



## LEANBUILDING<sup>1</sup>

### LEAN PROCESSES SUITABLE FOR THE HOMEBUILDING INDUSTRY

#### TRUENORTH DEVELOPMENT, INC.

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There are three common questions about Lean, and the answers shed light on why Lean is not yet the norm in homebuilding. At the risk of oversimplifying, we've stripped these questions down to the basics.

#### **Question 1: What is *Lean*?**

*Lean* gets rid of anything the customer will not knowingly and willingly pay for. If you can't get rid of it, reduce it. It's fundamentally logical: if a customer doesn't value it, and you don't need it, don't pay to provide it.

#### **Question 2: Why is Lean not widely practiced in homebuilding (yet)?**

Life was too good. Most of today's managers learned their craft during a long period of high demand, almost unlimited resources, and sustained profitability. When things are sweet, there is no incentive to change.

#### **Question 3: Why is Lean gaining favor now?**

Most builders adopting Lean practices are already good, solid, capable companies, yet find an average of \$8,400/house in avoidable waste. Less capable builders afraid of change try to eke out added savings by trying harder at what they've always done, getting the results they've always gotten. That's not been enough in most markets. If you are a good, solid capable builder, every house you build today likely represents \$8,400 forever lost.

Lean reduces waste and cost without dumbing down the house, without making it harder to sell, and without harming the suppliers and trades upon whom builders depend. Lean strengthens the bonds among builders, suppliers, and trades. When done correctly, Lean makes everyone more profitable.

There is no single decision – or combination of decisions – that improves profitability as much as deciding to get Lean. Lean is so sensible and effective that TrueNorth guarantees a multiple-return on all Lean processes. As proof, consider this: TrueNorth has run over 100 Lean events, and 93% of our Lean clients are still in business.

#### ABOUT TRUENORTH

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Former Pulte Homes Executive Scott Sedam, columnist and featured speaker at industry and company events, founded TrueNorth Development in 1997. Today TrueNorth has five building industry professionals with extensive field consulting, facilitating and presenting experience. Our catalogue of over 30 structured improvement processes and courses designed specifically for the building industry has helped building clients receive more industry awards than any other consulting firm in the industry, most recently the 2010 and 2011 Builder of the Year, Jagoe Homes and DSLD Homes.

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<sup>1</sup> LeanBuilding™, LeanBlitz™, LeanPlan™, LeanWeek™, LeanDesign Charrette™, LeanFilter™, LeanBuilder™, LeanTeam™, LeanCompany™, LeanBelt™, LeanLaunch™, LeanPath™, LeanPartner™ and House-with-Tape Logo are Trademarks of TrueNorth Development, Inc.





TrueNorth's LeanBuilding Blitz, launched in January 2007 with the homebuilding crash in full swing, met with unprecedented success across the U.S., Canada, Australia and Mexico. By marrying the collective knowledge of a builder's suppliers and trades to Lean principles, and defining it all in everyday builder language and examples, we've since expanded the LeanBuilding portfolio with several additional Lean strategies as described in the following pages. One is surely right for you.

All TrueNorth Lean processes identify 6-8 figure savings. Because every implementation exceeds expectations, we now guarantee a multiple return on your investment, making it in TrueNorth's best interest that you succeed wildly. Happily, that is exactly what happens.

The Lean processes described in the following pages are our basic offerings, but we also respond to customer requests for Lean-based feasibility studies, new community start-up, custom-design capability, one day workshops, and combinations of Lean processes. If we don't have a process that works for your particular need, we'll craft one specifically for you.

## GETTING STARTED

Every builder thinks their work is different, unique, personally crafted, specially fitted, often customized, and constantly adjusted. Even so, every builder benefits from LeanBuilding. The biggest hurdle lies in getting started: overcoming management's legitimate fear of complexity and unknown time commitments. Ironically, Lean frees up time as well as cash.

Well-conceived Lean need be neither complex nor time consuming, and TrueNorth conceived LeanBuilding specifically to benefit builders, suppliers, and trades. Builders are action-oriented, they always drive to solution; therefore we built the LeanBlitz to show results in just five days. The process, in any form, has yet to fail, and resulting builder requests have led to five Lean packages:

- **LeanBuilding Blitz**. The LeanBlitz is the fundamental application of Lean to everyday homebuilding, the best starting point for most builders. We focus on product and process waste with the input of those closest to the actual work – your suppliers and trade contractors.
- **LeanPlan Workout**. Workout focuses on opportunities rooted in existing plan issues to improve plans before they are built, thus avoiding layer upon layer of corrective actions which are repeated – with varying degrees of accuracy and effectiveness – every time a plan is built.
- **LeanWeek**. In certain instances, we combine the best of the LeanBlitz with the best of LeanPlan Workout. Ask us if it makes sense for you.
- **LeanDesign Charrette**: Update your portfolio with new plans and elevations based on what is learned in LeanPlan Workout for plans that are highly marketable AND less expensive to build.
- **LeanCompany**. This shortened version of the LeanBlitz focuses on a builder's internal departments, practices and procedures rather than on external suppliers and trades.
- **LeanSupplier**. Lean builders who encourage their not-so-lean suppliers to examine themselves gain valuable Lean suppliers and trades that save the builder time and money.
- **LeanPartner**. Internalize coordinated Lean thinking among builder, supplier, and trade personnel in a competitive joint process classroom and field discovery.

If you don't see what you need, ask us and we'll work something out for you, too.





## LEANBUILDING BLITZ™

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Three things you need to know about the LeanBuilding Blitz right up front:

1. It's a no-lose proposition. Identify great waste in products and processes – a multiple of our fee – or don't pay us. We guarantee this in writing. Usually about half the value of accepted ideas can be realized in less than 30-60 days. The rest is achievable, but can take a little longer.
2. You set the criteria. Your own people define the value of an idea, how attainable it is, and whether you want to pursue it. TrueNorth sets parameters, but it's your staff and your suppliers and trades talking about your work and your processes.
3. The investment is small. A 12-20% deposit reserves dates. The same amount is due at the end of BlitzWeek (at which point you have about 140 waste-reducing ideas in hand). The remainder is payable thereafter. This means the savings *from* the Blitz are used to pay *for* the Blitz.

The LeanBlitz uses 8-12 of your key personnel from construction, purchasing, estimating, sales, warranty, design, A/P, and field operations. Over five days, this *LeanTeam* focuses on ideas brought forward by 23 of your most progressive and important suppliers and trades. The LeanTeam evaluates those supplier and trade ideas, decides which ones to pursue, then establishes a plan for harvesting the savings. This happens in three parts:

- **Orientation** for your employee and supplier/trade participants is a half-day session scheduled 10-20 days before the BlitzWeek. We illustrate Lean concepts with homebuilding examples, and your suppliers & trades leave with a list of questions to explore where avoidable waste occurs in your specific operations.
- **BlitzWeek** is a rigorous five days with two TrueNorth facilitators as suppliers and trades share their thoughts with your LeanTeam, a cross functional group of builder leaders, in one-hour dedicated appointments. In this highly structured process, the LeanTeam hears an average of 140+ ideas over 23 hours, all captured in detailed notes, flipcharts and spreadsheets. Your LeanTeam then reviews, evaluates, debates and rates every idea for potential cost savings, ease of implementation, and feasibility, then decides if any need to be rejected out of hand (some are always rejected). When the week is over, project champions are assigned to surviving ideas and all documentation is turned over to you.
- **Follow Up.** One TrueNorth facilitator returns at 30, 60 and 90 day intervals to assist with follow through, and to establish a Supplier/Trade Council of 9-12 key suppliers/trades and 3 builder representatives. Charged with aggressively pursuing ideas identified in the LeanBlitz, the Council meets once a month, their meetings coordinated with LeanTeam sessions so everyone stays focused, synchronized, and aware of progress and obstacles.

### Summary:

LeanBuilding Blitz consists of

- an orientation for 23 suppliers and trades and all builder personnel
- a 5-day BlitzWeek with two facilitators
- three follow up days at 30, 60, and 90 days





## LEANPLAN WORKOUT™

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Roughly half of all ideas surfaced during a LeanBlitz can be traced to difficulty with the plans: missing dimensions, confusing or conflicting information, too much or too little option detail, location conflicts (e.g. drain vs. joist), complex structures, errors, uncorrected redlines, reversed plan omissions, etc. Resolving these before construction saves return trips, repairs, schedule delays, rework, scrap, excess material usage... and may improve HVAC performance enough to reduce load specifications.

In most cases, lessons learned on your more frequently built plans carry over to other plans in your portfolio. While some issues are tied too closely to the basic structure to be remedied, a surprising number can be worked out. LeanPlan Workout always pays for itself.

There are two parts to LeanPlan Workout.

- **Orientation.** The half-day Orientation, held 10-20 days prior to Workout Week, involves 17 plan-driven suppliers and trades using 765 specific, trade-appropriate questions derived from LeanBlitzes conducted across North America. The builder provides each participating supplier/trade current blueprints for four popular models, and the trades then use a special process for identifying design-induced waste. The TrueNorth Facilitator and award winning Architect Todd Hallett walk several in-process homes immediately prior to the orientation.
- **Workout Week.** The builder LeanTeam, a small group of construction, design/sales, and purchasing/estimating personnel, meets with individual suppliers and trades over the course of 22 hours. Facilitated by TrueNorth and the Architect, we explore improvements and changes that reduce material cost, construction time, return trips, rework, warranty service, on-the-job adjustments, or otherwise ease the construction process. This is followed by a day scrubbing ideas for value and practicality as done in the LeanBlitz while the Architect consolidates all the comments onto clean red-lines coded to a comprehensive list of plan and engineering recommendations. All ideas are fully documented, noting the change, why it is beneficial, its relative priority, and prioritized for action tracking.

Eliminating design-induced waste reduces construction cost and improves quality with no value loss to the homeowner. Suppliers & trades eagerly join in the process because it makes their lives easier and their labor more profitable while reducing total cost to you.

LeanPlan workout does not require or suggest a change in Architect. Any Architect and/or engineer, internal or external, can proceed from the clean red-lines we provide, and they will thereafter have a template from which to improve other existing and future plans.

### Summary:

LeanPlan Workout consists of

- a 1-day Orientation
- a 4-day Workout Week

If engaged during or shortly following a LeanBuilding Blitz, the Lead TrueNorth Facilitator already familiar with your product, processes, suppliers, and trades remains attached to your project and the price is discounted.





## LEANWEEK™

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In 2011, challenged by a smaller-volume builder to combine the LeanBlitz with LeanPlan Workout, TrueNorth launched a blend of the two to address plan, product and process issues in a time and cost effective way. The combination, named LeanWeek, proved as successful as its predecessors. One builder CFO who believed they'd worked their plans and processes as tightly as possible, wrote:

*"What a pleasure it was working with your team. As you were aware, I was a bit (okay, so maybe a lot) skeptical about the 'true' savings we would get. We had convinced ourselves that we had scrubbed our plans on our own and were already building 'lean'. But you said you would prove yourselves and you did just that! I have to say I was completely surprised by the outcome. All trade partners that went through the LeanWeek came with great ideas and recommendations to not only improve processes, but reduce construction cost. And I can easily say that 90% of the recommendations were true savings, not just 'soft cost' savings. There are literally thousands of dollars wasted on each home. We were greatly educated and expect to continue thinking 'lean'."*

LeanWeek emphasizes plan analysis for immediate hard cost savings, adds LeanBuilding Blitz elements to capture additional product and process savings, and does it all in five days.

After all suppliers & trades have presented their improvement suggestions, your LeanTeam determines dollar savings potential and degree of implementation difficulty. There will be many cases where the team identifies hard cost reductions in exact dollars with little or no obstacles to implementation. In other cases, we rely on reasonable good faith estimates for improvements needing further study, or where implementation depends on cooperation among inspectors or other trades.

To cement the outcome, TrueNorth launches a Supplier/Trade Council of 9-12 key suppliers and trades and three builder representatives. The TrueNorth facilitator returns to lead half-day Council meetings at 30, 60, and 90 days after the LeanWeek, coordinated with same-day executive lunch briefings and Builder LeanTeam progress sessions so everyone stays focused, synchronized, and aware of progress and obstacles. Suppliers and trades take over their own leadership after three Council meetings and the process continues without further TrueNorth on-site participation, unless requested otherwise.

### Summary:

LeanPlan Workout consists of

- a 1-day Orientation
- a 4-day Workout Week
- three follow up days at 30, 60, and 90 days





## LEANDESIGN CHARRETTE™

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Our industry conceives of a floor plan and creates variations and elevations before considering material fit. As a result, multiple challenges are designed in. Framers over-build without adding structural strength; rooms don't consider drywall or floor covering stock sizes and lead to scrap in one room and joining-seams in another. Foundation corners, anchor bolt placement, joist location, lam-beam usage, stair size, window size and location, floor plan details, mechanical chase locations, cabinet placement, roof plane intersections, and roof penetrations all create on-the-fly adjustments by trades.

Compensating for plan shortcomings fuels waste in excess material purchases, delivery, labor, scrap removal, backhaul for partial credit, rework, warranty and admin. It is highly expensive, yet so common there is a phrase for it: "That's just the way homebuilding is." But that's not the way it has to be.

LeanDesign Charrette, an option with LeanPlan Workout and facilitated by award winning Architect (and former 200-unit production builder) Todd Hallett, considers construction methods and material fit during the design process so waste is designed *out* of a house, not designed *in*. Plans and elevations created through the LeanDesign Charrette are appealing to homebuyers and more profitable to build.

- **The Pre-Charrette Startup Package** establishes design preferences and parameters around envelopes, style, square footages, price target, etc. The startup package gathers sufficient information to assemble preliminary design concepts for review and comment on the last day of LeanPlan Workout.
- **Design Walkaround.** In the *Dots and Qs* process, sales and production staff comment on the Architect's preliminary design concepts and an assortment of photos and drawings pulled from your own product offerings, those of your competitors, and others which may have features that meet your design parameters. Participants mark features and elements of numerous designs, calling out likes and dislikes
- **Follow Up** occurs about 21 days following LeanPlan Workout Week. The Architect returns to discuss three proposed floor plans, all meeting the builder's needs as necessary for the market, and all 'readily buildable' based on the in-depth learnings from the builder's suppliers and trades in the LeanPlan Workout. They meet your criteria, are highly marketable, and affordable to build.

### Summary:

LeanDesign Charrette consists of

- a pre-Charrette survey
- *Dots and Qs* process with a design Advisory Team of the builder's choosing
- One-half day follow up to present the three designs with three elevations each.





## LEANCOMPANY™

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Builders put suppliers and trades through a great deal with POs, VPOs, scopes, takeoffs, estimates, requests for bids and rebids, specifications changes, options, plan variation, elevations and options combinations, selection sheets, inspections, quality walks, schedule changes and continual plan changes. Taken together, such builder-originated issues are the second leading cause of waste. LeanCompany is designed for builder back-office practices and procedures to drive out waste without increasing quality problems or losing financial leverage and controls.

Similar to the LeanBlitz, this 4-day process focuses not on external suppliers and trades but rather on the builder's internal departments.

- **Orientation** and Waste Identification is a one-day event held 1-2 weeks before the BlitzWeek. The morning session orientation instructs everyone on how the process works, while the afternoon consists of concurrent breakout sessions held by department or function (e.g. Accounting, Sales, Marketing, Construction, Purchasing & Estimating, Design, Land, etc.) The day concludes with final instructions to prepare for idea presentation to the LeanTeam.
- **LeanWeek** is a short three days held about 1-2 weeks after orientation. On the first and second day, each department presents ideas for eliminating or reducing wasteful practices in a one-hour appointment with the LeanTeam. As in the LeanBlitz, the LeanTeam sits in review of each department's proposals, asking questions to further develop ideas and gauge impact on company. The last two hours of the each day and the first few hours of day three are used by the LeanTeam to evaluate each idea according to the matrix used in the LeanBlitz. The remainder of day three is used to present to management, prioritize actions, assign champions for implementation, and practice effective Action Planning to ensure follow through, including establishing goals, dates & milestones.

### Summary:

LeanCompany consists of

- Orientation and Waste Identification Day
- a 3-day Week

If engaged during or immediately following a LeanBuilding Blitz or LeanPlan Workout, the Lead TrueNorth Facilitator already familiar with your product, processes, Suppliers, and Trades remains attached to your project and the price is discounted.





## LEANSUPPLIER™

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Suppliers and trade contractors have cut back to meet the builder cost reduction demands, and most feel there is nothing left to give. LeanSupplier, however, uses the same principles as the LeanBuilding Blitz to focus on the internal practices of suppliers and trades to uncover waste which, when eliminated or reduced, can further reduce the price you pay for their services. Because the margin they need to survive remains intact, suppliers and trades universally embrace this process.

As with all TrueNorth Lean processes, we translate Lean's "textbook" language into everyday builder language to enable those who do the work to see where waste costs time, money, errors, defects, and dissatisfaction. Like the other Lean processes, LeanSupplier process *always* identifies waste of staggering proportions, and like other Lean processes, it has three basic steps:

- 1. Facility/Field Walk & Orientation.** To understand the supplier or trade contractor's unique environment and processes, the TrueNorth Facilitator joins one of the operational leaders for a half-day field walk of facilities and work area before leading a half-day Orientation. We assign limited but important pre-work to the contributors, some of whom are employees, some upstream suppliers, and some builder customers. We detail the LeanTeam's critical role and provide step-by-step instructions to pull the best ideas from the contributors, organizing those ideas in a format everyone can understand. The Field Walk and Orientation occur 10-20 days prior to BlitzWeek.
- 2. LeanSupplier Week Presentations.** Each contributor has a 1-hour individual appointment with the LeanTeam to present ideas. All ideas are captured on flip charts and are evaluated for merit in a LeanTeam-only scrub session.
- 3. Analysis by LeanTeam.** During the third day of the BlitzWeek, the LeanTeam evaluates each idea for merit, possible savings, ease of implementation, feasibility, and prioritizing ideas for action. The process wraps up with a training session on effective use of the TrueNorth Action Planner.

LeanSupplier uses one TrueNorth Facilitator; the supplier provides someone to act as the LeanTeam's official "Recorder" and a laptop computer. This person is present for the entire the process and uses TrueNorth-supplied *Word* and *Excel* forms to record discussions and decisions as those conversations occur. The Recorder works with the TrueNorth Facilitator prior to the BlitzWeek to become familiar with the forms and processes used. While the recorder's job is not difficult, it is critically important. TrueNorth can fill the Recorder role upon request and at additional charge, but it adds facilitation fees and travel expense.

### Summary:

LeanSupplier consists of

- an Orientation and Field Walk
- remote training for the Recorder
- a 3-day LeanSupplier Week

If engaged during or immediately following a LeanBuilding Blitz or LeanPlan Workout, the Lead TrueNorth Facilitator already familiar with your product, processes, Suppliers, and Trades remains attached to LeanSupplier and the price is discounted.







## LEANPARTNER™

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LeanPartner jointly develops operations management and process improvement skills among builder, supplier and trade personnel to produce sustainable results and deeper, more productive working relationships. Our experience uses an intense hands-on focus on current building issues to teach skill sets, then practicing those skills on real plans to improve current products and processes. Not only do people learn, there is measureable margin improvement for the builder, supplier and trade alike.

- **½ Day Intro Module.** The TrueNorth Facilitator walks the client's product, then conducts a ½-day real-world introduction to Lean for all employees at all levels, even if not participating in the 2-Day Application Workshop (see below). All supplier/trade personnel, both office & field, are encouraged to participate in this engaging take on Lean operating process and methods covering every participant role.
- **2 Day Application Workshop.** Four small teams are formed, each with two builder construction or purchasing personnel and four to five leaders from key suppliers or trade contractors (owners, managers, foremen, crew leaders, lead men, etc.) For facilitation and learning purposes, each 2-day Application Workshop is limited to 28 participants, all of whom must have attended the ½-day Intro Module.

Over the course of two days, each group learns basic Lean tools to ferret out waste in product, process and plans. They first apply the tools to a detailed, TrueNorth homebuilding case study seeded with errors, problems and opportunities in a friendly hands-on competition. As the teams compete, they learn from one another on a "safe" plan without the obscuring fog of current opinions, biases, or ownership. Teams then receive specific builder plans currently under construction. Staying in their separate teams, they analyze the plans, walk the houses under construction, then apply their newly learned tools to wring out waste affecting all participants.

- **1 Day Scrub.** The final day of LeanPartner is only with the 8 builder personnel as they scrub the data, estimate financial impacts, and determine the degree of difficulty of each idea in a process similar to the LeanBuilding Blitz. The outcome is a detailed spreadsheet with everything prioritized to track implementation.

Teams do not redesign plans, although they may suggest modifications to an elevation or a floor plan that they believe add value and/or reduce cost. During LeanPartner, participants jointly develop critical Lean Operations skills; the plan and process improvements they discover along the way can immediately begin and more than fund the workshop.

The outcome is four thoroughly scrutinized builder plans/models with participants sharing a common understanding of how waste affects them all. We've designed the process to ensure suppliers, trades, and builder participants all see savings, making it in everyone's interest to pursue improvement.

### Summary:

LeanSupplier consists of

- a Field Walk and ½ day Orientation module
- a 3-day LeanPartner Week

