

PLAINS TALK

A Publication of West Plains Engineering, Inc.

August/September 2018

Protecting Patient Privacy: Ft. Meade Va Medical Center

Strategic Direction Report: Environments to Help Heal

Reliability Saves Lives: University of Iowa Hospitals & Clinics

Healthcare with Style: Sioux Falls Specialty Hospital Urgent Care Clinic

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NEXT ISSUE

The science of designing mechanical and electrical systems for laboratories is really more of an art form. In our next edition, we'll talk about the finer points of creating a facility that's as safe, functional and efficient as the work being done inside.

MECHANICAL ELECTRICAL PLUMBING POWER

AN ENGINEERING SOLUTION CENTER

IN THIS EDITION...

The need for healthcare, and by extension healthcare facilities, is skyrocketing in our country. According to the U.S. Bureau of Labor & Statistics, the healthcare industry will grow faster and add more jobs in the next decade than any other sector. Our team recognizes, for healthcare workers, having a facility that supports their practice is essential to care. These buildings are literally ground zero for providing a healing, peaceful environment for patients – but the delivery of that environment has changed over the years. Facilities were once designed as evidence-based functional spaces. That approach has now evolved into experiential environments created with the knowledge that patients heal best when they feel calm, comfortable and secure. It's a trend known as empathetic design.

On both the functional and experiential front, healthcare facilities come with their own unique mechanical and electrical considerations. As always, reliable power, sophisticated ventilation and sanitation systems are critical. But in recent years, mood-lifting lighting schemes, complex telecommunications networks and efficient green design are an increasing standard.

In this issue, we've selected a few project examples showing this evolution, and we'll talk more about how we create environments to help heal.

Huntley Promoted to Casper Office Manager

We're pleased to announce John Huntley, P.E., a Mechanical Engineer and Project Manager in our Rapid City office, has been promoted to Office Manager in Casper, WY.

John joined West Plains Engineering in 2009 after a nearly 15-year career as an engineer in food processing companies and electronics manufacturing. Over the past decade, he has become a stellar member of the mechanical team in Rapid City and shown strong leadership, management and operational talent. He is a graduate of the South Dakota School of Mines & Technology and holds an active registration as a mechanical engineer in the State of Wyoming.



John made the transition and began overseeing our Casper office and staff at the beginning of August. While he will be missed in Rapid City, we are confident and excited to support him in this next phase of his career at West Plains Engineering.

If you have any questions, please call our Corporate Office at (605) 348-7455.



Our largest healthcare project to date is the \$30 million McMurry West Patient Tower at the Wyoming Medical Center in Casper. Photos of the project are featured on the cover and inside spread of this issue, and more information can be found on our website.

Cedar Rapids Hosts Client Appreciation Event

Check the first one off the list! We got our annual client appreciation events kicked off on a high note in Cedar Rapids on July 26. More than 75 people joined our Cedar Rapids staff and WPE company leaders for an evening at Cedar Ridge Winery and Distillery in Swisher. We ate, sampled the house goods and enjoyed some down time together. Congratulations to our Google Home Mini winners: Yolanda Cruz (Carlson Design Team); Steve Pavalec (UNI); David Johnson (Johnson Controls) and Isaiah Borel (Siemens). Check out more photos by liking us on Facebook!



MARK YOUR CALENDARS!

West Plains is busy planning/hosting our Client Appreciation Events company-wide! Details for each are being sent out as we go, but check out the schedule below and make sure to Save the Date for an event near you.

- ✓ **Cedar Rapids:** Thursday, July 26 | 4-7 pm
Cedar Ridge Winery & Distillery
- Sioux Falls:** Friday, Sept. 28 | 11 am-3pm
WPE Office
- *Sioux City:** Thursday, Oct. 18 | 3:30-6 pm
Orpheum Theatre
- Rapid City:** Thursday, Oct. 18 | 4-7:30 pm
Hay Camp Brewing Company
- Casper:** Thursday, Oct. 26 | 4-7 pm
Gruner Brothers Brewery

**With so many great partners in the Sioux City area - we're bringing the party to you this year!*



PROJECT PROFILE

RENOVATION

Ft. Meade VA Medical Center
Renovate Inpatient Functions
Ft. Meade, SD

Team
Stone Group Architects
BWBR Architects

PROTECTING PATIENT PRIVACY

Privacy is one of the core components of healthcare delivery. The ability to protect Patient Health Information (PHI) in both physical and electronic spaces is an expectation of all medical providers – from private practice clinics to major healthcare organizations.

The Department of Veteran Affairs is no exception. VA Medical Centers across the country are held to strictly enforced privacy design standards. As these standards are changed and developed, many clinics must look at construction renovations to comply.

In 2016, West Plains Engineering was part of team that completed an initial study at the Ft. Meade VA Medical Center in South Dakota. The goal of the study was to address a critical patient privacy issue that had been identified on the second floor of Building 113, which included Inpatient Care, a Sleep Lab and Intensive Care Unit (ICU). Our team performed a site investigation and developed conceptual narratives with recommended solutions for renovations which would alleviate these issues.

The VA Black Hills Health Care System, which manages the clinic, had previously determined a need to renovate and



Mike Sigman, P.E. is an Electrical Engineer and Rapid City Office Manager. In 2018, he reached his milestone 20 years with West Plains, but previously spent 7 years with the Department of Veteran Affairs as an Assistant Chief of Engineering where he oversaw nearly \$19 million in medical center construction projects.

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consolidate overnight stays to the second floor in order to improve staff efficiencies and enhance the patient experience. Our study determined that these goals, as well as enhancements to patient privacy, were in fact feasible given the 20,000 square foot available space and the latest VA and private design standards.

Today, our Rapid City team is working with Stone Group Architects and BWBR Architects to implement those design changes. The project involves conversion to private patient rooms with bathrooms, redesign of nurse's stations and satellite nurse's stations, relocation of all non-direct patient care functions, inclusion of supporting ancillary services and achieving a proposed final bed count of 29 (20 Med/Surg; 5 ICU; 4 Sleep Lab). Per the study's recommendations, we are also adding a new elevator.



ENVIRONMENTS THAT HELP HEAL

Mike Drahos, P.E.
Cedar Rapids Office Manager | Mechanical Engineer

Jonathan Kennedy, P.E.
Electrical Engineer

Writing a white paper on engineering design considerations for healthcare is kind of like trying to boil the ocean – there’s simply too much to do it all at once. On the mechanical and electrical side alone, there are literally hundreds of unique challenges and approaches an engineer only faces in medical facilities. Where do you begin?

If we’ve learned anything from our healthcare clients – it’s that the most important thing, no matter what, is the patient. That’s how they approach their work, and it’s a key take away for the design team. Our job is to create an environment that helps heal, and to do that, each discipline must collaborate to develop spaces that are safe, comfortable and deliver quality care. The mechanical and electrical systems are no exception. As always, reliable power, sophisticated ventilation and sanitation systems are critical. But in recent years, mood-lifting lighting schemes, complex telecommunications networks and efficient green design are an increasing standard.

But there are obvious challenges to meeting these goals. Modern medical construction is some of the most regulated of any industry, and at times those high standards come with an equally lofty price tag. As margins shrink and patient volumes increase, funds are already tight. It’s up to the design team to get creative with solutions that fit both the standard, and the budget.

Additionally, healthcare today is delivered through the lens of the patient experience. That means even designers need to understand not only the physical care patients receive, but also the emotional and psychological impact various facility design elements can have on healing. It’s known as empathetic design and studies have shown, if done right, it can play a big part in patient care.

In this Strategic Direction Report, we’ll part the ocean of healthcare design considerations to address these specific issues and others focused around safety, comfort and care. From emergency power systems and patient-focused lighting schemes to sanitation/sterilization and support for life saving medical equipment – we’ll share our approach to delivering on client expectations and budgets. It may seem like just a drop in the bucket for this complex industry, but if it’s patient-centered, it’s the right place to start.

Download the Full Strategic Direction Report

Visit www.westplainsengineering.com/SDR or click on the QR code below to download the FREE full white paper on MEP Design for Healthcare.



Mike Drahos, P.E. is a mechanical engineer and manager of our Cedar Rapids office. He has more than 25 years in the A/E/C industry, and has worked extensively as both a consulting engineer and mechanical contractor with healthcare organizations across Iowa and Minnesota.
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Jonathan Kennedy, P.E. is an electrical engineer in our Sioux Falls office. During his more than 15 year career, he has designed electrical systems for hospitals, clinics and specialty care facilities, including both the Sanford and Avera systems of care.
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PROJECT PROFILE

UNIVERSITY OF IOWA
HOSPITALS & CLINICS

Generator Remote
Annunciator Panels
Iowa City, IA

Team
UIHC Capital Management
UIHC Engineering Services
UIHC Health Care Information Systems
S.E. Electric, Inc.
Communications Engineering Company



Jeff Reinhart, P.E. has been an Electrical Engineer in our Cedar Rapids office since 2002. He has performed more than 60 projects on the UIHC campus, many of them focused on improving electrical distribution reliability.
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BEHIND THE SCENES SAFETY

When it comes to keeping medical facilities safe, there's a lot that goes on behind the scenes – particularly with emergency power. Obviously, generators come to mind in supplying this power, but it's equally important to monitor these systems to assure that they perform when they're needed most.

This past year, we worked with UIHC to install new remote emergency generator annunciator panels, which monitor generator status, in the central dispatch area of their facility. Although not a direct patient care location, this is a 24/7 area where the status of critical emergency power can now be closely and remotely watched.

There are 11 generators located throughout the facility, and this project added annunciator panels for all of them. Monitoring includes generator status items such as low fuel level, low coolant level, battery charger failure and high coolant temperature. Due to the age of a few of the generators, our team also upgraded the control panels, so they could be connected to the new annunciator panels. The ability to quickly identify any faults with the emergency power system is critical to maintaining reliable power – and patient safety.

Creating the Connection

Interestingly, since many of the generators were located a long distance from central dispatch, standard copper communications wiring could not be used. We instead utilized fiber optic cables with fiber optic-to-copper converters on both ends of the fiber optic cables. These cables were installed from each generator to the nearest IT data closet through a combination of new and existing raceways. At the closets, existing spare fiber optic cables were used to continue the fiber optic route to another IT data closet near the dispatch area. From here, a main fiber optic cable was installed to the dispatch room to complete the route.

The fiber optic-to-copper converters require continuous power, so the converters at the generators were powered from the generator batteries and the converters in the dispatch area were powered from a new uninterruptible power supply fed from an emergency power circuit.

Team Spotlight

MIKE DRAHOS, PE



Title: Cedar Rapids Office Manager
Years with WPE: Brand new!
Home Team: Mike and his wife, Alethea, have been married 16 years.

For Mike Drahos, the A/E/C industry is a family business. His father was a plumber/pipe fitter who worked his way up to own one of the largest mechanical contracting companies in Iowa. Growing up, Mike got to learn the trade first hand working in the field and the office – an experience that led to his decision to become a professional mechanical engineer.

After 22 years as a design professional, Mike returned to the contracting world to support and eventually take over as owner of his father's company. The past five years on the construction side of the industry, he says, have given him a new respect for the importance of quality construction documents as a designer. He now plans to use that knowledge to improve not only his plans, but those of his new staff in Cedar Rapids.

Outside of the office, Mike and his wife Alethea are self-proclaimed "foodies" with a passion for cooking and traveling. Like A/E/C, it must be in his blood, because Mike's mom Linda hand-made the amazing cupcakes served at our Client Appreciation Social this past July.



Partner Spotlight



University of Iowa Hospitals & Clinics

Healthcare facilities are certainly a place to heal, but they can also be a place to teach, learn, innovate and improve patient care. The University of Iowa Hospitals & Clinics (UIHC) is a stellar example of that model. In addition to treating hundreds of thousands of patients each year (including more than a million clinic visits in 2017 alone), UIHC's educational programs are currently training over 4,000 healthcare workers. With the ongoing nationwide shortage of medical professionals, it's difficult to overstate the importance of the academic investment UIHC is making in the field.

West Plains Engineering has had the privilege of supporting UIHC since the early 2000s. In particular, we've worked diligently to design and upgrade critical power systems. UIHC is both a major transplant (571 in 2017) and imaging center (X-rays, PET scans, CT scans and MRIs) – meaning extensive electrical systems are needed not only for the facilities themselves, but the complex equipment inside. Reliable power, for UIHC and other healthcare facilities, must be an absolute certainty.

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PROJECT PROFILE
NEW CONSTRUCTION
Sioux Falls Specialty Hospital
Urgent Care Clinic
Sioux Falls, SD
Team
JLGArchitects



Sara Norstrom is an Electrical Designer in our Sioux Falls office. She has been with West Plains Engineering for nearly 20 years, and has designed electrical systems for healthcare organizations across South Dakota.
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HEALTHCARE WITH STYLE

The newest urgent care option to dot the rich medical landscape in Sioux Falls is located at the busy intersection of 85th and Minnesota. Operated by Sioux Falls Specialty Hospital, the clinic focuses not only on walk-in urgent care services, but also outpatient therapy and occupational health.

West Plains Engineering provided mechanical and electrical design for the facility, working as part of a team led by JLGArchitects. The two-story, 15,500 square foot building was intended to look like an Apple store – which meant clean architectural lines and interior design (including lighting).

The first floor includes a lobby and waiting areas, reception, medical storage, radiology, lab, DOT testing, nurse's station, exam rooms, procedure rooms, staff breakroom supply/storage IT/security closet, electrical room meeting room, garage, clean and soiled linen closets and offices. (Just to name a few.) The second floor consists of outpatient physical therapy, mechanical space and office spaces.

The \$5.9 million clinic began treating patients in December of 2017.