

Kaizen Breakthrough Experience Mid-Continent Engineering, Inc. Minneapolis, Minnesota November 6 - 10, 2006

About Mid-Continent Engineering (MCE)

Mid-Continent Engineering is a 55-year-old contract manufacturing organization. They offer precision CNC machining, welding, sheet metal fabrication, painting and building of high-level assemblies. MCE's customers are primarily Fortune 100 companies in the Health Care, Aerospace and Defense industries. 90% of their revenue is concentrated between various divisions of General Electric Healthcare, BAE/United Defense, Lockheed Martin and Recaro Aircraft Seating.

MCE began its Lean journey in March 2003 when senior management attended a TBM seminar introducing the benefits of lean manufacturing. In July, they held their first week-long kaizen event, which cellularized a product line for GE Healthcare. In the following five months, MCE held an additional seven week-long kaizen events. In 2004 they held 14 week-long Kaizen events and 13 point kaizen events.

EARLY SUCCESS:

MCE continued to improve on all aspects of lean manufacturing up to early 2005. They aggressively pursued their Lean journey. Significant operational improvements resulting from lean initiatives included:

- Inventory turns improved from 5.5x in fiscal 2003 to just under 10x by the end of FY2004
- Reduction of inventory from \$3.5 million to \$1.8 million
- On-time delivery and quality for cells improved to almost 100%
- Profits grew within manufacturing cells

THE TWO YEAR BLUES:

In early 2005 MCE made several changes, including the re-assignment of both the KPO manager and production manager. This left the KPO manager position empty. As a result, by early 2006 most of the operational improvements resulting from lean activity were disappearing and non-cellularized jobs were causing profits to decline, forcing MCE to reconsider its structure, customer base and future.

A RE-COMMITMENT TO LEAN:

By 2006 MCE was in a bad situation. Customers were upset, morale was low and profits had changed to losses. They needed to re-invent themselves. A restructuring of MCE started in March 2006 by filling the KPO manager position that had been left vacant for the last 14 months. They made a comprehensive evaluation of their markets, position, customer base and work force and made some tough decisions.

As part of the restructuring:

- Reduced part numbers produced from over 800 active PNs to <100.
- De-selected 75% of their customers.
- Significant lay-off totaling a 32% reduction
- Re-focused remaining manpower on supporting the cells

In short, they simplified their business to a profitable core of cellularized contract manufacturing products.

Lean Transformation Plans initiated mid-June 2006:

- Focusing on KEY Customers & Key programs only (Cellularized work)
- Focusing on outstanding service for customers
- Re-engaging their lean efforts
- Focusing manpower on supporting the cells
- Dedicating teams to drive lean
- Committing to 2 full week-long kaizens per quarter
- Committing to complete sustainment of each kaizen improvement



Travel & Lodging

Hotel: The Northland Inn; 7025 Northland Drive; Brooklyn Park, MN
 Airport: Minneapolis, Minnesota (MSP)

Agenda

Day 1	11:30 am – 12:30 pm	Workshop Check-in (hotel)
Day 1	12:30 am – 8:00 pm	Classroom training (hotel)
Day 2	6:30 am – 8:00 pm	Shop floor or Business Process work (plant)
Day 3	6:30 am – 8:00 pm	Shop floor or Business Process work (plant)
Day 4	6:30 am – 6:00 pm	Shop floor or Business Process work (plant)
Day 5	8:30 am – 11:00 am	Team presentations (hotel)

Project Areas of Focus

<p style="text-align: center;">Project 1 – Blue Team</p> <p style="text-align: center;">Shop floor/Business Process combination</p> <p>Scope: Detector Assembly Cell: Kanban system for all materials supplied to the cell. This includes internal, external, raw and finished material.</p> <p>The current quantities and deliveries of materials are at an all time high based on our customer demands, causing additional floor space. Our current bottlenecks include congestion at receiving and at the cell. This cell has many different assemblies all requiring different types of material to support the cell. The need is to create a kanban system for all material supporting this cell.</p> <p>Objectives:</p> <ol style="list-style-type: none"> 1. Inventory turns min. of 18 times a year. 2. Reduce floor space by 30% 3. Improve lead-time by 30% (including receiving and inspection process) 4. Implement Kanban replenishment system 5. Improve the supermarket & implement weekly or bi-weekly deliveries to replenish 6. Implement at least 5 safety improvements 	<p style="text-align: center;">Project 2 – Green Team</p> <p style="text-align: center;">Shop floor</p> <p>Scope: Detector Assembly Cell</p> <p>This will be the 3rd kaizen event held in this area. This cell has multiple different assemblies consisting of “low volume” “large mix” assemblies. The cell is forecasted to double and possibly triple in production demand during the next several months or starting as early as 2007. The need is to perform traditional time studies, balance work, analyze material flow and replenishment and improve productivity in this cell.</p> <p>Objectives:</p> <ol style="list-style-type: none"> 1. Improve productivity by 30% 2. Improve 5S score by 40% 3. Reduce operator cycle time by 20% 4. Reduce WIP by 50% 5. Implement 5 safety and quality improvements
<p style="text-align: center;">Project 3 – Red Team</p> <p style="text-align: center;">Shop floor/Set-up Reduction</p> <p>Scope: Mammal & Neftus Castings</p> <p>This event will focus on reducing setup time on 2 Castings to support flow from machine shop to assembly. The team will focus on pull signals and establishing standard work for setups. A variety of other parts are produced in various quantities on this free standing machining center. The team will also suggest ways to transfer event results to other types of set-ups in the organization.</p> <p>Objectives:</p> <ol style="list-style-type: none"> 1. Reduce set-up time by 50% 2. Establish optimal set-up sequence and frequency 3. Establish first piece inspection by operator 4. Complete all elements to achieve a 5S score of 2S 5. Implement 1 safety/quality improvement per team member 	<p style="text-align: center;">Project 4 – Yellow Team</p> <p style="text-align: center;">Business Process</p> <p>Scope: Customer Change Notice</p> <p>This is the first Kaizen event in this area and it will focus on the customer change notice procedure. This is a required and important activity for all jobs, yet this process is looked at lightly and failure to follow internal/external procedures could be costly. This process is not commonly paced to a takt time, with standard work identified and progress monitored throughout the process. There are currently several steps in the process that must be followed before changes can be made / distributed.</p> <p>Objectives:</p> <ol style="list-style-type: none"> 1. Create a paperless communication system to notify effected internal players 2. Reduce process lead time by 50% 3. Reduce number of manual steps by 50% 4. Create & implement standard work