



**SHAMBAUGH & SON, L.P.**  
**CONTRACTORS • ENGINEERS**  
**SINCE 1926**

# COMMITMENT *to* *Excellence* ... with **P.R.I.D.E.**

An **EMCOR Company**

**ISO 9001:2008 CERTIFIED**

## **Weathering the Economic Storm —The Sun Shines on Shambaugh & Son**

The economic crisis has severely impacted everyone in the construction industry. How has Shambaugh survived? Certainly we have been proactive in our efforts to streamline, become as efficient as possible and remain connected to our repeat business clients. Eighty-five (85) years of success certainly helps! However, we have *not* just survived; we have persevered and actually grown our business during the recession. How did we do this? There are a few key fundamentals that have propelled us to actual further growth. These fundamentals are interwoven into the fabric of our “value added” services we provide to our clients including:

- 1. Design-Build—Both Public and Private.** The industry has turned toward this preferred delivery method and Shambaugh’s 85 years of experience honing are Design-Build best practices and commitment to leading the Design-Build industry has been recognized by our clients, who appreciate our unique “value added” approach. Our unified MEP “self performance” further *elevates* the nationally recognized cost and schedule advantages of Design-Build delivery.
- 2. LEAN Construction—**Shambaugh has been nationally recognized for reducing waste, while providing more efficient, just-in-time delivery.
- 3. Quality Assurance and Control—**Quality is one of our biggest differentiators with consistency and commitment of all 1,400 Shambaugh employees.
- 4. Safety—**Time and time again, we have been recognized as #1 in Indiana. While other contractors are cutting their safety expenses, Shambaugh increased our investment.
- 5. Revolving Our Focus Around Our Customers—**To truly deliver the “value added” approach, we must and do go *beyond* just delivering on time, on budget. This is an area where Shambaugh has few peers. Reducing energy and operational costs while actually improving the throughput and profitability of our customer’s plants/facilities and providing lifetime service and maintenance is another significant differentiator in our approach.
- 6. Our Unique Diversity of Services—** By combining twelve (12) different MEP elements of Mechanical, Electrical, Fire Protection, Process and Refrigeration Controls, Temperature Controls, Refrigeration, Food Process, etc. is an offering *not* found elsewhere in our industry. It reduces coordination costs, general conditions costs, and provides a true single source accountability that is second to none.

I hope you will read herein of recent projects where clients across the country have validated our Commitment to Excellence and to be the industry’s best. Whether you are an existing or new client, we look forward to sharing with you what is new in our efforts to “measure up” to your expectations!

Mark P. Shambaugh, P.E., DBIA  
 Chief Executive Officer



**Shambaugh’s PRMC Site Management/Supervision Team**

## **Shambaugh Building Largest Project in History— “All Divisions”**

Shambaugh & Son was selected for the single source, design-assist Mechanical, Electrical, Fire Protection and BAS for the 900,000 square foot, \$536,000,000 Parkview Regional Medical Center project in Fort Wayne, IN. Parkview, a 50-year Shambaugh client, selected Shambaugh based on its ability to deliver the single source combination MEP, productive and effective field manpower, \$22 million of value engineering cost savings (\$17 million accepted), prefabrication capabilities, \$5 billion of Purchasing power and the experience of our team (see details page 3).

## **Shambaugh & Son Wins Design-Build Project of the Year Awards**



Shambaugh & Son was awarded the Design-Build Institute of America (DBIA) Great Lakes Region Process Project of the Year Award, along with its overall Design-Build Project of the Year Award, for its \$60,000,000 Michigan Milk Producers Association (MMPA) Design-Build dairy project. These awards are given out annually to the most outstanding project that most exemplifies on-time, on-budget delivery, world-class

innovation, and a true teaming partnership, resulting in delivery of a successful project. Gasper Calandrino, MMPA’s Plant Engineer and project leader, commented, *“this award reflects the outstanding performance of all Shambaugh personnel and the teamwork exemplified on this project, continuing our 25-year Design-Build partnership.”*



## Design-Build Growth Continues Rapid Expansion

Growth of Design-Build across the U.S. has continued to a point where now 50% of all U.S. projects are utilizing Design-Build delivery. Why? Facility owners and independent researchers have proven Design-Build to:

- Be 22-33% Faster
- Reduce Owner Risk
- Be 4-6% Less Cost
- Reduce Change Orders
- Deliver Higher Quality
- Promote Teamwork

DBIA, the industry's recognized center of expertise, has been the promulgator of best practices, education, and advocacy for Design-Build delivery—to ensure owners harvest all of the advantages and that the promise of Design-Build is delivered. Not all Design-Build delivery methods are the same, nor Design-Builders delivery methods equal. DBIA's research validates that the more integration “down the food chain”, including critical MEP subcontractors, the greater the success of the project. At Shambaugh & Son, we have been recognized for four (4) DBIA U.S. Project of the Year Awards, as well as the DBIA Great Lakes Region 2010 Process Project of the Year Award and overall Design-Build Project of the Year Award. Shambaugh's further enhancement of the recognized Design-Build delivery advantages with the elimination of construction management fees and double markups with its unique “self-perform” MEP approach has become preferred by owners nationwide.

In addition to private industry's embracing Design-Build to reduce costs and schedule, the public sector Design-Build has literally exploded in growth throughout the U.S. and in Indiana. In Indiana, public agencies utilizing the 2005 Public Law 74 Design-Build Law have completed or commenced work on over \$300 million of public Design-Build projects—all which have been successful heretofore. Public owners deserve the same rights as private industry to take advantage of the Design-Build delivery project cost and schedule efficiencies and they are doing so more and more each year. Shambaugh is proud to have been awarded the single source, MEP Design-Build contract for Indiana's largest Design-Build project to date, the \$34 million new Hamilton Southeastern Jr. High School project in Fishers, Indiana.

## Shambaugh's Commitment to Quality— #1 in Industry

Everyone talks about quality—Shambaugh continuously re-invests in our quality program to ensure quality is second to none. Commitment to excellence and continuous improvement was an engrained part of our corporate culture long before we became ISO 9001:2008 certified. However, ISO certification actually measures our progress in this regard every six months and ensures a universal Shambaugh employee commitment to a quality project delivery. In 2010, Shambaugh recertified, for the 4th year in a row, its ISO 9001:2008 Certification Program. Very few contractors and engineering firms in the United States have committed to this investment in ISO Certification, the world's highest level of commitment to quality. Our quality program goal is simple:

*Provide a means by which our capability to provide conforming services can be demonstrated to achieve customer satisfaction through continuous improvement and prevention of nonconformity.*

## LEAN Construction

Shambaugh's approach to LEAN construction is all about managing and improving our construction process to more efficiently deliver what the customer needs – only when they need it. Our approach is also consistent with Six Sigma and our ISO 9001:2008 Certification Program. LEAN is about designing the process to include the right systems, resources and follow up measures to deliver things right the first time. The key to this is the elimination of wasteful activities and processes that absorb resources but create no value. Examples of waste include, but are not limited to, engineering design or construction mistakes, working out of sequence disrupting the efficient flow, redundant activity and movement, delayed or premature installations and over/under specified products that don't fully match the customer's needs. Specific examples of Shambaugh's LEAN construction approach utilized include, but are not limited to:

1. **Use of 3D BIM** to fully design installation requirements and resolve installation conflicts *before* installation. This is further enhanced by integrating our Trimble Total Station computerized system to locate all penetrations for sleeves and hanger inserts.
2. **Value Engineering/Cost Management** to provide up to 15% first cost savings—yet stand up to the life cycle test.
3. **Early integration of Shambaugh's team** is effective, not only in providing value engineering and “upfront” constructability, but building a higher degree of teamwork to protect the GMP
4. **Enhanced BIM utilization** allows for “auto purchasing” where the bill of materials (BOM's) are automatically generated by the model and our isometrics for release to the field or fab shop, reducing wasted time and effort by both field and purchasing personnel. This results in JIT delivery.
5. **Shambaugh has been recognized nationally for its Recoverable Lost Time (RLT) Productivity Program** which we initiated in 1987 to reduce material handling and indirect operations in a typical pipefitter/electrician's day - a 30% productivity improvement!!
6. **Foreman PDA's on the floor** are tied to our Labor Productivity Management system. Field employees “fob” in and out with electronic keys at their toolbox in their work area. This validates our “8 hours work for 8 hours pay” commitment in our Code of Excellence. Furthermore, it automatically loads the Labor Cost Codes through our Foremen's PDA's to our mainframe to ensure effective management of labor hours.

## Shambaugh's Safety Program Ranked #1

Shambaugh is the only contractor in the State of Indiana to be recognized by the AGC for having accident rates less than 25% of the national average. With this record, we are exempt from “General Schedule” OSHA inspections in the State of Indiana. In 2009, Shambaugh committed to increasing the site presence of our safety program. Thirty-two (32) Shambaugh superintendents were designated Safety Coordinators for their branch or division. They have all completed the OSHA 30 Hour course and three days of in-house program and skills development. They will be on your jobs looking for immediate safety hazards and planning our work to minimize the exposure to our team as well as yours. They are committed to *ZERO* accidents!

## HEALTH CARE EXPANSION AT S&S GOES ON

Shambaugh & Son continues its healthcare growth with over \$500,000,000 of MEP healthcare projects in the last seven (7) years. Shambaugh has been selected because of the *significant advantages* we bring to the projects, including, but not limited to:

- Value Engineering Cost Management—we have averaged \$12-\$15/square foot cost savings for the MEP trades
- Combination Single-Source Multi Disciplines—In-House Mechanical, Electrical, Fire Protection & Building Automation reducing costs and risks
- Our Industry Leading 3D BIM Capabilities and Resources
- Our Extensive, “Elevated” Levels of Prefabrication Reducing Cost and Schedule
- \$5 Billion of National Purchasing Power
- Our proven ISO 9001 Quality Management Process
- The Experience and Quality of our Project Teams
- Our Application of the Latest in Tools & Technology to drive Project Efficiency

### Parkview Regional Medical Center



Shambaugh’s Parkview Regional Medical Center team peaked at nearly 450 Mechanical, Electrical, Fire Protection, BAS and Fire Alarm crews. We utilized many new tools, technology and “*elevated*” the levels of prefabrication well beyond the norm. We used the latest in 3D BIM Modeling, beyond the normal benefits of space coordination and prefabrication to auto generate bills of materials for fabrication and field delivery. Our combined MEP crews used Total Station technology to locate most sleeves and hanger inserts by loading the drawings from the BIM Model into the Total Station which automatically calculates holes/insert locations for up to 500 different points in a day. We implemented a new “key fob” technology for our crews to report in and out of their work area while automatically loading our labor cost code management system through the foremen’s PDA and interconnected to our mainframe Job Cost System. Extensive prefabrication went beyond utility piping to include significant levels of Plumbing, Electrical, and Medical Gas systems. New, more efficient field tools were utilized to reduce installation hours. We “imbedded” our material vendors in the site trailer to better serve our foremen’s needs and enhance the “just in time” flow of materials. These materials were all delivered “bagged, tagged and shrink wrapped” by floor, area and system to reduce material handling on the floors. Separate material handling crews efficiently distributed materials and tools to the floors where all materials, fabrication and tools were stored in containers or baskets on wheels for ease of movement.

### St. Joe Medical Office Building



Shambaugh completed the Design-Build single source Mechanical, Electrical, Fire Protection and Building Automation System for St. Joe MOB, a 210,000 sq-ft medical office building that is certified as LEED Gold. We designed and installed a VAV air system with packaged roof top units and electric reheat. The building utilizes demand controlled ventilation for outside air. The building systems save 20% energy consumption over a standard building that complies with ASHRAE 90.1-2004. Shambaugh finished “on time and under budget”.

### “Design-Build” Fast Track Heritage Park Hospital — Sherman, Texas



Shambaugh & Son was the single source MEP Design-Build partner on this state-of-the-art, new hospital addition in Sherman, Texas. This 41,000 sq-ft new hospital has 4 ORs, a radiology suite, ER suite, MRI, CT suite, lab, pharmacy, 4-bed sleep lab, and 20 bed patient wing. Our systems include a VAV air system, hydronic reheat, plumbing and a medical gas system. Power is distributed from a 1600 Amp, 480 Volt incoming power supply, and utilizes modular integrated switchboards to conserve space and speed installation. Additional labor efficiencies were achieved by implementing the use of prefabricated wiring assemblies. Improved energy efficiency is achieved with the integration of occupancy based lighting controls. This facility was built in a rigorous “fast track” record 4-month schedule—clearly demonstrating the speed advantage of Design-Build. The facility also complies with ASHRAE 90.1-2004 Energy Efficiency for Buildings.

### Porter County Hospital



Shambaugh was selected by Robins & Morton for the 430,000 square foot Porter County replacement hospital in Valparaiso, Indiana. Shambaugh applied its V/E cost management to save millions of dollars upfront and applied the latest in tools, technology and prefabrication to ensure the efficiency of its crews.

*“Shambaugh brought over \$10,000,000 of value engineering to the project to get the project within budget. Shambaugh was our #1 subcontractor, the schedule leader and had the best safety record on site!” - Brent Bohan, Mortenson Construction*



## MMPA—Ovid, MI

Shambaugh & Son continued its 25-year partnership with MMPA for the “single source” Design-Build of its \$60,000,000 plant expansion and renovation. The 24-month project substantially increased plant production, provided “value added” products capability, reduced energy and operating costs and improved efficiency of production, all without interrupting existing plant production. Modifications included an increase of 100% of plant milk powder production capacity, an increase of 50% raw product intake and condensing capacity, expansion of existing plant utility systems to support the plant’s increased capacity including 100% electrical generation backup, a new boiler house, and the implementation of “Green” technology to reduce emissions and water usage.



## Unilever Refrigeration—Owensboro, KY

Shambaugh recently completed a 2000 ton, 2-stage Refrigeration system for the Unilever plant located in Owensboro, KY. The project consisted of a centralized ammonia refrigeration system that provided the cooling required for several new process lines and the installation of two (2) new -20 F storage freezers and a +35 F dock. The system was 3D modeled to allow Shambaugh to prefabricate in order to meet a very demanding project schedule. The plant expansion resulted in the increased production of the very popular Bertolli frozen entrée in a bag. Shambaugh’s “on time, on budget”, fast track project resulted in a second project award.

## PBM Nutritionals—Covington, OH

PBM Nutritionals, an international supplier of infant nutritional products, purchased a new facility in Covington, OH, and chose Shambaugh as its Design-Build partner for its remodeling. Plant improvements centered around increased capacity of product processing and packaging. PBM’s decision to contract with Shambaugh was based upon its award winning Design-Build, “self-perform” turnkey delivery system, including design, engineering, fabrication, and fast track construction, as well as its successful proven experiences in the area of infant nutrition where food safety design is paramount.



## Weaver Popcorn Grows Again

Weaver Popcorn Company, a eighty year old company and the largest popcorn manufacturer in the world, awarded Shambaugh & Son a state of the art technical processing enhancement project installed in their world headquarters in Van Buren, IN. Weaver’s decision to contract with Shambaugh was based upon its award winning Design-Build, self-perform turnkey delivery system, including design, engineering, fabrication, and fast track construction, as well as its successful past performance over 12 years of Design-Build partnership together. Shambaugh & Son’s unique Design-Build capabilities provided Weaver with a cost effective project solution without interruption of their round the clock, seven day per week operation.



## CONTINUE WITH S&S AND DESIGN-BUILD

### DairiConcepts—Allerton, Iowa



DairiConcepts selected Shambaugh & Son as their single source, Design-Build partner for a “fast track” renovation/expansion project at their facility located in Allerton, Iowa. The goal was to add a new blending system for specialty nutritional products while maintaining existing capabilities to manufacture a diverse mix of other elegant products. The schedule allowed 8 months from design to commissioning. The scope of work included all areas of the plant. Project challenges were numerous, including “fast track” engineering and design, creative and continuous expediting of equipment and installation to meet construction schedule requirements, and working within an operating facility, in hygienic conditions without interrupting production. Ultimately, the project was completed on time and on budget with no unscheduled downtime. Shambaugh designed and built the original facility 18 years ago.

### Sister Schubert—Horse Cave, KY



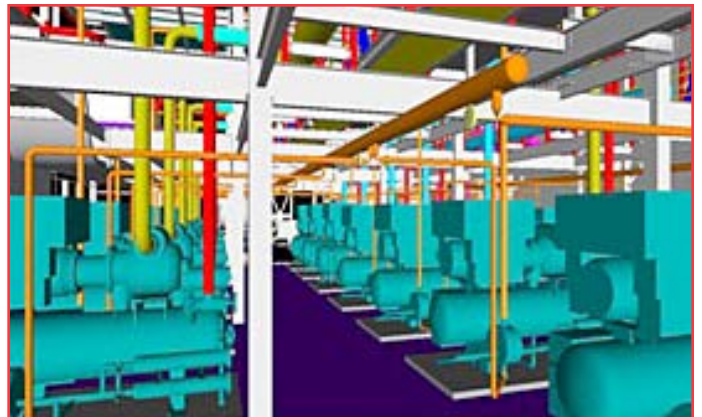
Three years after completing the Design-Build construction of a new 100,000 sq. ft. state-of-the-art Sister Schubert Bakery in Horse Cave, Kentucky, Shambaugh has been awarded a contract to perform both the design and construction of a major expansion for the facility, which includes: Mechanical, Electrical, Ammonia Refrigeration, Fire Protection, Utilities, Tele-data, and Security. Project execution will be initiated and performed while the plant continues to be in full production, requiring precise pre-planning and off-site fabrication to insure no business interruption. Sister Schubert is a Division of the T. Marzetti's Company producing frozen dinner rolls for various food service customers.

### Commonwealth Yogurt — Vermont



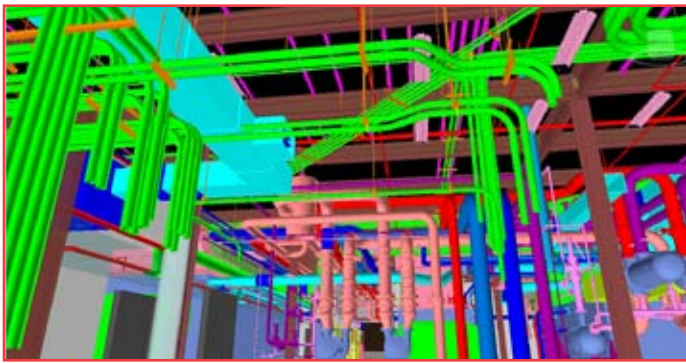
Shambaugh & Son, L.P. was selected as the “single source” turnkey Design-Builder of the new yogurt facility for Commonwealth Dairy in Brattleboro, Vermont. This yogurt facility is the first yogurt production plant in the U.S. for one of Germany's leading producers, Ehrmann AG. The 38,000 square foot facility will produce 70 million pounds annually. Plant highlights include: production of stirred, fruit on bottom yogurt and greek style yogurt, state-of-the-art process controls with fault tolerant redundant PLC and server for process, CIP and energy management, and pH pre-treatment of process waste. Shambaugh's engineers worked with Efficiency Vermont to include the most efficient Mechanical and Electrical systems in concert with Green design principles. *“Shambaugh was selected because of their ‘single source’ multi-discipline approach, Design-Build fast track expertise, and the chemistry of their team.” - Dieter Dobousek, Chief Technical Officer, Commonwealth Dairy.*

### Largest Refrigeration Project in U.S. Good Humor—Covington, TN



Shambaugh was recently selected to construct a 6,500 ton, 2-stage Refrigeration system for the Good Humor ice cream plant located in Covington, TN. The mammoth system consists of 17 high capacity ammonia compressors, 11 evaporative condensers, multiple ceiling hung evaporators and 20 rooftop process air units. The entire system was 3D modeled and prefabricated, allowing Shambaugh to address a very challenging fast track completion schedule. It is currently the largest Refrigeration project in the U.S., follows the successful completion of a similar system installed for Unilever in Owensboro, KY and is part of a growing number of successful projects for Unilever throughout the country.

## BIM Efficiency—27 Jobs & Counting— Lessons Learned



Seven (7) years and twenty-seven (27) 3D BIM projects later, Shambaugh & Son's 3D modeling team has applied their lessons learned to become more efficient in supporting fabrication and field installation. Taking the advantages of 3D modeling beyond optimizing design and constructability, eliminating field conflicts, and prefabrication is our goal. Using the model to automatically generate bill of materials and scheduling (4D) of time and labor resources is becoming the "new normal" with Shambaugh.



## Modular Construction Becomes Norm



## Fire Protection Power Plants



Prairie State—Marissa, IL

Shambaugh Fire Protection continues to offer our clients innovative solutions to sophisticated fire hazards. We offer Design/Build strategies for unique facilities or structures, including chemicals, flammable liquids, aircraft hangars, pharmaceutical manufacturing, mission critical data centers and power plants of all types, including wind, solar, hydro and coal gasification throughout the United States. In addition to facility protection, we also protect vessels, transformers and equipment. Our engineering includes conventional fire alarm systems, addressable fire alarm systems, fiber optic networked fire alarm systems, internet monitoring of fire alarm from remote sites, linear heat detection, ultraviolet and infrared smoke detection, gas detection, Vesda air sampling smoke detection, and central station fire alarm monitoring.

With Shambaugh representation on the National Fire Protection Association (NFPA) committees governing automatic sprinklers, electric generation and high voltage direct current, converting stations, hydroelectric generation, airport facilities, and stationery fuel cells, we keep current with the latest technology and innovative systems.

## Guaranteed Energy Savings Contracts (GESC) Remain Active Throughout Indiana

Shambaugh's Havel Division works with Public Schools and Local Government administrators to provide a turnkey project approach in a Design-Build manner using Guaranteed Energy Savings legislation (HB1158) that includes project financing, design and engineering, project management, construction installation and service support. Shambaugh is able to perform needed renovations of mechanical and electrical systems to save schools money while, at the same time, improving the Learning Environment's Space Temperature Levels. Shambaugh has been selected on nearly \$70 million projects since 2005. Recent projects include South Dearborn School Corp, MSD of Washington Twp, Bluffton-Harrison MSD, Tri-Central Schools, Duneland School Corp., Garrett-Keyser-Butler Schools, North Davies Schools, Union Twp Schools, School City of Mishawaka, Triton Schools, Taylor Schools, Central Noble Schools, Monroe Central Schools, Greater Clark County Schools, City of Wabash Schools, Liberty-Perry Schools, Blackford County, Whitley County, Alexandria Comm. Schools and CitiLink.

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