

# Lean Six Sigma Optimizes Construction Industry Operations

Organizations face rising costs, changes in technology, and increasing competition every day. Lean Six Sigma optimizes your operations through continuous improvements that address operational waste and problems, improves quality, and grows your business.

Lean Six Sigma is a methodology that will increase financial margins and overall end-to-end performance by systematically removing waste and reducing variation. It combines Lean Methods and Six Sigma to eliminate the eight kinds of waste known as Muda.

Waste is defined by Mr. Fujio Cho of Toyota as "anything other than the minimum amount of equipment, materials, parts, space, and workers time, which are absolutely essential to add value to the product or service."

Proper application of the Lean Six Sigma methodology strategically aligns improvement efforts to reduce, and in most cases, eliminate Muda and root causes of the Cost of Poor Quality (COPQ) performance.

There are eight different types of waste that bleed financial resources and impede the optimal execution of meeting or exceeding customer needs and requirements. Each one of these waste needs to be identified, measured and tied to financial impact within the organization. Once leadership understands the financial impact of the eight waste they should be strategically aligned to Key Performance Indicators (KPI's) and measurable goals and targets. Improvement projects and resources are then assigned to tackle performance barriers, eliminate root causes, implement controls and sustain operational gains. This allows for overall waste & cost reduction, revenue generation, optimal operations, employee retention and customer loyalty.

## THE 8 WASTE = COST OF POOR QUALITY (COPQ)

### The 8 Wastes of LEAN

Identify these non-value-adding activities,  
Reduce or eliminate them to become  
more efficient



Waiting



Transportation



Motion



Defects



Over Production



Non-Utilized  
Talents



Inventory



Extra  
Processing

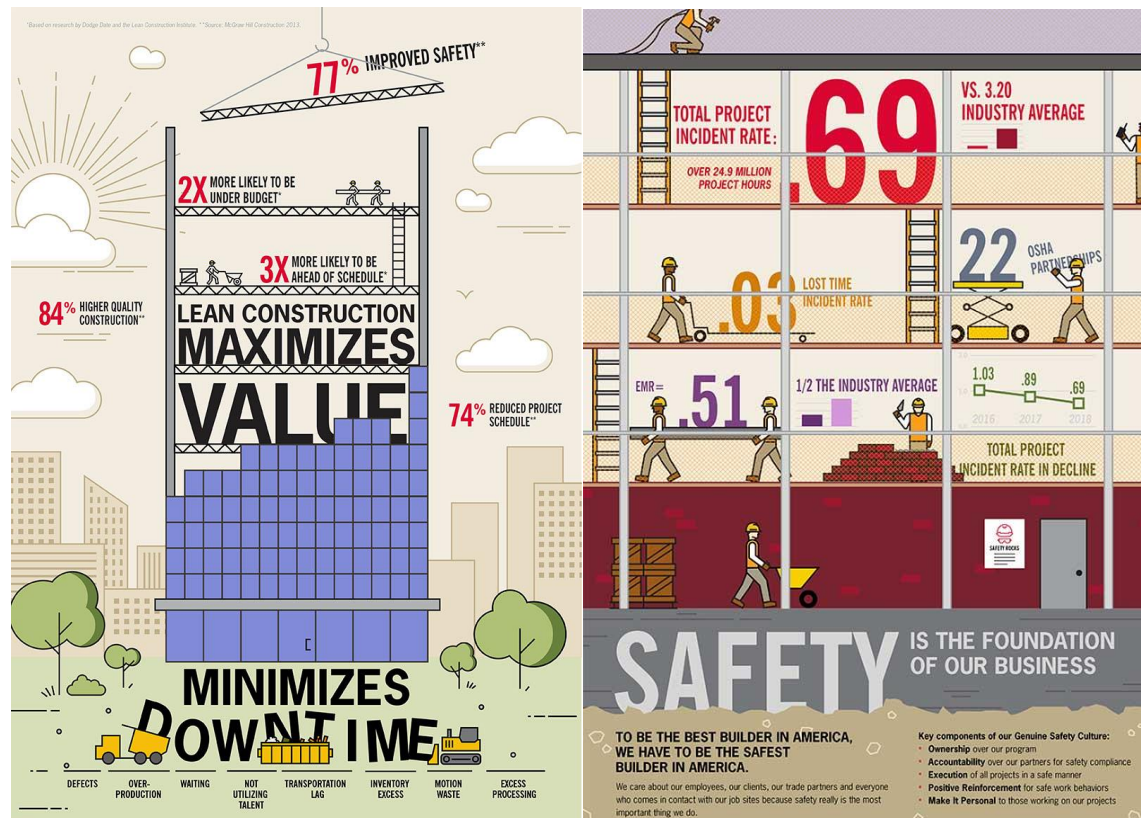
Wait time waste, is downtime spent waiting for information, product or sign-offs. Transportation waste, is work transferring across platforms or time spent moving the product to the recipient. Motion waste, is a result of inefficient placement of resources. Defects waste, is when information or certain pieces need to be reworked because they are not within first pass requirements. Overproduction waste, is an excess amount of product that is produced and stored. Non-utilized talent and skills waste, is failure to utilize the time and talents of your workforce. Inventory waste, is information and work stuck and not being processed, also WIP, raw material or finished goods holding. Extra-processing waste, is doing more than

is needed or required by your customer, and does not contribute to revenue generation. Lastly, we have operational safety issues that can shut down the entire operation if not addressed.

### Lean in the Construction Industry

The construction industry is evolving at a very rapid rate, and competition requires companies to constantly look for ways to improve operations. Project teams are facing new processes and cultural changes at an ever-increasing pace, all while projects become more complex, schedules more compressed, and trade personnel more stretched to meet the increasing labor demand.

Lean started in manufacturing and has been making inroads to the AEC industry over the past five years. The slow start was primarily due to the fact construction is not directly parallel to the manufacturing industry, where product and processes are very repetitive. However, certain key concepts of Lean Six Sigma have proven to translate well.



Construction Industry realizes financial gains and safety improvements when Lean is utilized.

Source: McCarthy Construction

The three significant cultural changes for the AEC industry have been Lean, Virtual Design & Construction (VDC), and Sustainability. When time and resources are stretched, something must give if we do not address the increasing demand for project teams to successfully integrate these three facets.

Lean Six Sigma is not simply a methodology and toolset, it is a way of thinking which becomes embedded into an organization's culture. A mindset before a skillset which allows for a legacy of continuous improvement to build upon. With Lean you are light, with Six Sigma you are structured, together you are optimized.

Jeff Gray

Lean Six Sigma Master Black Belt

SixSigmaTV.Net