

Putting “Lean” Principles to Work

by Joe Stoddard

For the past few months we’ve been focusing on planning — but sooner or later you’re going to have to *build* something in order to earn that income you’re planning for. With that in mind, I’m going to talk this month about what you can do to make your entire operation — particularly your construction activities — run more efficiently and profitably. Companies like General Electric and Toyota follow a set of principles known as “lean manufacturing,” or just “lean.” You could earn a Ph.D. in lean manufacturing methods, but what you need to know to run a lean construction company is nowhere near that complicated. Lean is about doing more with less: fewer resources, lower direct costs, less overhead, and — especially — less waste.

Value vs. Waste

Broadly speaking, “value” is what consumers are willing to pay for the goods and services offered to them. In “lean” thinking you should consider value from the viewpoint of your customers first because customers are what keep your doors open. But value can also be measured from the standpoint of the business itself. Sponsoring a 5K race for a local charity doesn’t necessarily let you sell your jobs for more money, but it does make your company more visible, and that — from the standpoint of your business — is valuable.

Waste has special meaning in a lean operation: It’s the opposite of value, so if you’re not doing something valuable, you’re probably doing something wasteful, and waste is bad.

We started this series of columns talking about how to run an operation “by the numbers,” which means:

- planning what you want to have happen;
- documenting what actually happens day-to-day;
- measuring the difference; and then
- working for continuous improvement toward meeting your goals.

Continuous improvement requires a relentless search-and-destroy operation against what Japanese manufacturers like Toyota and Sony consider to be “the seven primary wastes.”

Don’t hire Tim Wood. My apology to any construc-

tion pro out there actually named “Tim Wood” — but the seven primary wastes that a lean operation seeks to eliminate are transportation, inventory, and motion (TIM); and waiting, overprocessing, overproduction, and defects (WOOD).

See if you recognize your own company as you read about these seven wasteful tendencies. If you do, think about ways to reduce those kinds of waste in 2011 and beyond.

Unnecessary Extra Transportation

One of the most common forms of unnecessary transportation is having to make dozens of trips to a supplier in little trucks because you were too disorganized to get everything you needed brought out to the site on one big truck. Unnecessary transportation burns more fuel, wears out more tires, and wastes more man-hours than you can shake a stick at. More trips create other wastes (waiting, defects) because materials are damaged or lost in transit and during loading and unloading. I remember a seminar where the speaker proved that a lumberyard run for a \$5 tube of caulk wound up being a \$500 loss. Unnecessary transportation can add thousands of dollars of unplanned overhead to your projects.

Excess Inventory

Lean manufacturing requires only the exact parts necessary for production of whatever it is you’re building — and nothing more.

Of course, all trades have a short list of products they need to buy ahead and keep in stock in order to have an efficient operation: air-gun nails, special sealants, framing straps and connectors — items that, if unavailable on short notice, would have to be bought, delaying the job.

Excess inventory is different from that. I’ve yet to visit a contractor who didn’t have a truss or two, an extra copper light fixture, or a box of special-order floor tile kicking around his shop. There’s never quite enough for an actual job, and there’s too much to throw out. Yet the dumpster is where these things will most likely wind up — after they’ve been moved 20 times (excess transportation), beat up (defects), and rendered nearly worthless.

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The cure for excess inventory begins during the takeoff and purchasing processes. Those are the times when you should buy only what you need. Materials should be checked in by your lead carpenter or superintendent at the job site, and any extra that is not going to be left for the homeowner should be returned immediately. Eat the restocking charge if you have to — it's cheaper than having a \$200 roof truss taking up \$1,000 of floor space in your shop.

Unnecessary Excess Motion

Examples of excess motion include moving or restacking piles of lumber because what you need is always on the bottom; constantly bending or reaching because the work is too high or low; trudging across a muddy lawn to make a cut instead of putting the saw station near the work; and incorrectly using machinery — moving 60 wimpy buckets of gravel with your backhoe, say, instead of 20 full buckets.

Unnecessary excess motion prematurely wears out both your workers and your equipment. It poses unnecessary safety risks to your tradespeople and causes unnecessary scratch and dent damage to building products. Stick builders should take a lesson from modern manufactured-housing facilities, where the work — including tools and equipment — is brought to the workers instead of the other way around. Make sure your staging areas are clearly marked and that first-on/last-off instructions are clear for your lumber deliveries. Take OSHA safety programs seriously (see “Creating a Safety Program,” 12/10) and don't let untrained workers operate heavy equipment.

Waiting

Go to any job site anywhere in the country and what are you most likely to see happening? Nothing.

Whether it's a house that was just dry-walled waiting for the painters, or a management team waiting for one last project

manager to call in for the weekly meeting, waiting costs you money. It also poisons your jobs by perpetuating a “No urgency — I don't care when it gets done” attitude.

As a sub or a worker, which job site would you rather show up on: one buzzing with activity, with the project manager there to answer your questions; or one that's been locked up for two weeks with nobody around to help you unload your tools and explain what needs to happen?

As the company owner, your goal should be to reduce all forms of waiting to as close to zero as possible. Make it part of your mission statement to work at a quick pace with almost no downtime. Continually improve your scheduling and communication by using web-based collaboration systems that everyone can log onto, to see where they need to be without being hounded. Put manpower requirements in your trade agreements and start/finish dates on your purchase orders so your subs know you're serious about finishing on time. Nobody else is going to take your schedule seriously if you don't.

Overprocessing

Look through any trade magazine and you'll see examples of well-meaning manufacturers producing gear you just know will be more trouble than it's worth. Computer-aided saws to cut studs. GPS-guided layout devices to lay out a simple deck. Complex integrated software systems when Microsoft Office and QuickBooks would do the job just fine.

The lean approach mandates that you use tools and techniques that are adequate — not oversized or overly complex — for the job at hand. The problem with overprocessing (extra cost aside) is that it requires greater expertise, more manpower, and additional shop and storage space — all forms of waste.

Overproduction

This is the mother of all wastes because it creates or hides all of the other excesses.

Overproduction generates entire inventories of *stuff*, which must be carefully stored and kept in like-new salable condition. One of the most obvious examples in our business is the spec new-home builder who has built too much standing inventory; but overproduction can also apply to vinyl-window extruders, mini-storage-barn makers, and someone trying to make a business with a molding machine or a CNC-guided cutter.

Another form of overproduction is “cherry-picking up” your projects to satisfy your own whims instead of what your market is willing to pay for. An example of this would be insisting on providing stained trim and millwork when everyone else is offering paint grade. Overproduction requires more tools and equipment, more buildings, more staff, more trucks and trailers, more sales literature — more, more, more, when lean is about less, less, less.

Defects

It should be obvious why defects are wasteful. Like the products of overproduction, they require more of everything to make them right — manpower, tools and equipment, engineering, windshield time, cell-phone minutes.

And we're not just talking about construction errors here: Failing to meet schedules and overshooting budgets are “defects” too. And these defects are wicked demotivators. I've never met a good tradesperson who was happy about tearing out his work, or a lead carpenter eager to have yet another meeting about the same thing. One hundred percent defect-free completion should be your mantra. Remember, though, that zero-defect projects don't start with an end-of-project punch list — they start on the first minute of the first day that anyone starts thinking about the job.

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