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# P M

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Grunau Company's Lean Construction Program

**LEAN** The Grunau Way



The Japanese call it *Kaizen*. It means, literally, “to take apart and put back together in a better way.” It is an approach to productivity that breaks with tradition of “command and control” of wasted time and material. It instead stands on principles of “learn by doing.” It includes brainstorming ideas from the field, and asking the question, “Why do we do things this way?”

Grunau Comany (Milwaukee-based and No. 54 on *PMs* 2005 Pipe Trades Giants list) has embraced *Kaizen*, or lean construction, and — in a very zen-like way — believes that increased productivity is not reached by finding answers to those questions, but by asking the questions in the first place.

In 2003, Grunau, like many construction companies since the latter part of the last century, was looking for ways to improve efficiency and offer better value to its customers. It began to ask those important questions about how it did business, and looked for a solution. Around the same time, **Ted Angelo**, Grunau’s executive vice president, attended an association seminar where the topic was lean construction. He had never heard the term before.

The speakers were stressing a tool called “The Last Planner,” which is a scheduling program that assists the efficiency of on-the-job installation. It specializes in Just In Time delivery, work standardization, eliminating waste, and a look-ahead schedule process.

Angelo saw right away this was something that could be useful to the 500 employees at Grunau, and he pre-



The “grocery store” shelves in Grunau’s tool room allow workers to grab the tools they need quickly and efficiently.

sented a vision to company President **Paul Grunau**. After getting a warm reception and go-ahead, Angelo then went back to school. He attended the Milwaukee School of Engineering Business Excellence Consortium (BEC) to complete a lean certification program. He followed up by reading several books on the subject and attending sessions by the Lean Construction Institute.

*PM* recently covered the 5S process in our February 2003 issue, in which one company, Kinetics Southwest, embraced a waste elimination program and reaped the benefits of a tighter, more efficient shop.

But Grunau has looked further into lean. This company came to the realization that their lean program

would be more than just one principle. Lean construction for Grunau was 5S, but it was also Last Planner on the jobsite; it was value-stream mapping in its Service Group; it was the problem-solving process and error-proofing in its warehousing. It is this commitment to all of these principles — to tailor the process to the tasks at hand — that has created a culture change in the organization and made its story worth showcasing.

**Helping Hand:** Realizing a project of this scope needed an expert’s evaluation, Grunau hired an outside consultant on lean construction. Engineer **Larry Rubrich**, of WCM Associates’ BEC partner for lean training and implementation, brought with him a tremendous amount of experience,

Photos courtesy of Allan Klehr

# LEAN

## The Grunau Way



(Left) Ted Angelo, Grunau's executive vice president, and Paul Grunau, president.

***Lean construction helps contractors streamline the way they do business.***

by Katie Rotella



The Hardware Box (top) and bins are stocked automatically by Grunau's vendor. Hardware boxes serve all trades on a jobsite, and are an organized way to carry a minimum/maximum of miscellaneous items.

but from the manufacturing segment. "After the assessment, Larry said, "Well, I have good news and bad news," Angelo recalls. "The bad news is, no one else is doing what you're proposing to do with lean. The good news is, you're gonna write the book."

But the magnitude of what they were going to accomplish didn't phase Grunau. The company had allowed itself a broad timetable, one that carried on well into 2008.

Lean is not a quick fix, insists Angelo; it is a slow process that needs monitoring and nurturing. And, even though it is a process that is mandated from the top of an organization, it really is championed from the bottom. If employees can take it to heart, it really can take off.

Grunau hired Rubrich to train all of its employees. That was the key, Angelo says. And yes, they agonized over the cost involved with training everyone in half-day training sessions. Due to the nature of construction, workloads vary and scheduling can get tricky. But Grunau squelched rumors and grumbling right away by impressing on its team that lean was important for the company, not just a flavor-of-the-month by management.

Getting everyone involved — not singling out certain divisions, positions or tasks — and scheduling training for all helped everyone have at least a basic understanding of the lean principles.

Then, with Rubrich's direction, Grunau asked, "Where can we get the biggest bang for the very first event?"

The Grunau tool room was a prime target, and the company's first 5S event was held in September 2003.

5S consists of five steps, which originated in Japanese manufacturing. An American version was adopted by companies like Boeing, Honeywell and General Motors.

- Sorting — separate out the needed from the unneeded.
- Simplifying — put things in their place.
- Sweeping — keep things clean and organized.
- Standardizing — create a consistent way to do things.
- Self-Discipline — make a commitment and keep it.

At Grunau, a team was assembled for five days in its Milwaukee tool building to revolutionize the way Grunau manages, stocks and stores its daily use of tools. The first thing the team discussed was how many steps — physical, footsteps — it took to complete a task.

"When you think about the lean process you break it down in terms of steps," explains Angelo. "We counted the number of steps in the tool room, and we've reduced that by 50 percent. In that area, there was a savings of about \$40,000 in the utilization of the tools."

For a more organized appearance, Grunau patterned its tool room after a grocery store: storeroom in the back, shelves in the front. After tools return from the jobsite, they're brought to the storeroom and refurbished (charged, cleaned, repaired,

replaced, etc.). Then they go back on the shelf, so as tool orders are called in, they can be pulled off the shelf as opposed to digging and finding something that works.

Expendables, such as welding tips, brushes, solder, first-aid equipment, hole saws, etc., are all on a *kanban* system (another Japanese word, which means "signal"). A partnership with one of Grunau's vendors allows the tool room shelves and jobsite hardware boxes to be restocked automatically. The hardware box is used by Grunau to serve all of its trades on a jobsite. It is an organized way to carry all the miscellaneous items.

"With this vendor partnership, we can maintain a minimum/maximum. We have eliminated the task of three individual foremen being concerned with minor hardware items such as nuts, bolts, washers and hangers," says Angelo. "That has been a tremendous asset for project organization and production."

All of these ideas came out of that first 5S event, and most came from the guys themselves.

"Once [the employees] understand we're not trying to badger them into something that we feel is a good idea as management, they're more open to sharing ideas," says Angelo.

And the open communication continues to this day. The Grunau tool room as it stands in 2005 is just as clean and organized as it was two years ago. Large-print labels and bright (full) bins fill the shelves. No debris litters the floor, which has helped with those



## Weight Loss Challenge Eliminates Excess Pounds

Grunau is no stranger to eliminating waste and excess. And eliminating excess pounds on its employees is just as important to streamlining nuts and bolts bins.

The company's Healthy Living Committee organized a "Biggest Losers Weight Loss Challenge" in January this year. It was a new initiative to promote healthy lifestyles and employee involvement. Participants on four teams (a total of 25 people) lost more than 270 lbs. collectively.

Weigh-ins were held every four weeks. Contestants used varying methods of weight loss: changing diet, increasing exercise, watching portion sizes, and cutting out snacks. The teams consisted of Grunau employees from different divisions of the company of varying levels of responsibility and seniority. It increased camaraderie of the organization, but also promoted healthy competition to succeed.

Team "Been There, Done Fat" was named Grunau's "2005 Biggest Losers." They dropped the largest percentage of weight in three months: 5.9 percent, or 81 lbs., which averages 11.5 lbs. per person over four months. Biggest single "Loser" was **Eric Bobinski** with a total weight loss of 28 lbs.

Other team names were "Weight and See," "The Fat Pack," and "Six Pack."

All contestants received T-shirts proclaiming them "2005 Biggest Losers." The winning team was announced during a lunch ceremony and received a cash prize.

Grunau hopes that its focus on health and well-being will benefit employees and the company.

"We want our employees and their families to learn from these programs and understand the benefits of a healthy lifestyle," said **Paul Grunau**, company president and CEO.

minor trips, slips and falls that plague many storerooms. Equipment used most often is placed close at hand, while seldom-used items are found further up or packed neatly away.

Everywhere one looks there is a reminder to "think lean": posters, signage, dry-erase boards and charts. There's even a creative scrapbook-like presentation of a recent 5S event on the wall, complete with photos and captions of the days' events. All of these morale boosters prompt the "Self-Discipline" part of 5S, which is usually the hardest to maintain.

**Jobsite Lean Thinking:** After the tool room success, Grunau was committed to finding a way to differentiate itself from everyone else in the field as a mechanical contractor. On its projects, Grunau now uses the Last Planner approach to productivity and a look-ahead schedule process for upcoming weeks.

"The biggest challenge we wanted to confront on the jobsite was to ask, 'What are the constraints? What is it going to cost us to stop what we've started?'" Angelo believes the constant work variation and stoppage during a project is what prompts many nay-sayers to lean construction. Material handling, change orders, even the weather can contribute to a work variance.

"I often hear, 'I can't control what the GC does. This approach won't work,'" Angelo says. "Fine. In our studies, 50

percent of the time we can't control what happens on the job due to the GC, owner and others. But the other 50 percent we do control. We want to concentrate on the 50 percent we can control."

For example, Grunau foremen may not be able to control a change in design by the architect, but Angelo encouraged the team to have a more organized approach to a given task, eliminating the waste of looking for a particular tool or material.

"In material handling, if you define it as being within 10 ft. of the actual installation, 42 percent of your time is spent moving things," says Angelo. "We can add much greater value to our clients by eliminating that kind of waste. The longer you have something on the job, the more likely you're going to move it."

Sometimes material arrives too early to a jobsite. This can lead to mass amounts of wasted time and manpower simply moving it around. Grunau likes to put as much of its materials on wheels as it can. From its prefab shop, piping and fixtures can be assembled, then mounted to wheeled carts and shipped to the jobsite. Once positioned and installed, the wheeled apparatus is brought back empty to the yard where the process starts over again for the next project.

For pipe handling, Grunau has constructed triangular-shaped wheeled carts. Now workers are able to organize

cut pipe for a project and package and load the complete cart onto a truck. Once on site, it easily can be wheeled around. They're referred to as "tree carts" because the shape resembles a Christmas tree.

Grunau also uses Just-In-Time delivery for its fabrication process in order to keep materials moving without staying on the job for lengthy amounts of time.

"We begin fabrication and, depending on the jobsite, assemble, ship and install materials in less than five working days," says Angelo. "We were averaging eight to 10 days. Eliminating this type of waste is a primary principle of lean."

As a result of all this time and effort savings, Grunau employees think higher of their organization, says Angelo, but the biggest savings come later on in the way people begin to think about their individual jobs.

"It begins to change the culture of the company. It's amazing how things spill over," he says. "One employee did a 5S event on his camper with his wife."

**Shake Things Up:** Grunau has expanded its lean model to the office as well, not only in file organization and the physical layout of desks and supplies, but for the bidding and the estimating process, too. Business letters and documentation now are streamlined and unified in appearance and the way they're written.

"We're constantly asking, 'Why?' Why do we do things the way they've always been done?" The Grunau program looks at individual steps and the process to understand where improvements can be made. Value-stream mapping creates a visual for each worker. This flow diagram or chart maps how time is spent. Tools such as this are instrumental in the company's Service Group. Items become color coded and strategically filed for accessibility as well as usability.

The biggest overall obstacle to implementing lean construction at Grunau was making the employees understand this was not just some trendy business-speak. "This was a commitment to the way we want to do business. It's a way to keep us competitive in our industry," says Angelo.

He also thinks that many companies suffer from what he calls "construction insanity." That's where a com-

pany realizes there's room for improvement, but does the same thing over and over again expecting different results. Change is hard, Angelo admits, but you can break a process down into digestible parts.

"For instance, look at some of the jobs you repeat at each jobsite or project, and work on those first. Ask, 'Why do we do these tasks? What is the best way?' and go from there.

"If you find you're making the same mistakes in service, material handling, ordering or jobsite productivity, look at your procedures. Eliminate the mistakes by not putting blame on an individual, but by refining the process."

Other "warning signs" that your company could benefit from lean thinking:

- Can't find tools and materials when they're needed.
- No influx of new ideas.

• Too many opportunities slip through the cracks.

• Feel that times are changing around you.

Being the champion of lean thinking at Grunau has changed what Ted Angelo does for the company since he began 27 years ago. He now devotes his time to the initiative and the duties they demand. But he's been proud to see his teams breaking out on their own with ideas.

Lean construction is not taught in apprenticeship or trade schools, but people are beginning to see the merits, Angelo says.

"Committing to lean has generated a lot of conversation among the Grunau team," concludes Angelo, "and also a lot of commonsense ideas. There is now the feeling that management is concerned about these ideas, and that they're encouraged to continue to contribute." *PM*



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