LEVERICH GROUP

Lean Construction Survey Report

Lean Construction is a timely and important topic. Adapting Lean practices learned in manufacturing to the construction industry can increase efficiency and eliminate waste, directly impacting the bottom line. And in today's economy, most companies need some help bolstering the bottom line.

Data for this report was gathered from construction companies in an online survey conducted in May 2010. This report includes the results of this survey, an overview and background on Lean practices, and a checklist you can use to assess your application of Lean principles.

Lean Construction Survey

Lean Knowledge

While Lean concepts have been around for some time, their application in construction is relatively new. Fifty-seven percent of respondents said they are not familiar with Lean Construction practices. Another 30 percent said they are familiar with Lean practices, while 13 percent have attended training or seminars on Lean Construction.

Waste and Inefficiencies

A key component of Lean is identifying waste or "muda," as it is known in Lean circles. Muda is defined as an activity that consumes resources but creates no value. Most companies have examined jobs and processes for waste. The current business climate has necessitated this action. However, only 24 percent of participants responded that they have thoroughly gone through their jobs and processes looking for waste and inefficiencies. Where will companies most likely find waste and inefficiencies? Here are the top responses from the survey:

Construction Waste and Inefficiencies

Probable Areas of Waste		
Areas of waste and inefficiency	**Number of Companies**	**Percentage**
Job Site	70	80 percent
Office processes including estimating and workflow	59	70 percent
Workforce processes (wage/benefit/hiring practices, utilization of workers)	58	69 percent
Warehouse/shop/equipment	36	42 percent
Have not conducted assessment	6	7 percent

Another part of efficiency is performing work accurately and according to specification. Seventy percent of survey participants indicated that they have less than 5 percent of work that requires re-dos. Another 30 percent estimated the amount was closer to 5 to 10 percent.

Job Control and On-Site Authority

Job site supervisors given the authority and the tools needed to effectively mange the job site are more efficient and productive. Following is a recap of the survey results concerning job site practices.

Construction Job Site Practices

Job Site Practices		
Job Site Practice	**Number of Companies**	**Percentage**
Supervisor has authority and ability to make decisions	48	58 percent
Estimator and project manager effectively collaborate	36	44 percent
Formal system in place to keep work moving	21	25 percent
All of the above	33	40 percent
None of the above	6	8 percent

Employees and Job Responsibilities

A secret to productivity is employing the right people with the right skill, performing the right jobs. When the survey asked what percentage of employees are in the right jobs, and are utilized to their potential, the top answer was "roughly 75 percent." Fifty percent of companies gave this answer. A third responded, "greater than 90 percent" are in the right job, and another 10 percent responded, "about 50 percent" are in the right job.

Action to Combat the Recession's Impact

Few remain unscathed from the fallout of the recession. What changes have owners and management made to put their companies in a better position? Reducing overhead expenses was the top response, followed by reducing manpower and increasing self-performed work. The results were as follows:

Recession Impact Practices

Recession Practices		
Practice	**Number of Companies**	**Percentage**
Reduced overhead expenses	70	84 percent
Reduced manpower	60	71 percent
Increased self-performed work	38	45 percent
Ensure change orders are presented	34	41 percent
Reduced wages and/or benefits	34	41 percent

Economy
When asked if the economy is better now than a year ago, 57 percent said "no." However, 33 percent said that the economy is "somewhat better," and the rest responded "not sure." Conversely, the survey found that 56 percent of companies are in a position to make a profit in today's economy, with 20 percent responding with a definite "no," and 24 percent "not sure."

Summary

Companies embracing Lean practices have been shown to complete projects early, under budget, with cost savings to owners, and greater communication and collaboration between stakeholders. Lean means eliminating waste in every aspect and making sure that every step and process creates value. Teams who incorporate Lean principles are motivated, productive and efficient. Unquestionably, you will want to incorporate Lean Construction ideas in your company to obtain superior performance and efficiency.

Overview of Lean Construction Princples

Lean Construction is an approach to managing production in a construction company. Its focus is on "value" to the end user, the owner or buyer. The Lean approach is the systematic removal of all steps and processes that add cost without contributing value.

There are five principles of Lean:

1. Specify value from the customer's point of view
2. Identify and align all processes that deliver value
3. Eliminate bottlenecks and disruption with even flow of work
4. Produce only what is wanted when wanted
5. Pursue perfection through continuous improvement

The Lean business movement has been successfully adopted in a wide range of industries and recently has become a significant movement in the construction industry. There are many reasons this business approach is attracting attention in the industry. By utilizing the five Lean principles, construction projects flow without wasted delays, the number of days from start to finish is reduced, wasted construction labor and material is eliminated, and punch-list items are reduced. All of this combined adds value to the contractor and owner.

There are familiar reasons why a construction job does not work as planned, including: waiting for decisions, revised plans needing approval, job site not planned and organized, material delivery delayed, various trades not on schedule, inspector not available, and parties guilty of delaying the decision process. Many of these issues are due to communication errors, but in the heat of the project they do not occur once, but continually happen, causing strained communication and adding days, costs and waste to each project.

Lean Construction includes elements of value management by aligning plans to satisfy the client's requirements. By focusing on the design with the owner, architect, engineer, and contractor, value can be added to the project at the onset. That said, does this project as designed allow for efficient construction processes? The focus is on adding the maximum value to the project and owner, eliminating all waste.

This process affords the contractor an opportunity to establish regular and meaningful communication during construction so delivery of the best designed project occurs. This includes openly addressing each party's needs and expectations, including meeting the project completion date, obtaining an improved design, achieving the highest results on budget, and allowing the contractor to function and deliver the best project at a fair investment.

The Lean business movement has many impactful tools that companies can use to continually focus on the elimination of waste. Some of these tools are: Value Stream Analysis, Five Whys (root-cause analysis), Last Planner (tool to improve workflow of a project), and others. The more a company utilizes these tools, the more owners find the value of Lean Construction.

In your business is to be profitable, you and your employees must embrace new and different business approaches. Lean Construction can be adopted and put into action to benefit your company immediately by simply eliminating the obvious wasteful steps of a project. With the first success and the belief that your business enterprise can achieve similar results of other successful contractors, you should be able to reduce direct and indirect costs, reduce the number of days a project takes to complete and deliver an improved project to the owner.

Charles Darwin said, "In the struggle for survival, the fittest win out at the expense of their rivals because they succeed in adapting themselves best to their environment." It is time to be adapting, and FAST!

Improving Construction Business Processes

Basic ways to increase a construction company's profit include: 1) increasing work volume, 2) decreasing company overhead or 3) increasing productivity. Studies have shown that 40% to 60% of the construction day is non-productive time. A third or more of this non-productive time can be attributed to ineffective management or processes:

- Waiting for resources
- Unnecessary breaks
- Re-do work
- Poor communication
- Late starts and early quits

Applying Lean principles to construction processes can help eliminate waste and inefficiency. Here are a series of questions to help you improve productivity and begin embracing Lean concepts to improve the effectiveness of your company operations:

1. Do you understand the dangers and inefficiencies inherent with the statement, "That's the way we've always done it"?

2. Do you understand the benefits associated with improved productivity and its impact on the bottom line?

3. Do you challenge your processes and procedures and look for ways to improve them, including asking the questions why, where, when, who and how?

4. Do you have accounting and measurement systems in place? Are they accurate and timely? Examples of measures could include daily production goals, number of units or square feet, or other appropriate measures for your industry.

5. Have you determined your optimum ratio of supervisory hours to worker hours, and the best crew size for each work task?

6. Do you use benchmarking as an element to improve your processes?
    a. Set a process goal or benchmark
    b. Measure performance
    c. Determine causes why performance is less than goal
    d. Implement procedures to eliminate or reduce causes
    e. Improve process based on what you learn

7. Do you plan the physical layout on the job site to accomplish the following:
    a. Eliminate the duplicate handling of materials
    b. Minimize travel distances – stored materials vs. point of use
    c. Minimize storage of materials
    d. Provide a uniform flow of materials and equipment
    e. Provide controls to eliminate material wastage, breakage, and theft
    f. Provide a safe work environment
    g. Provide a safe and non-disruptive access for visitors

8. Do you have a system that rewards and encourages workers to be self-motivated, efficient and pro-actively seek additional work when they run out?

9. Do you manage and plan overtime when it is necessary? Do you understand the true costs of increased compensation and a decline in productivity due to worker fatigue?

10. Do you communicate with all trades, subcontractors, and suppliers on the job to assure your direct responsibilities are covered, and the entire job is coordinated to produce the most value for the customer, the most efficiency, and the least waste?

11. Are you and your staff continually educating yourselves to improve your management skills, processes and efficiencies?

12. Do you take the time to brainstorm with others on how to improve systems, and how to implement those changes?

13. Do you instill in your construction supervisors the following skills and attributes:
    a. Technical competence; they know how to build
    b. They challenge and critique work as well as monitor it
    c. They focus on work production, cost, and risk
    d. They monitor equipment productivity and usage
    e. They are attentive to timely and accurate recordkeeping
    f. They treat individuals with respect and as equals
    g. They are willing to try new ideas
    h. They work as a team member
    i. They place as much emphasis on planning as on putting out fires
    j. They put a high priority on quality and safety
    k. They are not just a policeperson, they are analysts and challengers

14. Do all management and supervisors at your company know how much things cost in the big picture and how to use this information in decision making? For example:
    a. Equipment – acquisition, maintenance & repair, etc.
    b. Labor and labor burden costs
    c. Job support costs
    d. Key overhead items

15. Do you have a work environment where employees enjoy coming to work?
    a. Do work crews participate in and know the daily or weekly production goals?
    b. Do you promote positive and useful communication?
    c. Do you have a mentoring program?
    d. Do employees have a method to make recommendations to improve operations?

Getting Started on Lean Construction

The first step in applying Lean is to do a thorough walkthrough of your company jobs and processes. The goal is to focus on the steps that produce value for the customer while consuming the least amount of resources. Processes should flow seamlessly without any disruptions or bottlenecks.

WHY ADOPT LEAN PRINCIPLES IN YOUR CONSTRUCTION COMPANY?

Here are some of the benefits that can be achieved through application of Lean Construction principles:

- ✓ Superior performance and operational excellence
- ✓ Totally satisfied customers
- ✓ Projects completed ahead of schedule
- ✓ More profit going to the bottom line
- ✓ Efficient use of manpower, tools and equipment
- ✓ Empowered employee team
- ✓ Improved relationship with suppliers and vendors

Getting Help on Lean

We are investing in the principles of Lean. If you need help getting started, please select from the options below:

□ Send me updated findings on Lean Construction principles including reports, checklists or tools
□ Contact me to schedule a free consultation to help me get started
□ Send me a "muda" (waste) checklist

Contact: _____

Company: _____

Email Address: _____

Phone Number: _____

Send your request to information@leverich.com, fax (801) 364-1099 or call Joe Leverich or Steve Scoggan at (801) 364-4949.