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PLAINS TALK

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Putting Pilots First: Slayton Municipal Airport Lighting

Strategic Direction Report: Answers for Airports

Not One Size Fits All: Sheridan County Airport Fuel Farm

Protecting the Fleet: Sanford AirMed Hangar

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NEXT ISSUE

More project updates - more awesome team member profiles - and an update on what's moving and shaking from across the company.

MECHANICAL ELECTRICAL PLUMBING POWER

AN ENGINEERING SOLUTION CENTER

IN THIS EDITION...

West Plains Engineering has been designing airports for a long time. We've come to realize that's not a well-known fact – and we're out to change that. One of our company founders, Bob Thompson, was known for many years as one of the go-to guys for airport electrical design. He mentored our Power Division and those same engineers are still supporting clients across the region.

Our Upper Midwestern roots mean we have a close connection to airports of all sizes and types. From single runway rural locations serving the farm and ranch community to the United States Air Force – our team has designed mechanical and electrical systems to support the important work done on the ground before ever taking flight.

Obviously, the work our civil engineering colleagues do with runway paving, site drainage, airfield layout (and so much more) is critically important to good airport design. But having an MEP partner at the table who understands regulations on fuel systems, runway/taxiway lighting, electrical vaults, etc., means the owner gets a full complement of intelligent engineering design.

From terminals to hangars and fuel farms to taxiways – our team has decades of experience serving the aviation industry in our region. Tell your friends.

Team Member Milestones



Mark Grebner, P.E.
Principal Engineer
25 Years (Feb. 8)



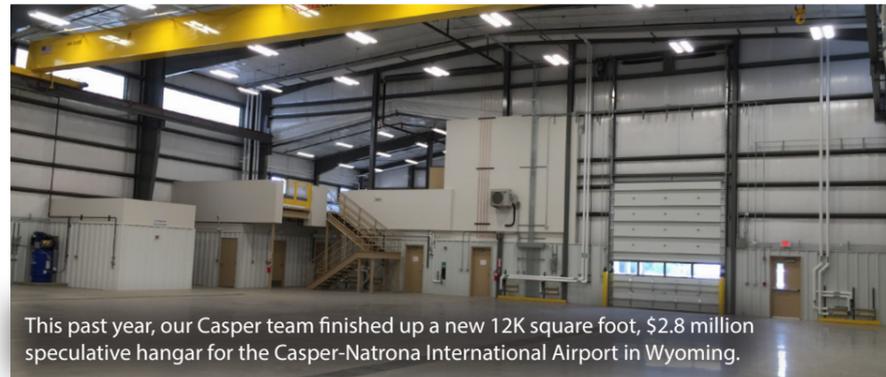
Andrew Maxwell, EIT
Electrical Designer
10 Years (Jan. 28)

WE'RE HIRING...

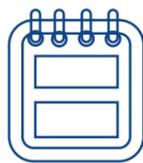


Join Mark, Andrew and more than 50 other great team members in one of our five regional offices. We're currently looking for exciting, energetic new talent in several areas. Check out our website for the most up-to-date list.

www.westplainsengineering.com/currentopenings



This past year, our Casper team finished up a new 12K square foot, \$2.8 million speculative hangar for the Casper-Natrona International Airport in Wyoming.



For more information on regulations for mechanical and electrical systems, download our latest Strategic Direction Report – written by electrical engineer (and pilot) Kevin Groves and mechanical engineer John Huntley.

West Plains Presents at NDSC Annual Conference

In February, Electrical Specialties Manager Todd Weidner and Power Division Manager Kevin Groves teamed up for a presentation at the 2018 North Dakota Safety Council Annual Conference.

Their 1.5 CEU session covered the ins and outs of utilizing electrical assessments (arc flash, short circuit analysis, selective overcurrent device coordination and infrared thermography) to improve workplace safety. Todd's portion focused on the building-level assessments for low voltage systems, while Kevin spoke

to the larger utility grids for medium voltage distribution.

The NDSC Conference is in its 45th year and is billed as the region's largest safety event. The three-day educational opportunity routinely welcomes more than 1,000 attendees and 150 exhibiting companies to the Bismarck Civic Center.

This was West Plains' second year attending as an exhibitor and first year presenting.

NEED SPEAKERS?

West Plains has developed several presentations for conferences, tradeshows and office lunch-n-learns.



Below are a few examples, but we're happy to work with you on a custom program that meets your needs.

Electrical Safety Assessments
High Performance Buildings
Drafting to Modeling: Autodesk Revit
MEPP Engineering for Aviation

For more information, contact Kelli Crouse at (605) 348-4755 or kelli.crouse@westplainsengineering.com

PROJECT PROFILE

ELECTRICAL UPGRADES

Slayton Municipal Airport
Slayton, MN



CONSIDER THIS...

Public airports create Capital Improvement Plans (CIPs) that are approved, and funded, by the government. These CIPs detail necessary construction projects and their associated capital investment on 3-5 year cycles.

However, in between funding cycles, many airports still need assistance maintaining outdated, aging and/or non-functioning systems. By performing a site review and collaborating with owners, West Plains has been able to help many airports in our region stay online and up to code. For more information on what we can do, call Kevin Groves at (605) 739-5211.

PUTTING PILOTS FIRST

The municipal airport in Slayton, Minnesota is not unlike many rural airfields in the Upper Midwest. The airport includes a 3,200 x 60 foot runway, which serves mostly agricultural sprayers and private pilots.

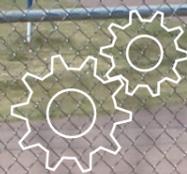
The bituminous runway includes lighting, but no instrument approach – which means it is strictly VFR (Visual Flight Rules). Pilots must rely on their interpretation of the runway to navigate, which makes systems like lighting, markers and signage of critical importance to their safety.

In 2014, our electrical team worked to upgrade the electrical system at the Slayton Municipal Airport for this exact reason. We provided the electrical design to replace low intensity runway lighting with a medium intensity system and new controls. We also replaced the Runway End Identifier Lights (REILs), and upgraded the existing Visual Approach Slope Indicators (VASIs) to 2-box Precision Approach Path Indicators (PAPIs) at the end of the runway. Lastly, we designed an upgrade to the existing electrical vault to accommodate the new equipment.

Ultimately, the end result was not only a more pilot-friendly runway for airport users, but also a more efficient, reliable system for the City of Slayton.



Harlan Osterloo is an Electrical Design Engineer with more than 26 years of experience in our Sioux Falls office. During this time, Harlan has taken a special interest in aviation design and has worked to upgrade the electrical systems for airports in Minnesota, South Dakota and Iowa.
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Strategic Direction Report

ANSWERS FOR AIRPORTS

Kevin Groves, P.E.
Power Division Manager | Electrical Engineer

John Huntley, P.E.
Mechanical Engineer

When it comes to designing systems for airports, the Federal Aviation Administration (FAA) has eliminated much of the guesswork from the equation. The spacing, location, types of equipment and even specific components are routinely specified in advisory circulars the department releases to the industry. This practice has resulted in the standardization of nearly all features across airports, an important piece in letting pilots know what to expect, which ultimately improves their ability to navigate both the ground and the skies.

But like any rules and regulations, there is some flexibility in their implementation. For instance, each airport has terrain and obstacles, both natural and man-made, that are unique to the facility. Airport size, shape and layouts also differ, along with the users, which can range from just a few local agricultural pilots to major commercial carriers. It's the responsibility of the airport manager and board (if seated), in conjunction with an experienced airport design team, to evaluate these unique features and make appropriate adjustments to achieve the most functional system for that specific airport.

Obviously, the most critical factor with any of these design features is universal – pilot usability. A pilot's ability to understand and utilize the various systems within an airport, from pilot-controlled runway lighting to card-based fueling systems, is critical to aviation safety.

So the challenge then becomes how to accurately execute the regulations, while making smart adjustments toward each facility's functional operation, and accommodating pilot use. A good design partner will understand when and where to apply the right amount of flexibility to meet the needs of all three (regulation, owner and pilot).

In this Strategic Direction Report, we'll discuss the options airports have to balance regulation, operation and use as they relate to mechanical and electrical systems – including fueling, runway and taxiway power distribution and lighting, terminals, hangars and maintenance buildings. We'll also give several project examples where it was put into practice, supporting the important work done on the ground before pilots ever take flight.

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 Airports, which includes detailed information on the application of regulations for mechanical and electrical systems, including when to use flexibility, in achieving the best outcomes for both owners and pilots.



Kevin Groves, P.E. is an electrical engineer and manager of the WPE Power Division. He has more than 20 years of experience in the utility engineering field – including designing electrical and power distribution systems for regional airports across the Upper Midwest. Additionally, Kevin is an accomplished pilot. He is a retired U.S. Army Master Aviator, as well as an avid private pilot, with 24 years of flying experience. kevin.groves@westplainsengineering.com



John Huntley, P.E. is a mechanical engineer with more than 18 years of experience in airport-related designs. He is particularly skilled and knowledgeable in the area of fuel system and fuel dispenser design, both for small municipal airports, as well as larger commercial operations. john.huntley@westplainsengineering.com



South Dakota Airports Conference | April 11-12

Learn more about the mechanical and electrical options for municipal airports during our presentation at the 2018 SD Airports Conference in Deadwood.



PROJECT PROFILE

SHERIDAN COUNTY AIRPORT

Fuel Farm & Self-Service System
Sheridan, WY



Mike Sigman, P.E. is an Electrical Engineer and Rapid City Office Manager. In 2018, he reaches his milestone 20 years with West Plains and during that time, has acted as Project Manager for dozens of airport projects throughout the region. mike.sigman@westplainsengineering.com

NOT ONE-SIZE FITS ALL

The presence of both private and commercial aircraft changes the game for any airport. From runways to hangars (and everything in between), adding passenger jets to the mix ups the ante.

A key area for accommodating multiple types of aircraft is the fueling system. Different planes require different fuels. Different fuels must be stored, piped and dispensed unique to their properties. More information about the specifics on these fueling requirements can be found in our latest Strategic Direction Report. Check out Page 5 for a download link.

At the Sheridan County Airport, our team designed a new aboveground fuel storage system consisting of one 20,000 gallon tank of 100 Octane AVGAS (for smaller planes) and two 20,000 gallon tanks of Jet Fuel (for passenger jets). We also added two 4,000 gallon (2,000 diesel/2,000 unleaded) tanks for

ground maintenance vehicles. Each system required not only it's own storage tanks, but piping and dispensing units appropriate for the type of fuel.

One such unit was added in a later follow-on project, when our team designed a remote fuel dispenser for the AVGAS. This new system uses a credit card program to allow private pilots to purchase and fuel their aircraft at their convenience. As fuel is pumped, a remote fuel tank sensor tracks the volume in the tank and will notify airport operators of usage data and other important system information.

Team Spotlight

KEVIN GROVES



Title: Power Division Manager
Years with WPE: 10 Years
Home Team: Kevin and his wife Buffy have four children, Kailyn (17), Hugh (16), Harland (16) and Kaycee (14).

We couldn't possibly do an issue of Plains Talk on Aviation without highlighting Power Division Manager Kevin Groves. Not only is Kevin a stellar electrical engineer with decades of experience behind him – he's also an avid pilot.

Kevin has flown just about everything that flies, including logging 300 hours of combat time as a Master Aviator for the United States Army and the SD Army National Guard. Needless to say, he's got some good stories.

Since retiring from the Army, Kevin has continued his passion for flight as a private pilot. He recently purchased a 1977 Piper Arrow III Turbo and uses it to get from his ranch in Faith, SD to projects around the region.

Kevin and his wife Buffy also spend their time keeping up with their four kids who compete in rodeo, basketball, volleyball and just about everything in between. With busy teenagers, a full-time engineering gig and a ranch to run, it's no wonder Kevin flies whenever he can.



Partner Spotlight



Sheridan County Airport

Less than 20 years after the Wright Brothers took their first official flight at Kitty Hawk, Sheridan County opened it's first runway – Aviation Field. At the time, it was used almost exclusively by a local physician who flew his wood and canvas airplane to remote patients his car couldn't reach.

By 1995, Sheridan County Airport had grown to more than 1,550 acres with an 8,300 foot runway, daily commercial flights to Denver, and an entire network of support structures and amenities for the aviation community.

West Plains began our relationship with SCA in 1996 and over the past two decades, we've designed systems for more than \$3 million in renovation and expansion. It's been our privilege, but hasn't come without challenges. With passenger flights come the needs of commercial aircraft (different fuels, lighting, etc.). But true to it's roots, SCA also still supports a large number of small private pilots. The ability to balance the needs of both groups is what makes SCA special, as an airport...and a client.

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145 S. Durbin, Suite 205, Casper, WY 82601
(307) 234-9484
215 2nd Avenue SE, Suite 200, Cedar Rapids, IA 52401
(319) 365-0030



PROJECT PROFILE

NEW CONSTRUCTION

Sanford AirMed Hangar
Sioux Falls, SD

Team
Fiegen Construction Company



Mike Fisher, P.E. is an electrical engineer and head of the Electrical Department in our Sioux Falls office. He has designed systems in eastern South Dakota for more than 20 years and was the Project Manager for the Sanford AirMed Hangar. mike.fisher@westplainsengineering.com



PROTECTING THE FLEET

In 2016, West Plains Engineering was asked by Fiegen Construction Company to design a new 36,000 square foot hangar to house Sanford Heath's AirMed fleet. AirMed is a critical care ambulance service providing helicopter, fixed-wing and ground ambulance service throughout the region. The program has been in place for more than 35 years and has flown over 60,000 patients.

While largely a hangar, the \$2.8 million Sioux Falls facility also included a pilot lounge, office space, restrooms and a mezzanine for mechanical and electrical systems.