



# process perils & profit

By Scott Sedam, Contributing Editor



A decade ago when my colleagues and I began spending a great deal of our time implementing Lean principles in the home building industry, we frequently remarked, “For each dollar you find in product waste, you’ll find another dollar of waste in process.”

We were wrong. After more than 150 field implementations with builders of all types and sizes, we now know that there are at least two dollars of process waste for each dollar you find in product, and in our experience, the larger the builder, the greater the waste. This is not just due to the multiplier impact of volume. It comes with the need to create ever more complex processes to control higher volumes of production. If there is anything that breeds waste, it’s complexity.

The good news is that this translates to opportunity, something that many of this year’s Housing Giants understand. Process waste represents a deep pool of margin to recover in any year. In 2015 however, as described in my two previous articles in the March and April issues, recovering this loss is even more critical because steadily increasing costs, with limited sales price increases, mean that most builders will sell more homes but at a lower margin. And 2016 will be no easier. The bad news is that process waste is harder to understand, find, define, measure, and eliminate than product waste.

It makes sense to first pick the low-hanging fruit of product waste.

After all, the “hard costs” of labor and material are typically 50 percent of new-home sales prices, plus or minus 5 percent, and although most builders have worked hard in this realm since the downturn, we’re still amazed at what turns up in each Lean implementation.

## look to the underlying cause

The trick is understanding how much of the actual hard cost of each home, from initial project planning through warranty, is labor and material that is absolutely required. A certain amount of concrete, lumber, roofing, siding, and mechanical components, etc., with associated labor, must go into each home. Anything beyond these requirements is waste. Take the median-price U.S. home at \$300,000 and peg hard cost at \$150,000. Remove all the waste, and you spend how much? \$140K? \$125K? Lower? In last month’s article I detailed six buckets holding at least \$10K each in waste. The late author Stephen Covey called this “a world of abundance.”

To make this even more difficult, some of what is termed “hard material cost” is in fact caused by process failure. That Dumpster full of 3-foot cutoffs looks like product, but the cause is takeoff error—a process failure. That extra layer of backer you specify behind the showers that no one else in town uses is absolutely product waste, right? Yet the true cause is process failure from a faulty standard set years before. How about those oversize lam beams in your best-selling model? If it’s that big and heavy, it must go down as material waste—or does it? The source is over-engineering, or perhaps the architect who forgot the implications of bumping out the first floor family room wall, leaving a real challenge to support the second story. Time and again, an ounce of neglected

process produces a pound of wasted product and the labor that goes with it.

Like so many difficult problems, this gets messy in a hurry. My mind is flooded with hundreds of examples. In the Midwest, a large builder began excavation for his first home in a new 400-lot development after the first lift of the streets was in, only to discover that all the water laterals were located on just one side of the street. Easy to predict a huge bill for 200 of these homes to tunnel under existing streets and run pipes to the other side. Half a million in time and material added to final lot costs, plus a big load of management and admin time, and the root cause: process failure between builder and developer. The dollars spent on attorneys to sort that one out just added to the damage.

I recall a young purchasing manager who, in pursuit of a large bonus, brought in a couple of new, cheaper painters to replace the builder’s long-term trade relationship. That move made field superintendents as well as service and warranty staff miserable for the next six months with massive rework. The incentive system actually drove wasted product, labor, and lost schedule days totaling up to a huge negative multiplier of the phantom savings from a lower bid price. Of course, the builder failed to measure that and the purchasing manager got his nice bonus, another process loss.

Or take the design center manager who believed that to sell homes she had to let customers pick any hand-rail combination with associated brackets and rosettes from a catalog that would put a NAPA auto parts counter book to shame. That caused continual rework for the framer who had to return to bust holes and add blocks because he never knew where the rails would attach, not to mention three trips for the drywaller, two for the painter, and one more for the trim guy to reinstall.

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And how about a division president who rushed a new community to open four months earlier than originally planned, hoping to get another 20 sales in before year's end? He changed product twice after bid packages had gone out, causing substantial lost time, confusion, and errors for the suppliers and trades. As if that wasn't enough, he then had the second stories torn off several models after the roofs and mechanicals were in. No, he still didn't get it right, and the five extra sales he did get that year didn't make a dime while he turned the entire operation on its head. We can't even measure the cost to his people, but we know it was monumental, and we can trace it all back to a faulty process for a new community startup.

I'd like to say that these examples are rare, but in truth, they go on every day. They're not always so dramatic and expensive, but the small ones add up to big dollars. Missing details on plans and specifications may be clarified in a single phone call, but that phone call can cost \$8 or \$10 in lost time, plus the time it takes to reengage in whatever you were doing. That doesn't sound so bad, but what if there are 50 missing details on each plan—not an unusual number at all if you make an effort to count them. And what if half of those initiate a sort of construction conga line that goes something like this: The framing crew leader calls his boss about a truss that doesn't seem to line up right. Framing boss calls field superintendent. Field superintendent calls construction vice president. Construction vice president calls purchasing manager who walks it over to the estimator. After staring at a few screens, they both scratch their heads and walk it over to architecture.

Architecture calls the truss company. Truss guy, after 30 minutes of studying it, calls architecture back and together they figure out that the truss is actually not the one on the gable end of the roof, but the last one over the garage and is a half-foot different in pitch. They start the whole chain back again, eventually getting to the field superintendent who goes out to measure it with the framer. Ahhhh ... turns out that those two very close-but-no-cigar trusses weren't labelled when shipped out. Then the discussion starts about whether they should (a) get another truss because the other one had already been "made to work," or (b) rebuild this one in the field, launching another round of phone calls. Detail this out and you have a \$500 bill in a heartbeat. More process pain.

## become a master of process

This is where it gets expensive for the large production home builder. For a small local builder, most of those steps are concentrated in one or two people and the resolution comes quickly. The big builder, on the other hand, has—out of necessity—established division of labor into multiple departments, increasing complexity. We are

taught to appreciate these departmental efficiencies, yet we rarely consider the inevitable losses that go with them. Here's a rule for you: In the absence of carefully designed systems and process to prevent it, division of labor into departments always results in costly breakdowns in communication. Count on it.

Step one to curing these ills is to start looking at all of your costs in terms of process. All of them. If you want to truly be the best, the most profitable, with delighted customers, you have to become a master of process. Dr. W. Edwards Deming, the world's foremost quality and operations guru, was well-known for saying, "85 percent of the problems are the fault of management, not the workers." Although I first read that more than 30 years ago, I confess that it wasn't until I got deep into Lean implementation that I fully understood how or why this occurs. I hope you see it now as well.

The root is in process, and who is responsible for creating and maintaining processes in a home building, or any other, organization? Management. I suggest that you assemble your team and brainstorm all of the processes used to manage the business, then pick the top 10 or 12 that have the largest impact. Next, rate them in terms of how well your team performs on each, prioritize, pick two or three, and get to work making them better. Keep it tightly focused for starters because you'll find that the highest-impact processes involve nearly everyone in the company. Next month we will take a deeper dive into the list of processes you must develop to the highest level to become a genuine Process Master. These include:

1. **New community startup:** from land purchase through opening the first model
2. **Product design:** from conception through fully detailed working drawings
3. **Bid package:** including specifications, options, contracts, and scopes of work
4. **Sales fulfillment:** translating customer choices to 100 percent accurate input for start package
5. **Start package:** all the details of exactly what goes into each house
6. **Schedule:** accurate and predictable for suppliers, trades, and customers alike
7. **Supplier / trade management:** securing the top trades and best crews at a competitive price
8. **PO / VPO process:** accurate, efficient, responsive with minimal variance
9. **Field construction management:** including site management, material management, QA
10. **Homeowner management:** from first visit to model through warranty delivery

## economies of scale

Remember that lecture in Economics 101 about "economies of scale"? One of the hardest lessons learned in the modern era of countless mergers and acquisitions is that there are a couple of annoying laws that go with scale, including the law of diminishing returns and the fact that variation in processes increases with size exponentially, not arithmetically. Double from 100 units to 200 and complexity doesn't double, it increases by a factor of four or more due to compounded variation and the myriad interfaces between customers, communities, employees, suppliers, and trades while managing the tens of thousands of parts going into each house in a largely uncontrolled environment called "the great outdoors." The problem with process is that the bigger you get, the more challenging it is to manage the chaos, often outweighing your presumed economies of scale. Working harder won't fix it. The only solution is to work smarter.

I could continue with 100 pages of process waste examples. My articles over the years are littered with them. But consider just one more: How much of your management time—from site superintendent up through CEO—is actually spent on process waste? That is, if everything really went right from site planning to design to sales to purchasing to finance, accounting, admin, building, and customer care, what percentage is absolutely necessary versus what percentage is spent managing crises, reworking, and doing work you shouldn't even be doing in the first place? If you're confident that more than 50 percent of your time spent each day is truly critical to the process—at least the process as it should work—then congratulations! You're operating at the 99th percentile. Or you have joined the vast majority who are kidding themselves.

There are two kinds of builders that make the most money: Deal Makers and Process Masters. The problem with the former is that you're eternally dependent on luck, skills, or moxie to convince the other guy to sell for less than he really should. The Process Master, however, can thrive in any market—even with deals that don't quite work as planned. I estimate that those two split about equally less than 10 percent of the home building business. Of course, you can muddle along as one of the 90 percent who build average homes generating a middling profit doing what they've always done. But if neither that nor relying on the next kick-ass deal gives you a warm feeling about the future, come back next month for a deeper look into the mastery of process. **PB**

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