Flag = 90 - 100			
2		2	Total			
3		1	Audited by: _____			
4 or more		0	For Reference Only, 12/21/05, NS			

Figure 3.

to 5S staying power. "Now we have audits twice a month for all areas in the plant — on sort, shine, set in order, sustain, etc.," said Malin. "Shop floor operators, engineers, office areas, and others are audited. It's a good way to make 5S part of your culture. 5S improvements affect how quickly you can get the job done, in everything from the shop floor to accounting." Benefits from changing their culture to incorporate 5S in day-to-day activities range from improved quality

and fewer equipment breakdowns to higher productivity and customer confidence as well as a better safety record.

Results from this concentrated drive for standardization are gratifying, though their efforts to improve continue. For example, stock of OEM parts dropped dramatically in maintenance as a result of Set in order changes. Benjamin said some initial resistance was encountered in that area but progress netted greater accept-

ance. "Also, in an area where members pour cement for refractory used in wood-burning fireplaces, 5S changes have been very intense, but we feel very proud of the changes," he said. "We are seeing more cultural change. Before, when we did RCI events, one part of the plant was involved and others didn't get involved. 5S got *everyone* involved — asking questions and engaged in making suggestions."



**Figure 4.** Regular audits keep attention focused on workplace organization.

### **3P: Good Ideas from Many Sources**

Their spirit of inclusiveness — drawing improvement ideas from many sources — pervades Hearth & Home members' approach to 3P (Production Preparation Process). 3P tools such as standard work and poke yoke target best-quality products at the demand volume, with proper timing (takt time). In turn, they develop proper cost as a byproduct of these other factors. 3P is used when there are changes in demand, product design changes, new product introductions, and manufacturing process improvements. Compared to traditional thinking about process/product development (order machines and tooling up front, creating "excess baggage" as capacity is purchased in

large batches), this "new" way focuses on customer needs first and then turns to machines, tooling, and process/flow considerations.

Product 3P starts at the development stage. Focusing on internal and external customers, they learn how to select design concepts that will move to development. Done on units or components of units, it saves time and money.

"3P in our design process is evolving, like a lot of things we do," Benjamin said. "It takes nine months to a year to develop some new products, using wood and cardboard mockups early in the process. Later we determine features such as doors and then work through a separate process to determine production readiness. That spurs even more 3P; we look at what type of equipment it will take to make a particular model,

then put the concepts on CAD (computer-aided design)."

Production readiness process issues are eliminated through 3P scrutiny by design engineers as well as various shop floor people, quality, procurement, factory management, and others as appropriate. "We've learned to reduce delays and quality issues by using FEMA (failure effects mode analysis), working against a master schedule and checklist," Benjamin said. He added that process 3P, conducted in the development stage, should encompass value stream mapping (VSM), material flow, use of existing or prototype parts as a guide, actual machine dimensions, ergonomics, and takt time performance.

Equipment 3P also takes place in the development stage. Cycle to takt time, modularity (add on as needed), push button changeover, flexibility, simplicity, defect-proofing (poke yoke), and ergonomic considerations come into play.

Creative thinking and idea generation during these improvement efforts are encouraged by removing hurdles that can get in their way, Benjamin said. That means not judging other another person's ideas, making an effort to openly express ideas, looking at problems from many angles, and returning to a 12-year-old mindset to generate new ideas.

"We look to many sources, including nature, when we are designing products," Malin said. "For example, we have fiber logs that attach to a grate. We might look at a cocklebur in the woods, and say, 'How does that work?' when we are attaching the log. Why reinvent the wheel?"

Hearth by Design, offered on the company website as well as through contractors and retail outlets, is among the innovative ideas

finding their way to consumers. Using this approach, buyers can design a custom (Heatilator) fireplace for their room, choosing the material, surround, mantel, and other features.

### **Commitment to People**

Hearth & Home is counting on well-trained, enthusiastic members to buy long-term competitive advantage. "We are building momentum," said Benjamin. "We have an advantage, to a degree. Our members are very knowledgeable and involved in CI. They feel proud of the Heatilator brand built in this facility. We build spirit with company picnics, and occasionally take trips to concerts, etc. We continue to train and work for improvements in safety, standard work, and other areas."

Challenges remain. "It's great to have a flexible workforce, yet competitive brands from overseas operations could affect orders from Mount Pleasant if we didn't continue to look for improvements," Benjamin said. "For example, inventory turns are at 34; I'd like to see that at 40. We need to continue working on returnable containers, more poke yoke in internal processes, and we are working with the University of Iowa on

ergonomic and health issues. We will continue coming up with better ideas for doing things through 3P, reducing cost and improving products and processes.

"We offer training in blueprint reading, press brake operation, and other areas, in addition to training on 5S, eliminating the seven wastes, etc. We're starting very intensive training through TWI (Training Within Industry); that should help during a downturn and as business picks up," said Benjamin. Three times a year, Shingijutsu consultants visit the plant and offer feedback about needed progress. "They challenge us on things we may overlook and not understand," said Benjamin.

The cumulative effect of organization-wide cultural change and a variety of improvement initiatives may not offer sure success in future years, but has served Hearth & Home well during market vagaries. "Our sales doubled in the past ten years and operating income rose by three times," said Benjamin. "Our leadtime went from 17 days to five." Meanwhile, orders shipped on time rose from 85 percent to 98.7 percent (measured by part, not dollars). Inventory turns climbed sharply, while profit sharing doubled and productivity increased 1.5 times.

Global competitors' strength keeps the improvement momentum and sense of urgency at a high pitch. One of their lines has been reconfigured several times during the past year as demand slipped, for example. "Our electric line was outsourced overseas and we replaced that product with other products in the plant," Malin said. "People here understand that they will not lose their job because of RCI activities, but if we can't compete with overseas competitors here in Mount Pleasant, we won't stick around."

"Communication is important. The more you share with the workforce, the better," said Malin. "People need information, especially when things are changing rapidly."

*Editor's note: The assistance of Tony Praza in the development of this article is appreciated.*

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*Lea A.P. Tonkin, Woodstock, IL is the editor of Target Magazine.*

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