

Vol XIX, Issue 1

PLAINS TALK

A Publication of West Plains Engineering, Inc.

February 2017

If You Don't Know the Answer; It's Time to **Study**
Washington Pavilion: Better Data Better Decisions
Phasing Forward: Preparing SD Mines for Tomorrow's Campus

westplainsengineering.com

NEXT ISSUE

There are tons of things that affect High Performance Building design. Our team will explain the big ticket items and what they could mean for you and your clients.

MECHANICAL ELECTRICAL PLUMBING POWER

AN ENGINEERING SOLUTION CENTER

IN THIS EDITION...

In the past year, Plains Talk has gone through some serious changes. After more than a decade, we've updated our look, broadened our content and added an electronic edition. Many of you have commented on the positive changes (thanks for that by the way). But as a company, we still felt there was more we could do to tell our story – and the stories of our partners.

As you can see, more really means *more*. We've added more pages so we can share more unique project and industry insight. You can also start looking for Plains Talk to arrive every other month. The goal isn't just to send you more newsletters. It's to send you a newsletter that has more interesting information with better photos and an easier format. Bigger isn't always better, but it certainly has its perks.

When we sat down to talk about our first edition of the "new" Plains Talk, it seemed pretty clear we should start where so many of our partners do – by talking about studies. In recent years, our firm has performed an increasing number of performance studies, feasibility assessments and energy audits to help our partners determine which scope and direction is right for their project. By assessing building performance, we can also help our partners recognize cost savings or qualify for rebates from local energy companies.



Congratulations!

David Clark, P.E.
Mechanical Engineer
Cedar Rapids

David recently passed his Professional Engineer Exam to become registered in the state of Iowa.



Check out the Back Page to learn about our new engineer-authored white papers available starting this spring. Our first topic? **High Performance Buildings**



Deb Robertson celebrated her retirement in December after 20 years with the company. She will certainly be missed, but we wish her the best! (L-R: Doug Feterl, Deb Robertson & Mike Sigman)

Welcome New Team Members



Elaine Clement
 Administrative Assistant
 Rapid City



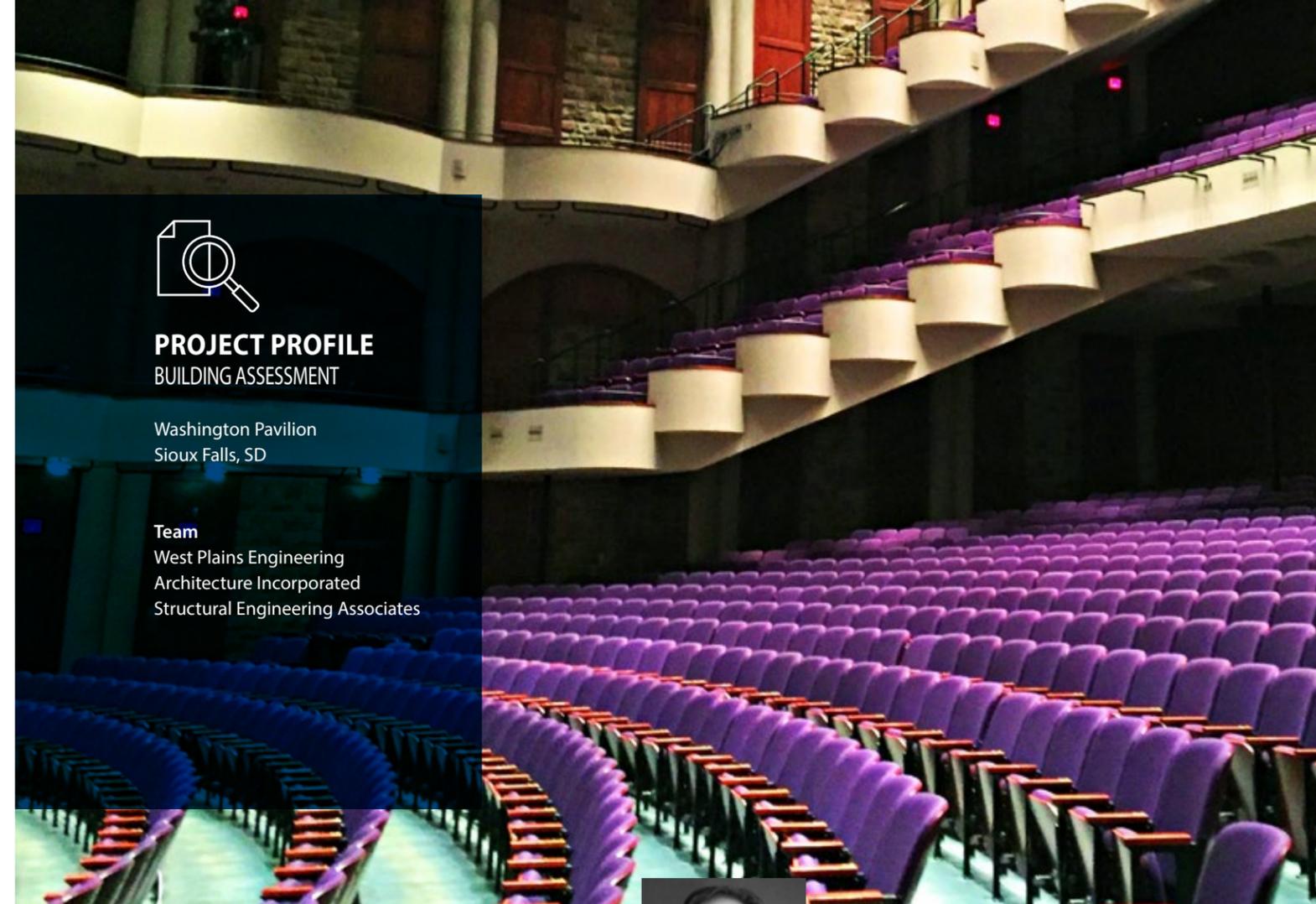
Jim Franz
 Accounting/HR Manager
 Rapid City



Danette Morehead
 Administrative Assistant
 Sioux Falls



Jeremiah Sutton, EIT
 Electrical Engineer
 Rapid City



PROJECT PROFILE

BUILDING ASSESSMENT

Washington Pavilion
 Sioux Falls, SD

Team
 West Plains Engineering
 Architecture Incorporated
 Structural Engineering Associates



Marty Christensen is a Principal Mechanical Engineer and Sioux Falls Office Manager. He has been with West Plains more than 20 years and helps direct the company's operations as a member of the Board of Directors.
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Useful life. It's a term used with increasing frequency in many industries and trades, but the basic principal is the same – how long is a particular piece of equipment or process effectively useful.

In the engineering world, we are often called in to conduct a life cycle assessment of a building to determine the remaining useful life on mechanical and electrical systems. With this information, Owners are then in a better position to make business decisions about replacements, upgrades or new construction.

Recently, we worked with the City of Sioux Falls to conduct a comprehensive mechanical and electrical assessment, along with Architecture Incorporated and Structural Engineering Associates reviewing the architectural and structural features, of the Washington Pavilion. The facility, which opened in 1999, is home to a variety of community activities, including an art gallery, concert hall, large-format theater and science museum.

The in-depth study involved West Plains making onsite visits to review the facility and it's various systems to determine deficiencies, or areas which may have

opportunities for improvement. We also researched ways to make existing conditions work better and replace old technology with new. We were then able to issue a report to the City, which outlined in detail the anticipated costs to repair or update those items, as well as reporting on the potential lifespan if the modifications were or were not made, in some cases.

Since completing the study and recommendations, our team has continued to work with the City of Sioux Falls, along with Architecture Incorporated, to begin addressing some of the issues identified.

By gaining a complete understanding of options and possible outcomes, all parties involved are now in a better position to support and extend the useful life of the Washington Pavilion for the Sioux Falls community.



If you don't know the answer –

IT'S TIME TO STUDY.

Todd Weidner, P.E., RCDD
Principal Engineer

We've all learned it at one time or another. If you need to find an answer, discover a better way or review the facts – you'd better study. For some of us (show of hands?), that occasionally meant a cram session or a glance at the cliffs notes before the big test. Unfortunately, this lack of planning and preparation doesn't always yield the best results. Had we spent more time researching and understanding the material, the outcome could have been better.

Preparing for a project is really no different. If the direction is unclear or the existing systems aren't fully understood, studying the current conditions helps the team know where they are, so they can more effectively design for where the client wants to go. For some projects, the scope and requirements are crystal clear from day one. But for those that aren't, a preliminary study phase can significantly reduce wasted time and cost, while ultimately creating a better end product.

Industry-wide, clients are beginning to see the importance of studies and implement them into a phased project approach. We've performed more than 300 studies since 2010 alone, a good indication that this tool is being widely adopted to identify problems, assure safety, plan and improve system performance in building design.

Whether it's a study, assessment or audit – the goal is the same: gain a comprehensive understanding of the problem in order to provide a better solution. But depending on the desired outcome, the approach is slightly different.

STUDIES

A system study is going to reveal where problems exist in mechanical and electrical components. If a building continually experiences blackouts, brownouts, tripped breakers or blown fuses, an electrical study can identify the root cause. When employees are relying on space heaters under their desk, a review of the HVAC system can pinpoint if the issue is with heating system performance or the building envelope. Not only are studies helpful for fixing building performance issues, but they are imperative for identifying safety concerns. An Arc Flash Study, for instance, is a lifesaving tool for assuring employee safety on the job site.

ASSESSMENTS

In most instances, an assessment refers to the process of evaluating a system's useful life, or planning for future growth. We routinely conduct assessments of existing buildings and utilities to give our clients a recommendation on how to proceed both in planning for new construction and renovation, and the infrastructure that will be needed to support their vision.

AUDITS

Every engineer loves to solve problems – even when they aren't apparent to the naked eye. By performing a building or energy audit, we can identify areas that might be functional, but can certainly be improved in order to give the Owner a more efficient system – and often – cost savings. In fact, several state grants and energy company rebates have been developed to reward Owners for being able to prove energy efficiency and system improvement.



ENERGY REBATE
Outdoor Campus West
South Dakota Game, Fish & Parks
Rapid City, SD



In 2010, we partnered with the South Dakota Game, Fish and Parks Department on a new \$10.5 million dollar educational facility – Outdoor Campus West. Obviously, using energy efficient systems for this client was paramount. Our engineers got creative and, in the end, earned a LEED Gold Rating.

But we weren't done yet. Our team proceeded to perform an Energy Audit of the main building to study and prove our designs worked. The result – confidence that the building performed as expected, documentation of our findings and a **\$10,000 rebate from Black Hills Energy for our client.**



Todd Weidner is a Principal Electrical Engineer and Manager of the Electrical Specialties Division. Todd has been with West Plains more than 15 years, recently turning his focus to electrical studies and energy audits in support of a variety of clients in North Dakota, South Dakota, Wyoming, Iowa and Minnesota. He is based out of our Sioux Falls office.
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PROJECT PROFILE

UTILITY INFRASTRUCTURE ASSESSMENT

South Dakota School of Mines & Technology
Rapid City, SD

Team

West Plains Engineering
Albertson Engineering
FMG Engineering, Inc.
Tallgrass Landscape Architects



- Study reviewed gas line improvements; chilled water system upgrades; expansion/repair of utility tunnel; drainage improvements; water/sewer improvements & ADA accessibility to the Plant
- WPE acted as lead design firm; partnering with civil & structural engineers and landscape architects
- Follow-on projects completed to-date: Steam Tunnel Repair Phase 1; Chiller Plant Upgrade & Steam Tunnel Repair Phase 2
- Total construction to date: \$2,299,000
- WPE is currently working on a second study to evaluate the entire chilled water system for the campus and provide recommendations at each building

PHASING FORWARD

Creating a Master Plan is no small task. Executing it is even harder. But by breaking it down into phases that compound on one another over a period of years, not to mention a period of budget cycles, it becomes manageable.

West Plains Engineering was part of a team that worked with the South Dakota School of Mines & Technology to develop a Campus Master Plan for the execution of the Mission Forward 2020 Strategic Plan. After it's adoption, our engineers went to work performing an expansive utility infrastructure study to support the project.

By first reviewing the performance and capabilities of where the system was – our team was able to provide a solid road map forward, including identifying improvements that could be broken down into phases implemented over time using known maintenance and operations funds.



John Huntley is a Mechanical Engineer with more than 18 years of experience in the industry. A 1995 graduate of South Dakota School of Mines and Technology, John joined West Plains Engineering in 2010 and has worked with the university on various upgrades and expansions. john.huntley@westplainsengineering.com

Team Spotlight

JEREMIAH SUTTON, EIT



Title: Electrical Design Engineer
Years with WPE: Less than 1
Home Team: Jeremiah was born and raised in Rapid City and is one of six children for Sarah and Al Sutton.

At 22 years old, Jeremiah Sutton's resume already boasts some impressive industry knowledge. A recent graduate of South Dakota School of Mines & Technology, with a degree in Electrical Engineering, Jeremiah has been a licensed journeyman electrician since 2013. His electrical path was set out fairly early – his dad owns Al Sutton Electric, and brought his son into the family trade.

Jeremiah began his career with WPE last year as a summer intern, supporting the Rapid City electrical department and learning the ropes from some of the company's most tenured engineers. Now a full engineer in training, Jeremiah will spend the next five years continuing his mentorship in preparation for his Professional Engineer exam and a career as a fully licensed engineer.

In his spare time, Jeremiah is a virtual modern day renaissance man. He's an accomplished musician (he plays five instruments!) and outdoor enthusiast who spends his summer weekends off the grid back woods camping in the beautiful Black Hills.



Partner Spotlight



South Dakota School of Mines & Technology

The South Dakota School of Mines & Technology, or locally known as "Mines", has been teaching and guiding some of the region's most gifted scientists and engineers since 1885. Originally founded to support the area's mining industry, the school has since become synonymous with learning excellence – with graduates consistently boasting one of the region's highest starting salaries.

Today, the university continues to look toward future growth and development of both campus and curriculum. West Plains Engineering has had the privilege of working alongside a team to help Mines develop the framework for carrying out its strategic Mission Forward 2020 plan, which includes paying close attention to the infrastructure needed to support expansion and improvement of student housing, classrooms, athletic facilities and community living spaces. We've also been fortunate enough to hire many of Mines' fine students over the years – and currently have more than a dozen alumni on our staff.



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COMING SOON

A background image showing architectural blueprints spread out on a table. A silver compass is positioned in the lower-left foreground, and a silver pencil lies diagonally across the middle. The blueprints feature various lines, circles, and dimension lines with numerical values.

STRATEGIC DIRECTION REPORTS

As consultants, we're brought onto a project for our expert knowledge and ability to solve problems. But we don't think our clients should have to wait until the contract is signed to pick our brains. When you make us a part of your team, we believe you should already know what you're getting.

This spring, we're introducing a series of four **Strategic Direction Reports** to help start the conversation:

WPE-authored original white papers

Comprehensive technical reports with specific solutions for improving your next project

Available for download on our website

Visit www.westplainsengineering.com/SDR and sign-up to receive notice each time a new edition is released.

First Edition: HIGH PERFORMANCE BUILDINGS

Learn about the key items affecting high performance buildings, creative system solutions for improving building energy use and what it all means for your clients.