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Leadership for the Future
of the HVAC and
Sheet Metal Industry

KAIZEN BLITZ

**SIGNIFICANTLY IMPROVING
PERFORMANCE
IN A WEEK OR LESS**



NEW HORIZONS
A Chance to Grow FOUNDATION

An HVAC and Sheet Metal Industry Initiative™

*vision
future*

KAIZEN BLITZ

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2009 Prepared By:
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1 EXECUTIVE SUMMARY

Owners and managers are constantly searching for production improvement applications. Few would disagree with the premise that the implementation of such applications is critical in an industry with increasing competition and changing markets and delivery systems. It is precisely those conditions that exist in the construction industry. It is for those reasons that the Lean production tool, A Kaizen Event, is so relevant.

The report's title boasts a result, ***significantly improved performance in a week or less***. This should command the attention of every owner and manager of a construction firm. A Kaizen Event, when properly planned, coordinated, and executed, can increase performance, ***with little or no capital expense***, in seven significant ways:

1. Increased productivity
2. Reduced inventory
3. Lower setup times
4. Less waste
5. Space use reductions
6. Quality improvement, and/or
7. Order-to-delivery time improvement

Although not identified in the report, a properly conducted Kaizen Event also enhances safety at the workplace and more often than not reduces workers' compensation costs, health care costs, and lost time due to workplace injuries.

To attain improved performance, management must commit to and support the outcome of an event, which is loosely described as the application of Lean using a prescribed methodology in a concentrated area of operations in a short period of time. That methodology is described in the report that includes steps to successfully managing a Kaizen Blitz, a quick review of Lean concepts, a sample time schedule for an event, sample forms for use in conducting an event, and finally a review of the pilot event in a case study format.

In short, the tool and steps to deploy the tool described in this report can open the door to almost immediate improved performance of a contractor's operations regardless of size and with little to no capital expense.

2 INTRODUCTION

The genesis of this report was two earlier New Horizons Foundation (NHF) studies on Lean production principles. The first study was designed to introduce the Heating, Ventilation, and Air Conditioning (HVAC) and Sheet Metal Industry to Lean production concepts and tools. The second study moved beyond concept and demonstrated how the industry was already applying Lean processes in production operations.

This report, ***Kaizen Blitz, Significantly Improving Contractor Performance in Less Than a Week***, concentrates on an effective tool for implementing Lean production, the Kaizen Event. The potential of this tool became apparent as several NHF leaders visited a Lennox Plant in Stuttgart, Arkansas. There, they witnessed remarkably improved plant production performance as a result of that plant's use of Kaizen Events. Plant production has been doubled without increasing the size of the plant or workforce.

NHF leadership decided to fund a pilot project to apply the Kaizen process to an industry operation, capture the event, and report its findings in a user-friendly report. The goal was to prepare, present, and transfer the use of a highly effective Lean implementation tool, the Kaizen Event, to the industry as quickly as possible.

NHF initially intended to apply the tool on a pilot basis to both a construction project and the shop floor. However, it was subsequently decided to confine the project to a single event. Hence, the pilot event was conducted only on a shop production process. Nevertheless, it is clear that Kaizen will work to improve all product and service delivery

processes, including on-site activities. Indeed, many would argue that potential savings of a job-site application would equal and probably exceed other contractor applications.

The word “Kaizen” literally means “improvement” in Japanese. Today, improved production performance has become synonymous with this term based upon early successes in the auto industry, specifically the successful Japanese automaker Toyota.

While not an absolute, it is important to recognize that conducting a successful performance improvement event usually involves the use of trained outside resources. Initially, NHF saw this issue as a concern towards widespread adoption of the methodology in the industry. Having contracted with a Kaizen Event specialist in preparing for and conducting the pilot project, NHF became aware of a network of Kaizen Event specialists who can tailor the delivery of an event to all process operations, small or large, on site, in the shop, or in the office. The Kaizen methodology has universal applications.

As mentioned earlier, NHF conducted a pilot Kaizen Event in order to develop this document. More information about this effort and a digital version of this document may be found at <http://www.newhorizonsfoundation.org/kaizen>.

3 GAINING A COMPETITIVE EDGE

In their effort to survive, grow, and profit, owners and managers are constantly searching for production improvement applications to help them gain a competitive edge.

In the quest for that competitive edge, owners and managers can achieve one or more of the following results associated with successful Kaizen Events:

- Productivity increases of 20 to 40%
- Inventory reductions of 60 to 80%
- Reduced setup times of 50 to 75%
- Scrap reductions of 25 to 75%
- Space used reductions of 30 to 50%
- Quality improvement of 50 to 90%
- Order-to-delivery lead time improvement of 40 to 60%

... without a significant capital expense?

This report sets forth a way to realize one or more of these results within a timeframe of a week or less. One Sheet Metal and Air Conditioning Contractors National Association (SMACNA) member realized a setup time savings of 50% in one area and space savings of up to 50% in departments throughout the entire shop floor. Other savings have been realized simply by having a “system” in place that improves the flow and efficiency of the processes. Most importantly, though, this member has seen an almost 100% buy-in into this concept by his employees. Why? Because the employees

are active participants in the Kaizen Event, and their suggestions for not only improving processes, but for creating a safer and more productive work environment, are given due consideration. Kaizen works.

4 REACHING THE GOAL – THE KAIZEN BLITZ

In order to reach the goal of gaining a competitive edge, contractors can conduct an activity referred to as a Kaizen Blitz or Event. Kaizen is a Japanese word for continuous improvement, and blitz means a swift, vigorous, concentrated attack. Hence, we have the reference to a Kaizen Blitz that seeks improvement using a swift, concentrated, and vigorous process.

A Kaizen Blitz is a focused, short-term project performed to improve a process. It is the application of Lean principles that are implemented by using a prescribed methodology in a concentrated area of the operation, conducted and concluded in an extremely short period of time. Appendix A contains a review and more information on Lean principles and Lean production.

Kaizen Blitz events are usually conducted over several days of intense activity. Events include a short burst of training in the basics of Lean, immediately followed by implementing improvements using the learned concepts. Kaizen activities take place in the work area—not in the office or a conference room. This allows waste (improvement opportunities) to be more readily identified and addressed and the effects of change to be seen immediately.

Kaizen leverages the creative and diverse talents of employees rather than depending on capital equipment, which costs money and takes time. The idea is to do something, now, that is “quick and dirty” rather than waiting for “perfect” someday. Employees are encouraged to **try something** even if they are not sure how well the change will turn out.

Because of the speed of these events, how well an idea works is revealed within minutes or at most a few hours, and “better ideas” can be tried out, thus yielding the improvements very quickly.

In addition, Kaizen represents a move to a changed culture. In a Kaizen culture, employees are not asked to work harder or faster but rather smarter and more effectively. The new culture results in an open-minded way of thinking, a “no fear” attitude about implementing change, and a zeal for eradicating waste in all forms.

In short, the primary characteristics of Kaizen Blitz Events are

- Improved methods of producing **immediate results**
- in a **concentrated area**
- using **“quick and dirty”** solutions
- making **changes at “lightning speed”**
- in a **participative culture**
- where it’s **OK to make mistakes**
- accompanied by **discomfort** (in a good way)
- resulting in radically **transformed processes** (for the better)

5 MANAGING A KAIZEN BLITZ

Managing a Kaizen Blitz is as straightforward as following these steps:

- **Commit to, and understand, Lean principles.** Research, train, and understand the concept of Lean and its importance to the competitiveness of your organization. It is the commitment to implementing Lean through a Kaizen Blitz that will make this effort successful. Appendix A reviews the basic Lean concepts.
- **Assess the business need for applying Kaizen.** The first step in managing a Kaizen Blitz event is to determine the high-level reasons for why the event is needed. Restated, “What are the drivers behind the decision?” Are you looking to improve space usage? improve productivity? reduce setup time? These critical decisions will drive the entire event.
- **Select the area of opportunity and what needs to be improved.** Address those areas that cause the greatest trouble. It is within these areas that you will realize the greatest gains. (For the initial event, consider selecting an area that has stable and easily documented processes, is good for demonstrating improvement, and is small and self-contained.)
- **Baseline the current state.** Gather as much baseline information about the area as possible: customer requirements, layouts or drawings, flow charts, procedures, etc. Collect existing performance data wherever possible.
- **Establish goals for the Kaizen Event.** Set aggressive, ambitious improvement goals for the Kaizen Blitz. Set the bar high.
- **Identify the Kaizen Blitz specialist and a team leader.** The Kaizen Blitz specialist is the one with the skills and knowledge necessary to guide your organization through a Kaizen Event. Use outside event experts and other resources as needed. The team leader is the one responsible for overseeing the team efforts during the Kaizen Blitz. Leaders from the area being Kaizenized usually make the best team leaders. Sample event schedules are included as Appendix B.
- **Identify and train a Kaizen Blitz team.** Select team members from a mixture of employees within the Kaizen area as well as non-related areas (e.g., sales, marketing, accounting, purchasing, etc.).
- **Arrange for event logistics support.** Address the logistic needs of the event: meeting room setup, audio/visual equipment, training material, video equipment/digital camera, etc.

- **Launch and conduct the event.**
A prescribed methodology and sample schedule is provided in Appendices A through C. A generally accepted timeframe for completion is 3 to 5 days. Sample, customizable forms are provided in Appendix C. Establish and track action items.
- **Support, measure, and follow up.**
Support the Kaizen Event with a visible management presence and interest. Visibly post event action items until they have been completed, and continue to monitor progress until all action items have been completed. Ensure that the team has selected at least one measure that management will use to gauge continued improvement.
- **Repeat.** Always remember that Kaizen is a *continuous* improvement process. Whether conducting events on new areas or revisiting old ones, the greatest success and benefits are realized when events are conducted repeatedly and with regularity.

6 SUMMARY

The Kaizen Event Blitz is one of several tools or resources identified with lean production. The outline and list of activities in this document represent a short but clear description of activities applied to a process ...any process.

This document and the associated case study demonstrate that a truly simple, straight forward approach involving those on the front “line” can result in measurable, compelling improvements, achieved quickly and with a minimum of up-front costs.

Achievement of the improved performances listed throughout this document is realistic. Realizing that improved performance is directly related to commitment, leadership, acceptance of change, implementation of change to a process, and finally, follow-up.

This document is more than a primer but less than all you need to successfully implement a Kaizen Event in your operation. In time, you can learn to perform these events yourselves, but initially you may want to consider the use of a specialist to conduct a Kaizen Blitz Event.

APPENDIX A: A REVIEW OF LEAN CONCEPTS

It was said earlier that Kaizen is the rapid application of Lean principles. At its essence, Lean is the total elimination of waste—waste being defined as, “anything the customer does not value or is not willing to pay for.”

Some Key Principles of Lean

1. Point of use manufacturing. “Supplier” is next to “customer.”
2. Pull system. Customers pull from suppliers rather than piling up inventory.
3. Continuous flow. The part or work is not put down until it is complete.
4. Produce to Takt time. Everyone produces to the same “time beat.” (***Takt time*** is the time required to produce a piece of product ordered by the customer that is calculated by dividing the total production time by the number of units ordered.)
5. Visual factory. A place for everything and everything in its place. No explanations required.
6. Total elimination of ***waste***. Getting rid of the “seven deadly forms of ***waste***.”

The Seven Deadly Forms of Waste are

1. Excess or early production
2. Delays
3. Movement or transportation
4. Poor process design
5. Inventory
6. Inefficient performance of a process
7. Defective product

APPENDIX B: SAMPLE KAIZEN EVENT SCHEDULE

While the ideal Kaizen Event is conducted over five days, it is not always feasible to commit the required resources for that time period. In recognition of this scenario, it is possible to compress the event into as few as three days. Below are two sample schedules – one for five days and one for a compressed three.

Kaizen Event – Five Days

Pre-Event

- Identify the process (processes) to be addressed.
- Record “current state” (performance data and pictures).
- Establish improvement goals and team.

Day 1

- Conduct training and orientation.
- Clean out the clutter.
- Map the current state.
- Identify the waste; prioritize improvement opportunities.

Day 2

- Begin workplace organization using visual factory (“5S”) principles. (The 5s’ are **S**orting, **S**traightening, **S**weeping (i.e., cleanliness), **S**tandardizing, and **S**elf-Discipline.)
- Design the “future state” (improved process with waste removed).
- Begin implementation of improved process.

Day 3

- Complete implementation of improved process.
- Identify measures to ensure gains are held.

Day 4

- Confirm improvements and results with data (performance, pictures, etc.).
- Record unfinished work; assign responsibilities to complete.
- Begin to prepare summary presentation.

Day 5

- Complete summary of results.
- Make team presentation to management.
- Receive feedback.

Kaizen Event – Three Days

Note: Shortened events should be applied to smaller targeted improvement areas.

Pre-Event

- Identify the process to be addressed (generally smaller area for a 3-day event).
- Record “current state” (performance data, pictures, preliminary process map).
- Establish improvement goals and team.
- Conduct training and orientation.
- Begin clearing away clutter and mapping of current state.

Day 1

- Complete/confirm “current state” process map.
- Identify the waste; prioritize improvement opportunities.
- Implement workplace organization using visual factory (“5S”) principles.
(The 5s’ are Sorting, Straightening, Sweeping (i.e., cleanliness), Standardizing, and Self-Discipline.)
- Design the “future state” (improved process with waste removed).
- Begin implementing improved process.

Day 2

- Complete implementation of improved process.
- Identify measures to ensure gains are held.
- Confirm improvements and results with data (performance, pictures, etc.).

Day 3

- Adjust process improvements, as needed.
- Re-confirm improvements and results.
- Record unfinished work; assign responsibilities to complete.
- Summarize and present results to management.
- Receive feedback and act upon it.

APPENDIX C: SAMPLE FORMS

Links to the following forms may be found within the digital version of this document at <http://www.newhorizonsfoundation.org/kaizen>. They may be freely modified for your use.

C1. Event Preparation Checklist

C2. Objective and Results Work Sheet

C3. Event Information

C4. 5S Work Sheet

C5. Layout Guidelines

C6. Standard Work Sheet

C7. Time Observations Work Sheet

C8. Follow Up Work Sheet