



MISSOURI SOCIETY FOR HEALTHCARE ENGINEERING

MOSHE Matters November, 2017

President's Message



Happy Thanksgiving!

As we prepare to begin the holiday season I believe it is important to recognize friends, family and coworkers that have helped complete assignments, requests, and honey dos we have accomplished in the past year.

I am grateful for all of the help I have received this year as President of MOSHE. In addition, our relationship with MHA has been strengthened with the addition of Pam Kelsey and Jackie Gatz. They bring many new ideas and understand how to navigate in this digital environment.

Finally, I would like to thank the primary members of all the MOSHE Committees. The Education Committee secures great speakers and venues, which allows us to add functional value to our members. The Membership Committee continue to welcome new folks to the organization. The Golf Committee works tirelessly to ensure MOSHE members have a great day at the Annual Golf Outing. I would also like to thank the Communication and Marketing Committee for helping the organization grow its outreach.

Michael Menzel
2017 MOSHE President
Michael.menzel@bjc.org

State Guidelines Update

We have reviewed and approved the State Guidelines to adopt the Facility Guidelines Institutes building recommendations with a caveat to not make commissioning mandatory.

As an organization, we all agree commissioning is a very important component of all major projects, but it is not always affordable.

Upcoming Events

ANNUAL
Meet and Greet
Tuesday, December 5
4:00 p.m. to 7:00 p.m.
Missouri Athletic Club - West

1777 Des Peres Rd

St. Louis, MO 63131

314/539-4444

[Click to Register](#)

January 3: DNV Presentation

SSM Health DePaul Hospital - St. Louis

12303 DePaul Drive

Bridgeton, MO 63044-2512

314/344-6000

[Click to register](#)

**Tiny Babies Bring BIG
Changes to SSM Health St.
Mary's Hospital – St. Louis**

Established in 1924, St. Mary's Serves the Health Needs in the St. Louis Metropolitan Area Through One of the Largest Integrated Delivery Systems in the U.S.

[*See page 4 for full article*](#)

Hospital Workplace Violence

October, 2017

Author: [Jackie Gatz](#), Vice President of Grant Management and Safety, Missouri Hospital Association

Health care providers — especially frontline staff within hospital emergency departments — [increasingly](#) are faced with violent encounters by patients and visitors. The U.S. Bureau of Labor Statistics found that 52 percent of all workplace violence incidents recorded are in health care. The current health care environment in Missouri, including a shortage in psychiatric beds resulting in boarding in the emergency department, the expanding opioid crisis which prompts unstable and combative patients seeking treatment, and the increased prevalence of weapons and narcotics among patients, creates an unstable environment for frontline staff. A 2017 survey of Missouri hospitals showed that 50 percent of respondents identified violence or violent intruders as a top-three internal threat in their hazard vulnerability analysis. Further, MHA's recent analysis of hospital claims data in the state show that, during 2016, mental health and substance abuse patients spent more than 550,000 combined hours in Missouri's EDs while waiting for stabilization and discharge or transfer to an appropriate care setting. This is the equivalent of 63.1 years.

These issues are compounded by the complexities that arise when law enforcement presence is necessary to respond to incidents in the care environment. Further, officers may seek to serve warrants, obtain blood draws, or question suspects or witnesses receiving care. These interactions with law enforcement raise questions about the respective rights and obligations of the hospital, its staff, patients and the police. Law enforcement officers may not fully appreciate the restrictions on patient information and access within the hospital environment, leading to conflict between officers and staff. Frontline staff are often hesitant to challenge police on these HIPAA- and EMTALA-related cases. The recent [incident](#) in Salt Lake City drew national attention to this uncertain relationship. MHA has developed an [issue brief](#) to outline the nuances related to this within Missouri.

Recognizing these substantial challenges, MHA convened a task force to guide and direct a fall 2017 listening tour of executive and frontline staff to inform the development of new resources to address the challenge. This effort is a part of the broader [S.A.F.E.R. initiative](#) — an MHA effort to provide resiliency resources under five pillars. The initiative includes safety programs, approaches to safer care, facts to inform decision-making, educational programming and regulatory requirements. These resources, and MHA's increased focus on resiliency, are intended to enhance support and services for personal, organizational, community and patient safety. S.A.F.E.R. provides education and assistance to hospitals on workplace and community violence, as well as emergency preparedness.

More information on the S.A.F.E.R. program is available [here](#).

Watch your email for more information in the near future.



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**Available on a first come, first serve basis.*

- ☐ [January](#) – DNV Presentation (SSM Health DePaul Hospital - St. Louis)
- ☐ [February](#) – Boone Hospital Center
- ☐ [March](#) – Location and Topic TBD
- ☐ [April](#) – (Capital Region)
- ☐ [May](#) – Location and Topic TBD
- ☐ [June](#) – Location and Topic TBD

- ☐ [July](#) – Missouri Athletic Club - West
- ☐ [August](#) – Location and Topic TBD
- ☐ [September](#) – (Innsbrook Resort, Golf Outing)
- ☐ [October](#) – (Forest Hills Country Club)
- ☐ [November](#) – MHA Convention, Tan-Tar-A
- ☐ [November](#) – MHA Convention Reception
- ☐ [December](#) – Meet and Greet

If you have any questions, please contact Pkelsey@mhanet.com



Tiny Babies Bring BIG Changes to SSM Health St. Mary's Hospital – St. Louis

Established in 1924, St. Mary's Serves the Health Needs in the St. Louis Metropolitan Area Through One of the Largest Integrated Delivery Systems in the U.S.

By: Steve Stoyanac, Chillicothe Metal Company



These Chillicothe Metal custom enclosures keep noise at an all-time low, measuring 57 dba at 23 feet. The residential area adjacent to these structures also measures 23 feet away.

With care delivery sites in the states of Illinois, Missouri, Oklahoma and Wisconsin, SSM Health includes 20 hospitals, 63 outpatient care facilities, a pharmacy benefit company, an insurance company, two nursing homes, comprehensive home care and hospice services, a technology company and two Accountable Care Organizations. As one of the largest employers in every community they serve, SSM Health has more than 9,500 medical staff employees and more than 33,000 employees in the four states for which they provide services.

Today, St. Mary's is a 492-bed hospital specializing in high risk obstetrics. Also a teaching hospital, St. Mary's is home to an accredited internal medicine residency program and to St. Louis University School of Medicine Obstetrics/Gynecology and Family Practice residency programs.

This hospital has seen continued growth and demand for its services since its inception in 1924. Most recently, a shortage of "Newborn Intensive Care Unit" (NICU) beds was identified. This requirement led to a \$12.5 million plan to renovate the existing facility to provide a 42 bed newborn intensive care unit. This project also drove the demand for more emergency power than the hospital currently had. SSM Health invested an additional \$5 million to replace the existing emergency power generator system.

CASE STUDY

Due to the complexity of this project coupled with many stringent requirements, a design build team was assembled as opposed to a bid/spec approach. At the beginning stage of the project the CK Power team became involved in the project. This included Peg Johnston, Senior Power Systems Territory Sales Manager, Scott Egelhoff, Service Manager and Chris Holtgreven, Power Generation Service and Support Advisor.

Kaiser Electric was the design build electrical contractor for the project. After preliminary engineering was completed, the specification called for:

1. Quantity two – 2000 kW diesel generators, 480 volt, 3 phase
2. Paralleling switchgear
3. Custom sound attenuated enclosures to meet a maximum 57db(A) at 7 meter (23 feet) requirement.
4. IBC Certification – Seismic qualification for all equipment
5. Fire suppression systems in all equipment
6. FMG approval on all equipment
7. On site construction
8. NFPA Commissioning Tests for Emergency Power Systems

Early in the design process, Peg worked closely with Brian Litteken from Kaiser Electric who was the “Engineer of Record” over a period of several months. The design modifications and BOM revisions that were made during this time allowed for the project to reach the final design that would best serve the needs of the hospital and the adjacent community. Chris Holtgreven

who is a well-respected and trusted resource for St. Mary’s was instrumental in CK Power winning this job. Additionally Scott Egelhoff participated in ongoing project meetings helping to anticipate and react to installation concerns, logistic challenges and final commissioning requirements.

Jack Marty, Superintendent with Interface Construction commented “Very early in this process, we knew we would need a team of highly experienced professionals covering every aspect of on-site power generation”. That team included many dedicated individuals from our partners: SSM Healthcare, St. Mary’s, Kaiser Electric, Murphy Company, Chillicothe Metal Company, and IMEG Engineering.” According to Jim Baker, Senior Project Manager-SSM Health Design and Construction “SSM understood the need for an integrated approach utilizing strategic relationships with these partners”. All parties came together in the early stages to proactively plan, collaborate and facilitate the delivery of a smooth project. Dave Bira, Senior Project Manager and Casey Brownfield, Project Manager from Interface Construction steered the project with weekly meetings, ongoing updates, and schedule management.

All equipment was delivered and installed on time with startup and testing beginning in May 2017. For their part, EGSA Member firm Chillicothe Metal Co. tapped Roger Bruder, Inside Sales Engineer, who worked tirelessly to keep up with revisions, meet sensitive timing requirements and oversee the re-assembly process at the job site. The equipment required 7 trucks over a period of 1 week to be delivered through an older residential neighborhood with narrow streets and lots of overhead wires. Each generator consisted of 3 separate sections which were re-assembled at the job site. Final dimensions were 51’ long x 12’ wide x 29’ high. Roger explained, “The reassembly went as anticipated and was pretty straight forward. However, it was the noise test that everyone was curious to witness. The units passed the 57db (A) requirement at 7 meters.”

Another aspect of the installation that made the project es-

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These installation photos exhibit several of the challenges that this job presented, including: Sensitive timing requirements, the re-assembly process at the job site with the equipment being delivered via 7 trucks over a period of a week, backing down the narrow residential street with overhanging wires and the sequence construction process.

Late 2016	January '17	February '17	March '17	August '17
Design	Demo the existing carpenter shop for new EPS site EPS Equipment Deliver and installation	Excavate and install duct banks of conduits.	EPS Equipment Startup	Commissioning with Commissioning Agent IMEG Corp

TEAM

SSM Health – Jim Baker

St. Mary's Hospital – John O'Brien

CK Power – Peg Johnston, Scott Egelhoff and Chris Holtgreven

Chillicothe Metal Company – Jeff Bessler, Roger Bruder and Steve Stoyanac

IMEG Corporation – Rich Widlowski and Noelle Thornton

Interface Construction – Dave Bira, Jack Marty and Casey Brownfield

Kaiser Electric – Brian Litteken, Steve Elfrink, Ken Riggs and Jason Geist

Murphy Company – Roger Dorrah

NOVA Group – Jim Pinter



The final fire suppression system for the diesel gensets is pictured here.



pecially challenging was the sequence construction process and managing all of the contractors

in a very small area of the site. Close coordination and scheduling were paramount issues on the install according to Rodger Dorrah, Senior Designer at Murphy Company, "A 35,000 gallon, below-grade, dual-containment fiberglass fuel tank was installed. Site plumbing was excavated and modified to make room for the 12 ft. diameter 49 ft. long fuel tank. Below grade dual containment piping was also routed from the tank to sump next to the gensets and deliver #2 fuel oil to each enclosure tank."

An equally important consideration was the quantity of wire pulled from new paralleling gear to ATS's/switchboards. Steve Elfrink, Senior Project Manager, from Kaiser Electric reported a figure of 600' (16) 4" conduit with (4) 750MCM in each 500' 3000 amp bus duct. Ken Riggs, Electrician Superintendent and Jason Geist, Foreman of Kaiser Electric were most instrumental in planning and execution of the conduit, bus duct runs and routing. Additionally they coordinated the final generator setting and hook-ups to hospital infrastructure.

"These gensets were replacing 3 existing generators and paralleling gear at an active hospital. The team had to absolutely ensure that the hospital didn't experience any time that there was not emergency back-up power on site," adds Brian Litteken.

Early on St. Mary's worked pro-actively with the residents in the neighborhood. John O'Brien, Team Leader-Plant Operations went door to door to meet with them to explain the plan and reassure them about minimal disruptions during construction and the goal of achieving a very strict sound level. Additionally NOVA Group participated in community engagement in May, 2016.

The NICU will open in January 2018 after final renovations are complete. At the conclusion of the project, SSM Health can expect great things from their investment on the expansion, both on time and on budget. ■

About the Author

Steve Stoyanac (steves@cmcousa.com) is the Sales and Marketing Manager for Chillicothe Metal Company, Inc., headquartered in Chillicothe, IL.

A graduate of Whitworth University with a BA in Business Management, Steve began his career in On-Site Power Generation with Cummins Northwest in the late 70's. He has also worked for other notable firms such as HotStart Mfg. and Silex Systems prior to joining Chillicothe Metal in 2009.

Steve is an active member of EGSA, serving two terms as a board member and President of the Association in 2004, as well as numerous leadership roles within the EGSA community. He is currently the Chair of the Revisions Committee for the 5th edition of On-Site Power Generation: A Reference Book as well as an active school instructor for the Rowley School, teaching the "Noise Control" module in the Advanced school curriculum.



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