Learning to See Waste

“THE MOST DANGEROUS KIND OF WASTE IS THE WASTE WE DO NOT RECOGNIZE.”

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1.0 Why

2.0 What

Waste Defined

References/ Sources

Lean Thinking Focuses on The Eight Wastes

Defects
Overproduction
Waiting
Not Utilising Employees (knowledge, skills, abilities)
Transportation
Inventory
Motion
Excess Processing
1.0 Why

Waste can be defined as any task that is not value added. Value added tasks are tasks that meet the following three criteria:

- The end customer cares about it.
- The task changes the shape or form of a product or service.
- You can do it right the first time.

Studies have shown that approximately 70% of the activities performed in the design and construction industry are non-value add or waste. If we can learn to see waste, we have the ability to dramatically affect this ratio.

Waste is an assessment about anything that interferes with our capacity to take care of what we want to take care of. Fix what bothers you!

2.0 What

Japanese Lesson

Muda: any activity that is waste or does not add value
Mura: Uneveness in operations
Muri: Overburdening of people or equipment

Seven major wastes were originally defined by Taiichi Ohno to describe waste in mass production. These originate from the manufacturing world but can be applied to any process. In the late 90s an eighth form of waste began to be formally recognized.

There are several acronyms to remember what these wastes are. One of the more common ones is TIMWOOD, or TIMWOOD(S). Another Acronym is DOWNTIME. The acronyms are not important, that is just a way to easily remember the categories. What is important is learning to recognize waste in processes. These terms will open your eyes to waste in any process.

Transportation

Unnecessary movement by people, equipment, or material from process to process. This can include administrative work as well as physical activities.

In Design/Construction this could include moving equipment or materials on a project site. It could also include complicated electronic file transfers of information during design and construction.
Inventory

Product quantities that go beyond supporting the immediate need. Inventory may include raw materials, work-in-progress, or finished goods.

Decisions can also become a waste of inventory. If we force or end users, owners, and team members to make decisions before the last responsible moment, we are creating inventory. As technology changes, material selections are discontinued, etc., we are quite possibly creating rework for the whole team as a result.

Motion

Unnecessary movement of people or equipment within a process.

A traditional RFI is a good example of this. A Request for Information is quite simply that, one customer on a project asking for clarification from another with a single process for getting that information. Because of protocol often associated with the RFI, it has to go through many steps to get to the customer that needs to answer the question. The simple request of an answer has unnecessary motion to solve it.

Waiting

Time when work-in-process is waiting for the next step in production.

Waiting cannot always be avoided, but we can plan for waiting. The team needs an understanding of decision times, inspection times, city/ state review times and can plan value added tasks during the wait times.
Over Processing

More processing than is needed to produce what the customer requires. Perhaps the hardest to detect and eliminate.

We need to constantly ask the questions about value to the end customer to understand this. Are we providing more than what our customer needs? Are we over detailing, over designing, or over thinking our work based on what the end customer wants and what other team members are providing?

Over Production

Making something before it is truly needed. This is particularly serious form of waste because it leads to other forms of waste.

During projects it might seem advantageous to work ahead of the group. If you have the staff and the time, why not push forward? Often times this is a mistake and may cost you more time. Imagine if you had a curtain wall trade contractor detail their portion of work before the exterior design was approved. The risk of rework usually is not worth it in the end.

Defects

Production that is scrap or requires rework.

Errors and Omissions, Construction errors, all fall into this category. We will not eliminate all errors, but we can coordinate to reduce them and communicate to minimize the impacts of any that occur.

Skills (if using TIMWOODS acronym)
Non-utilized Resources (If using DOWTIME acronym)

Neglecting to seek input from all sources and utilize talent and resources available.

This can be common on traditional projects because the experts at a subject are usually not in the meetings where problems are discussed. Change this by discussing project issues at their source and involve all relevant stakeholders.

Waste is disrespectful to people. All of the wastes described here interfere with the individual’s work environment. Waste consumes resources and workers’ skills. It is the enemy of good construction.