

BUSINESS IN CHINA: perspectives

SSOE recently hired Robert Benedetti as its new Business Director for China and Asia Operations. He has 20 years of experience in business development for companies in the technology and built environment sectors. A graduate of the Ohio State University, Rob is Chairman of AmCham-Shanghai's Design and Construction Committee. His active involvement in the Chinese business and construction markets gives him a strong grasp of the issues and challenges American companies face when they set up operations around the globe.

What common challenges do companies face when locating operations in China?

Companies often find themselves frustrated about the conflicting or confusing information provided by an array of government officials they are required to engage when launching or expanding their enterprise. Among the sources for their frustration are business-licensing requirements, land-contract agreements, availability of utilities, planning bureau approvals and permitting processes, and, last but not least, identifying and selecting design and construction partners they can trust. Fortunately, the SSOE China team has a great deal of expertise and experience with these tripping points and can provide guidance to China investors.



What is ahead for manufacturing in China?

The growing consensus among experts in China is that profitable foreign-invested companies here realize it's time to stop viewing China simply as a source of cheap labor and low-cost production.

Surveys show that a growing number of businesses are considering access to the local Chinese consumer market as a reason for locating, or expanding operations in China. As a corollary to that, fewer companies are exclusively focusing on low-cost labor and materials as central to their primary China business model. In fact, experts believe there is growing uncertainty among foreign-invested manufacturers that China will be able to maintain its advantage as a purely low-cost manufacturing resource.

While foreign companies need to remain vigilant in protecting their intellectual property in China, they are starting to gain confidence about implementing next-generation production techniques here. This includes equipment (using the same high-end technology used in their domestic facilities), their process (a focus on productivity enhancement), and their workforce (employing increasingly skilled and empowered workers). Given SSOE's long-standing experience in industrial process environments and our understanding of how to overcome implementation challenges in China, we are a valuable resource for clients wanting to enhance their productivity and profitability in China, and throughout Asia.

How is the economic crisis impacting Western firms in China?

While the economic crisis is impacting both exports from China as well as domestic sales, most foreign-invested manufacturers are optimistic about the long-term success of their operations in China. Many companies are using the current economic crisis—which has reduced exports in China—as an opportunity to redirect efforts to the long-term strategy of serving China's domestic market.

This shift in focus includes companies that originally came to China to export lower cost goods back to their home country. Today some are moving beyond their original target of the premium Chinese consumer market and extending their reach to mid-to-high end markets, and increasingly tailoring products for Chinese consumers.

What's ahead for SSOE's China operations?

We see our highest priority as expanding our geographical coverage to the northeastern region in the very near future due to rapid development and investment by foreign companies. We also have longer term plans to set up offices to cover southern and midwestern regions in China.

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newsworthy: SSOE has appeared in the news quite a bit lately. Here are a few of the places you can find us. Visit www.ssoe.com/news for links to these articles.

ENR

In her article, "Modeling Pathfinders Impatient to Have a Much Fuller Digital Toolbox" Nadine Post discusses some of the challenges of BIM and highlights how SSOE's size has helped it overcome some of these challenges.

Food Engineering Magazine

This article highlights Pearl City Food Port, an SSOE-designed project in India that enables food manufacturers to gain faster, easier access to the Asian consumer market.

Food Manufacturing Magazine

In this recent article, "Conducting Excellent Energy Audits," SSOE Senior Project Manager Dan Messinger discusses strategies for saving costs and conserving water and energy that apply across multiple industries.

PE Magazine

In this piece, SSOE Senior Vice-President, Vince DiPofi, PE, explores the politically charged issues surrounding biofuels and how these issues impact the professional engineer's call to adhere to the principles of sustainable development.

Primavera Magazine

This article, "Adding Value to Design," highlights SSOE's use of Primavera P6 to add value to our clients' projects. It draws on interviews with SSOE's Alan Lynch, PE, PMP, Senior Project Manager, and Rick Fox, CAPM, Assistant Project Manager.

Progressive Engineer

This article profiles SSOE's recent growth, hiring outlook, and use of technology based on an interview with SSOE Senior Vice President Dave Sipes, PE.

NBC affiliate WNWO

In his Green Report, reporter Michael Schlesinger highlights SSOE's efforts in alternative energy. SSOE's Jerry Carter, Business Leader of Sustainable and Renewable Solutions; Tim Bolbach, PE, Master Engineer; and Glen Blohm, CFM, Facility Manager are interviewed.

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Dimensions

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SSOE NEWS, HAPPENINGS, PROJECTS, AND PEOPLE — MAKING A DIFFERENCE EVERY DAY.

thank you, Mr. Samborn.



Al Samborn (right) with Jack Steketee (left).

Thousands felt his influence.

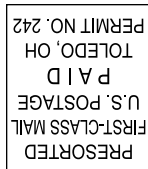
With the passing of our founder, Alfred (Al) Samborn, we're losing the kind of individual many of us want to be—someone whose actions benefit thousands. During his 36-year tenure as CEO, he saw his vision of creating a world-class engineering and architecture firm materialize. Then he was on to his second successful engineering career as a professor.

Al earned a civil engineering degree from The University of Toledo in 1939 and completed graduate study at Case School of Applied Science in Cleveland. He started his career as a structural engineer for a Detroit firm in 1941. During WW II, he enlisted in the military and was part of the V7 Program as an apprentice seaman, advancing to the rank of lieutenant in the Civil Engineering Corps (Seabees) of the United States Naval Reserve.

Al's skills as an entrepreneur guided the firm to its current ranking as the eighth largest E/A firm in the country. He recognized the growth potential in adding architecture to the firm's growing list of services. In the late 50's, he and his then partner Jack Steketee invited architects Erwin Otis and John Evans to join the firm's leadership team. This set the stage for the debut of Samborn, Steketee, Otis and Evans, Engineers and Architects, later SSOE. Al was also the driving force behind his firm's early application of computers to engineering design and authored many technical papers and articles.

His contributions to the engineering profession far exceeded growing a prestigious international company. In 1984, after turning over the reins of management to the generation of leaders he helped nurture, he became a professor of civil engineering at the University of Toledo. For over a decade he was both teacher and mentor to aspiring engineers. He believed in the value of real work experience, so he helped develop a cooperative program in which students alternate between semesters of academic courses and engineering-related jobs. Similar programs exist throughout the company today.

Throughout his career, he held leadership positions in both local and national professional organizations including serving as director of the National Society of Professional Engineers and President of the National Council of Engineering Examiners. A long list of civic organizations also benefited from his years of service. The awards and recognition he earned in the course of his life acknowledge the energy and effort he put forth as a community volunteer and business leader. The news of Al Samborn's death calls attention to his remarkable life and the legacy he left to SSOE, to the students he taught, and the design profession as a whole.



“Lean” challenges healthcare’s status quo

New Approach Leads to Cost Reduction and Greater Efficiency

The challenge of healthcare reform is that there is so much to reform. Every facet of the industry presents opportunities for chipping away at the system’s daunting costs. To name just a few: electronic medical records, wellness programs, group purchasing, consumer insurance reform, and a relatively new addition—lean design, construction, and operations.

“Lean” has its origins in Toyota’s successful lean manufacturing and management processes. Many industries, including healthcare, have adapted its tenets in an effort to cut costs. The essence of the lean approach is seeking to create value by eliminating waste, increasing efficiency, reducing errors, working collaboratively, improving communications, and standardizing operations.

When applied to healthcare, it acknowledges that medical practice and procedures have defined processes and share, at a macro level, basic similarities to moving parts down an assembly line.

SSOE has first-hand experience in transferring the lean ideology from automotive to healthcare. Having designed Toyota’s last three U.S. facilities, we’ve been true participants in its “gold standard” lean approach. At the same time, our healthcare clients are asking us to help them deliver leaner facilities and operations. We’re putting our Toyota lessons to work in hospitals and clinics.

To get a clear understanding of lean healthcare, think of it as having two distinct but inter-related facets. One focuses on design and construction of facilities; the other relates to improving ongoing operations.

Lean Design and Construction

Lee Warnick, AIA, Principal / Healthcare Design at SSOE explains, “The lean philosophy directs us to design a building in the most effective and expedient way to meet the client’s current needs, offer flexibility and capacity for changing needs, and be a quality product. It’s neither overbuilt nor under-built.”

SSOE’s Director of Quality Systems and Lean Six Sigma Black Belt, Gordon MacDonald, describes the process as methodical and deliberate. “Lean design methodically and deliberately identifies, measures, and eliminates waste and verifies the results.” A critical component of lean is that the entities work collaboratively and take on a shared responsibility to reduce waste—of time, money, and energy. In the construction industry’s vernacular this level of collaboration is called integrated project delivery (IPD).

IPD differs from the traditional model where the design is established before the contractor has an opportunity to offer input. This creates the potential for additional plan revisions and missed opportunities to save costs. In IPD, the designers, contractors, and owners are involved in the design process early on and share some level of risk. Together they define the project goals and how they can be reached with a high level of efficiency. We’ve seen the advantages:

- Fewer revisions, communication glitches, and delays as the project moves forward
- Compressed project schedule
- All entities committed equally to attaining the lean goals

Lean Operations

To embrace the lean approach to operations, hospitals need to look at caring for patients more like producing a repetitive product, in this case a service. Putting the very personal nature of illness aside, examining and treating patients involve a predictable sequence of steps in the diagnosis, treatment, and recovery phases. The size and layout of facilities can either help or hinder the efficiency of those steps, creating a tight relationship between lean design and lean operations.

Collecting and analyzing data helps hospitals identify areas for operational improvement. Technology makes it easier and much more effective. One example used by SSOE is simulation modeling which can enhance collaboration and eliminate the physical barriers to achieving leaner operations. Simulation modeling creates a 3D visualization of how the design would actually work if constructed—complete with the simulated movement of

people and equipment through the spaces. It empowers the team to evaluate the design based on functional needs. For example, when a hospital wants to determine the minimum size and number of triage spaces they need to achieve the greatest efficiency. SSOE feeds data into the modeling program including the expected number of patients that come to the Emergency Department (ED), at what times, historical data on frequency, clinical diagnosis and percentage, duration expected, how many are admitted, x-rayed, or treated and released. The model simulates the ED traffic and validates “choke points,” i.e. the ideal space needed at every point in the “assembly line.”

Standardization, an important tenet of manufacturing’s traditional lean approach, is also applicable to healthcare. Many aspects of healthcare are governed by rigid codes and repetitive procedures. This is an advantage to creating leaner operations because if you can reduce variation you can reduce error and costs. Imagine that a hospital wants to minimize waste of any kind related to the movement of staff, patients, and equipment in a recovery room. They’ll need to define the most efficient layout of the room itself and its location within the facility and repeat that configuration for every recovery room. With variation eliminated, the supplies, position of equipment and orientation of the patient will be standardized. Tasks can be completed more quickly and errors are less likely.

There are many lessons to be learned from lean’s proven success. One is that well-conceived management processes—whether they are applied to design or operations—can translate from one industry to a radically different one. And although a traditional approach

THE RED, WHITE, AND BLUE GOES green



Military Retailer Is One of First to Seek Prestigious LEED Silver Certification

When it comes to creating a good shopping environment, the military base exchanges of the 21st century are in step with the latest retail trends. They’re even leading the way in terms of environmentally friendly design through a Leadership in Energy and Environmental Design (LEED®) initiative from the Army & Air Force Exchange Service (AAFES).

The Randolph Air Force Base Exchange (BX), located in San Antonio, Texas, is one of the first in the AAFES system to comply with the guidelines required for Silver LEED® certification. SSOE is spearheading the design and certification process. When completed, the 153,000 square foot exchange will serve more than 50,000 active, reserves, dependents, and retired military personnel and include a Starbucks, military clothing store, food court, interior mall, and loading dock.

SSOE’s strong LEED credentials were one key qualifying factor in being selected to head up the design. We designed the first Gold LEED certified building in Ohio, and the first Gold LEED certified central utility plant in the U.S.

SSOE’s Leslie Accardo, LEED AP, explained that the project is part of a pilot program for the U.S. Green Building Council (USGBC) to help fine tune new LEED guidelines geared specifically toward the retail industry.

The environmentally friendly character of the Randolph BX follows directives in a 2007 Air Force policy stating that all new construction on Air Force installations will be built to a LEED Silver certifiable standard, and that LEED will be the rating metric used for all construction. The current program aims to apply the LEED Silver standard to all new retail shopping center construction and will help AAFES adhere to this standard.

AAFES currently operates 141 shopping centers worldwide and more than 3,000 individual facilities including Post Exchanges and Base Exchanges at US Army and Air Force bases in more than 30 countries (including Iraq), 49 U.S. states, and 5 U.S. territories. Ground was broken for the project in January 2009 and it is expected to be completed in spring 2010.

To read more about this project, visit the link from SSOE’s home page to read an article from Dow Jones Clean Technology Insight. www.ssoe.com.



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Slow down your meter. Speed up your savings.

If your manufacturing process is well into its middle age, you might recall a time when your facility’s utility bills were a passing irritation rather than the chronic pain they are today. On the positive side, you have a range of solutions you can implement to reduce water, gas, and electricity usage. Here, we’ve described a few proven strategies that result in significant savings with the added benefit of attractive payback terms.

SAVE WATER. SAVE HEAT.

Thermal processing plants use great amounts of water for both processing and cleaning. It typically comes from city water systems and often needs to be heated, which runs up costs on two different utility bills. By installing recirculation systems, you can reuse the cooling water. In one such system, the emersion water used to cool cans is recovered and piped to heat exchangers where it is indirectly cooled in a cooling tower. When necessary, the water is cooled further using chillers. The water is then returned to the process. These systems can be extremely cost effective. SSOE installed one in a Midwest food plant that used two million gallons of water a day. The company was able to payback the cost of its system in 2.5 years for a 40% ROI.

In older plants that use furnaces or ovens in their processes, the heat is often simply released into the atmosphere. If the system can reclaim the heat and direct it to where it pre-heats water or air to be used at another point in the process, you can save appreciable energy. In one thermal processing plant, city water was used for cooling via a heat exchange system, but the resulting hot water went down the drain. By adding a recirculation cooling loop, SSOE reduced the cost of water and sewer. Going one step further, the cooling water is now being piped to a heat exchanger to pre-heat the ingredients at the front end of the process. Recapturing the heat saves a significant amount of natural gas. Thanks to both systems, the company is saving \$500,000 a year for a 40% ROI.

In many manufacturing plants, cleaning equipment and production lines for changeover is a water-intensive operation. Companies who use low-pressure washers may find high-pressure washing actually uses less water because it takes less time. Aside from saving utilities, a quicker washing process also reduces costly downtime—by as much as 75% in some cases.

READY FOR VFD?

If your industrial process still runs on traditional motors and valves rather than variable frequency drives (VFD), it’s time to reassess your reasons for not converting. You may be missing an opportunity to save electricity at a very reasonable total cost. VFDs adjust the speed of the motor electronically so they always

run at the most efficient speed for the process. Fixed speed motors, on the other hand, are typically sized for worst-case scenarios: for extreme temperature conditions or loads. Since motors are less efficient when lightly loaded, these motors squander electricity.

When VFDs first came out they were considered expensive specialty equipment. Now that they are widely used, the systems themselves cost less, require less maintenance, and they permit removal of valves that require periodic service or replacement. Paybacks range from 18 months to 3 years. Although VFDs have been available for some time, many manufacturers have not yet made the conversion for various reasons. For some, due to the critical nature of the process being controlled, shutting down for retrofitting can involve more risk than simply replacing existing equipment. A good alternative is to first test VFDs on a small operation so you can fine tune the start-up to plan ahead for replacement of major systems during the next scheduled shut down.

BENCHMARKING UTILITY METERS

One often-overlooked potential source of savings is the utility meters themselves. For relatively low cost, you can install independent meters to validate the actual usage of steam, natural gas, and water against the meters that calculate billings. Why pay for such redundancy? To verify billings for one. For example, a cereal manufacturer that purchased process steam from an adjacent sister plant installed an independent steam-flow meter at the entrance to the plant. They learned they were being billed for up to twice as much steam as was actually delivered.

In addition, installing benchmark meters shows what it costs to run individual production lines, facilities, and operations as a whole—in real time. Independent metering of two lines running side by side can reveal information about equipment reliability and the need for maintenance. Benchmark metering is also an excellent way to compare how operating at different times of the day affects utility costs. It can open up opportunities to reduce costs through demand-side management and off-peak usage.

PEOPLE MAKE IT HAPPEN

Successful energy-saving strategies are as much about people as they are about equipment or systems. When the people running or working in the plant are serious about saving energy, they will be proactive about finding and implementing solutions. Invariably, large-scale systems are going to require vigilance and regular maintenance so they can deliver the highest reduction to your utilities. You’ll want to demonstrate that energy-savings is a priority and back it up procedurally to receive the greatest benefit from your investment.

