

LEAN CONSTRUCTION

SSOE added relevant suggestions to internal checklists, but the collaboration's most significant benefits promise to unfurl as the lean journey continues. "Lean principles," says Gregg Howell, PE, co-founder and past president of the Lean Construction Institute, "emphasize understanding the problems foremen and trades experience. A new perspective on a situation allows for practical problem solving that can eliminate roadblocks and inefficiencies and ultimately save money and time."

As SSOE steadily adopts lean principles—work optimization through collaboration, continual improvement at all levels, delivering value desired by the owner or client, and allowing value to flow by eliminating obstacles and bottlenecks—clients will see increasingly productive work crews, maximized safety, minimized waste, and reduced overall cost.

Examples of SSOE's early successes with lean initiatives for the high-tech industry are shown in the table. These strides into lean construction offer a glimpse of promising advances in capturing and capitalizing on long-standing opportunities for savings across the board.

SSOE LEAN INITIATIVE	PROJECT BENEFIT
Co-located design and trade teams to cooperatively construct virtual designs	Highly integrated project delivery, reduced rework, reduced costs
Implemented pull planning concepts to create a network of internal commitments for the project team	Proactive planning, leveraged collective experience, clear sequence of work, reduced rework and waste
Created BIM libraries with actual components, such as piping components, from client specifications	Eliminated time-consuming handoffs and duplication of work between designers and detailers, identified clashes early on to save rework later
Fostered ongoing collaborative relationships with select trades, breaking down traditional silos between design and construction	Improved communication, enhanced design, reduced field rework and costs, continuous improvement
Standardized select components such as valves, gas sticks and exhaust dampers to determine configurations, specifications, and quantities early in process	Reduced component costs by 5% due to volume pricing power

"For maximum value, we need to see beyond traditional stratified roles and recognize that both engineers and contractors bring valuable experience to the design/build process. When we change our mindset, we'll begin to build momentum with lean practices over time."

—Mark D. Wilson, PE, SSOE AT-SBU Division Manager

BIMBO BAKERIES AND SSOE CELEBRATE LEED® CERTIFIED FACILITY

Bimbo Bakeries USA, the nation's largest baking company, has a history of "firsts" and SSOE is proud to have played a key role in its most recent. The company's new bakery and distribution center in Rockwall, Texas, is its first facility to earn LEED Silver certification. The project was a design-build endeavor, with SSOE Group and Turner Construction partnering on design and construction. SSOE provided architectural design, mechanical, electrical, plumbing, data, security, and fire protection engineering services for the 280,000 SF facility. Sustainable features were incorporated into various aspects of the production process including the selection of construction materials and the design of energy systems and landscaping features. In addition to being eco-friendly, the building was designed and constructed for optimal operating efficiency.

SSOE's portfolio of LEED certified projects represents more than \$1 billion of investment. In addition to this project, SSOE is also responsible for the first LEED Platinum automotive manufacturing plant in the world, the first Platinum industrial campus in the U.S., the largest Platinum project in the U.S., and the first Gold LEED certified central utility plant in the U.S.

SSOE GROUP OPENS OFFICE IN LEÓN, MEXICO

We're celebrating the launch of operations in Mexico with the opening of our first office in León, Guanajuato. This brings to eight the number of countries in which we have operations and extends the benefits of having a local office to clients planning projects in Mexico. In the last three years, SSOE has added nine offices in new geographic markets through both acquisition and organic expansion.

We are very excited to have Erick Kuri Gallardo at the helm in the new location. He brings vast in-country experience as a manager and engineer and 12 years of project experience with nearly every automotive plant in Mexico. Kuri has led more than 300 projects for major automotive manufacturers such as Ford, GM, Chrysler, Toyota, and Nissan in dozens of cities throughout the region.

Vince DiPofi, PE, Senior Vice President over SSOE Operations in the Americas, explained, "In the past, our job ended when the project ended. With our local office in Mexico, we are able to extend our relationships with our clients as they enhance and expand their plant operations over time. In addition, having local resources and knowledge of the Mexican construction market will enable us to execute projects faster and more cost effectively—a real win for our clients."



this just in...

THE NEWS & NEWSMAKERS

LEAN CONSTRUCTION

Small changes yield significant rewards

Across industries, companies seeking to maximize productivity and enhance process efficiency while delivering high-quality goods and services are increasingly turning to lean practices to improve the bottom line. Intelligent application of lean principles yields innovations and approaches that invigorate a business from within, causing a ripple effect of new thinking throughout the organization.

Making the shift from traditional management approaches to lean approaches is a bit of a journey, however. It takes time to make the requisite cultural shift to lean ways of thinking. Fortunately, lean philosophy informs small changes that can pave the way to significant rewards.

By way of example, SSOE recently partnered with New England High Purity (NEHP) to design and fabricate subfab lateral racks for a high-tech client. Analysis of lean principles led to the decision to assemble the racks in a shop setting rather than on-site, which had been standard practice. Honing in on this one change was a winning proposition. Shop assembly translated to higher productivity, less material and labor waste, safer on-site conditions, and \$22 million in documented savings for the client.

At face value, lean philosophy seems to be a straightforward application of good common sense. In reality, the paradox at the heart of lean explains why "going lean" is such a challenge. To think lean, you must both step back for a bird's eye view of your processes and simultaneously step into another's shoes for true understanding of how the processes work. (See sidebar, "The Tidhar Experiment: Walking in Another's Shoes.")

In this spirit, SSOE hosted a gathering of trade contractors in late 2013 to discuss ways to improve collaboration with A/E firms and make design packages more useful. A few suggestions that came out of that meeting:

- Provide contractors with a list of design personnel, their function, and contact information
- Indicate which way floor boxes open
- Provide fewer choices in design packages—list just a part or spec number
- Ensure that locations of wall- or workstation-mounted devices (LSS, wall cuts, floor cuts) are consistent throughout packages
- Identify LSS points on design packages

The Tidhar Experiment: Walking in Another's Shoes

When Tidhar, a leading construction contractor in Israel, began their journey into lean construction, executives participated in a six-day boot camp across three weeks. In the second week, the executives spent two days working as tradesmen as "an extra pair of hands." Workers were asked to teach managers basic skills required for their job and to supervise them during work. Managers were allowed to make notes at breaks but on-the-spot suggestions for improvement were prohibited.

In the weeks following boot camp, managers worked with their crews to initiate relatively modest process improvement plans, which netted noteworthy results: \$20,000 saved per year in wire used to hold stone cladding, 120 man-hours saved by delivering pallets to the correct floor, and 4,500 man-hours saved per year by developing a simple method to locate outlet boxes under plaster.

Source: "Learning to See – Managers Working in the Gemba as Part of the Tidhar Way Training Program," paper by Cheni Kerem et al.

SSOE making clients successful by saving them time, trouble, and money

Nonfiction fans, check out our newest release:

- Chapter 1—The Rewards of Lean Construction
- Chapter 2—Article Summaries Reveal Hot Topics
- Chapter 3—Update on Mexico Operations
- Chapter 4—Bimbo Bakeries Earns LEED Silver
- Chapter 5—People in the Spotlight

www.ssoe.com/Winter2014

- | | |
|----------------|--------------------|
| Albany, NY | Nashville, TN |
| Alliance, OH | Omaha, NE |
| Beijing, China | Penang, Malaysia |
| Birmingham, AL | Portland, OR |
| Chandler, AZ | Raleigh-Durham, NC |
| Cincinnati, OH | Rio Rancho, NM |
| Columbus, OH | St. Paul, MN |
| Huntsville, AL | Santa Clara, CA |
| Irvine, CA | Sao Paulo, Brazil |
| Kalamazoo, MI | Shanghai, China |
| León, Mexico | Singapore |
| Lima, OH | Toledo, OH |
| Midland, MI | Toronto, Canada |
| Mumbai, India | Troy, MI |
| | Washington, DC |



SSOE IN THE NEWS

(Read the full articles at www.ssoe.com/winter2014)



JULIAN QUIST, PE, Mechanical Engineer at SSOE, is featured in a recent *Plant Engineering* magazine article. In **"Top 10 Recommendations for Successful Design and Construction in Large Operating Facilities,"** Quist discusses the unique challenges that arise when undertaking large-scale projects in existing, functioning spaces due to the multiple stakeholders involved in the process. Experienced design and construction firms follow best practices for handling this situation. The article provides ten valuable tips that can help you evaluate how effectively you and your A/E suppliers approach complex design projects.



Senior Electrical Engineer **COREY ZACHEL**'s, PE, LEED AP BD+C, article **"Generators and Transfer Switches—Emergency Power Solutions,"** was featured in both *Consulting-Specifying Engineer* and *Plant Engineering* magazines. Zachel examines generators as emergency power solutions including how to select the appropriate generator for your facility. He explains how to perform a load study, address code compliance, determine a fuel source, and ensure safety during installation.



CRAIG PICKEREL, AIA, LEED AP, EDAC, shares his perspectives in **"Room For All: Trends in Bariatric Healthcare Design,"** a recent *Healthcare Design* magazine article. Bariatric design for healthcare facilities has been evolving over the past five years and new statistics indicating rising obesity rates in the U.S. have further enhanced a need to incorporate these design considerations. The article discusses the trend of taking a holistic viewpoint of bariatric healthcare design—including the patient's continuum of care and the entire design of the healthcare facility.



General Manager of Asian Operations **ANDREW KWOK** is featured in *GlobalAutoIndustry.com*'s eJournals—*ASIAtalk* and *CHINAtalk*. In **"Three Insights into How EPCM Can Save Time and Money in China,"** Kwok discusses the value an EPCM firm brings to a foreign company when working with local code boards, bureaus, and agencies; reviewing subcontractor proposals; and assisting with bid packaging. The article provides three keys to success with examples of how each resulted in successful project implementation.



TOM FITZPATRICK, PE, CEA, recently authored **"What Now—Complying with Major- and Area-Source Boiler Rules"** for *HPAC Engineering*. The article begins with an excellent summary of the recently issued standards governing the emission of Hazardous Air Pollutants (HAP) from industrial, commercial, and institutional boilers. Fitzpatrick then sets forth four "big picture" issues that can potentially impact the development of a compliance strategy and follows with descriptions of the various solutions being implemented. The article includes a point-by-point list of what tasks need to be included in tune-ups and energy assessments, including valuable insights on energy conservation measures. He concludes by providing the key things to consider before deciding to convert coal-fired boilers to natural gas.

Power Department Manager Tom Fitzpatrick presented a case study titled, **"Combined Heat & Power Installation Using Microturbine Technology,"** at the Ohio Energy Management Conference, February 18–19.

Started in 2008, SSOE's "Know-vember" is a series of Lunch & Learns for employees that runs through November and December. It's one way SSOE is making good on its commitment to ongoing learning and information sharing. Since some of the smartest people we know are our colleagues, it makes sense to create an opportunity to tap into that knowledge. The topics are designed to increase efficiency, effectiveness, innovation, creativity, and technical competence—all with the ultimate goal of saving our clients time, trouble, and money.

2013's Know-vember topics included:

- The Rotation Program Experience: Memoir of a Traveling Engineer
- Virtual Design & Construction: Taking us to the Next Level
- An Update on the Cross Discipline Coordination Initiative
- Workplace Safety
- Can You or Will You IAP? Interactive Planning (IAP) to improve the results of your project outcome
- Crecimiento de Nuestro Negocio en Mexico (Growing our Business in Mexico)
- An Introduction to the PM/PC Model and Interactive Cost Control
- 2013 Employee Survey Results
- VDC Steel – Virtual design technology that seamlessly integrates steel design, fabrication, and erection delivering exceptional quality with reduced cost and a faster construction schedule



CELEBRATING NATIONAL ENGINEERS WEEK

This year's event took place February 17–21 and focused on how engineers impact our world and bring engineering to life for students and educators. SSOE sponsored Engineers Week activities in our Nashville, Portland, and Toledo offices. In Toledo,

SSOE hosted its annual **"Engineer for a Day"** program. Approximately 40 students interacted with a team of engineers as a way of learning about the engineering profession, its various disciplines, and what it takes to become an engineer and, potentially, part of SSOE's team.

SSOE PEOPLE

(Read the full articles at www.ssoe.com/winter2014)

1ST QUARTER PROFESSIONAL LICENSURE AND CERTIFICATIONS

- **Ryan Waters**, PE – Chemical Engineer, Portland, OR
- **James Wiseman**, PE – Civil Engineer, Nashville, TN
- **David Woods**, PE – Electrical Engineer, Nashville, TN
- **Justin Fields**, PE – Structural Engineer, Nashville, TN
- **Michell Miller**, PE – Structural Engineer, Nashville, TN
- **Brett Macht**, RA – Architect, Nashville, TN
- **Paula Berman**, CMQ/OE – Quality Manager, Portland, OR
- **Anthony Paupert**, Revit Certified Professional – BIM/CAD Technical Specialist, Troy, MI
- **Zach Platsis**, PMP – Energy Consultant, Toledo, OH

AWARDS AND RECOGNITION

2013 FOUNDER'S AWARD RECIPIENTS

SSOE selected a group of individuals representing two project teams to receive the 2013 Founder's Awards. Their outstanding accomplishment, resulting in significant potential savings for clients, exemplifies SSOE's mission: to save clients time, trouble, and money. The teams employed innovative approaches on two projects: the State of Tennessee's Memphis Regional Megasite and a program of projects for U.S. Smokeless Tobacco Co.

The State of Tennessee's Memphis Regional Megasite project team includes **Kelly Bowser**, Designer; **Emily Rickard**, Senior Designer; and **Jimmy Wiseman**, Civil Engineer.

SSOE provided conceptual planning and construction documents for utility service to the 3,800 acre tract of land. This included the entire water and wastewater infrastructure for a site located 15 miles from the closest water and wastewater treatment facilities.

U.S. Smokeless Tobacco Co. Strategic Planning and Production Layout Standards project team includes **Jeff Caldwell**, Program Manager; **Dominic Ruczko**, CMIT, PCM Operations – Project / Construction Management;

Mike Spencer, PE, Senior Process Engineer; **Brian Tobey**, PMP, Project Director; and **Mark Symington**, Senior Project Manager. SSOE successfully completed a program of projects for the client whose goal was to increase manufacturing capacity. The project team implemented many process and plant layout improvements that not only contributed significant projected savings, but also tremendously enhanced overall product quality.

Initiated in 2008, the Founder's Award recognizes exemplary execution of SSOE's core principles—innovation through quality improvements and value-added solutions, great client service, and diversification.

2013 LEADERSHIP AWARD RECIPIENTS

New this year, the Leadership Awards recognize and reward individuals and/or teams who have displayed superior client service or exceptional leadership. The fourteen individuals who received Leadership Awards in December are: **Mark LaBell**, **Adam Calkins**, **Kathleen Coon**, **Greg Haberek**, **Steve Halstead**, **Brian Kleman**, **Aimee Lawrence**, **Joseph LeBlanc**, **Jim Lewis**, **Kirk Marchetto**, **Mike Musgrave**, **Tom Peterson**, **Brad Rowe**, and **Brian Seibenick**.

NEW HIRES

Chris Thomas joins SSOE as Lead Estimator in our Toledo, Ohio, office.

Erick Kuri joins SSOE as Business Leader for our Mexico office. Erick will be integral to building our business in Mexico in the coming years. Read the cover story for more about SSOE's Mexico operations.

