



NSPE-SD

SOUTH DAKOTA
ENGINEERING SOCIETY

Virtual PDH Conference

September 10th—11th, 2020

South Dakota Engineering Society 2020 Virtual Fall PDH Conference

September 10th—11th, 2020

Virtual via Webex Events

Conference Agenda and Program



SOUTH DAKOTA
ENGINEERING SOCIETY

Thursday, September 10th, 2020

8:00—8:15am

Welcome!

Gabe Laber, PE, SDES Virtual Conference Planning Committee Co-Chair, HDR Engineering, Inc.



Krista May, PE, Conference Moderator, SDES Eastern Chapter Past-President, Infrastructure Design Group, Inc.

**Thank You to our
SDES
Platinum Sponsor!**



8:20—10:10 am *Session One*

8:20—8:50am **0.5 PDH**

2019 Ice Storm Response

Ben Pierson, PE, System Engineer, Sioux Valley Energy



The 2019 Ice Storm was the worst that Sioux Valley Energy's 80-year-old system has had to endure in terms of damage and outages. The restoration of the system and service to our members was a difficult task that was accomplished using good planning, in advance of the storm, and new technologies. Mr. Pierson will discuss the process and items learned, in addition to showing some amazing pictures of the storm and damage that occurred.

9:00—9:30am **0.5 PDH**

Go Sioux Falls 2045 Metropolitan Planning Organization Long Range Transportation Plan



Sam Trebilcock, Senior Planner
City of Sioux Falls

A Long-Range Transportation Plan is a federally required plan that sets forth a direction and strategies to help shape a region's transportation network. It considers all modes—driving, walking, bicycling, transit, rail, air—to help set priorities for the future and must be updated every five years. Go Sioux Falls 2045 will establish the goals and priorities that guide the region's future transportation investments and help shape the region's transportation network through the year 2045.

9:40—10:10am **0.5 PDH**

Design Considerations and Analysis Tools for Sign Structures

Tevis Holzer, PE, Structural Engineer, Daktronics



The efficient design of sign structures includes unique aspects, consideration and analysis techniques. Application of these design and analysis tools will be shared through some interesting project examples including freestanding signs, center-hungs and some specialty applications.

**Thank You to our
SDES
Gold Sponsor!**



10:30—11:40am

Session Two

10:30—11:00am 0.5 PDH

Cold Storage and Ammonia Refrigeration

Jeff Davis, Managing Partner, Win Chill LLC



Jerry Tippman, Vice President, Tippmann Innovation/Tippmann Design Build LLC



Rob Adams, Tippmann Innovation/Tippmann Design Build LLC

Win Chill cold storage is a state of the art freezer facility in Sioux Falls, SD. This session will detail of some of today’s challenges in the freezing process. Tippmann Innovation/Tippmann Design Build LLC is a design build contractor specializing in cold storage and refrigerated buildings. This session will also include details on how Tippmann partnered with Gil Haugan Construction to build Win Chill cold storage, phase one and phase two.

NOT A SDDES MEMBER?

Join today and start receiving the many benefits of membership — including over 40% off your next conference registration! Find out more at SDDES.org and NSPE.org

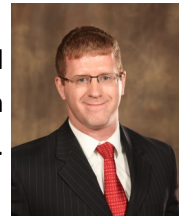


11:10—11:40am 0.5 PDH

Arc of Dreams



Aaron Hartwell, PE, SE, Structural Engineer, Albertson Engineering, Inc.



Chad Kucker, ASLA, Associate Principal, Confluence

The Arc of Dreams sculpture in downtown Sioux Falls is a great example of the application of standard engineering principles to uncommon design applications. From its inception in 2013 to construction in 2019, this project overcame site and structural challenges to become a uniquely Sioux Falls sculpture spanning the Big Sioux River. SculptureWalk Sioux Falls collaborated with sculptor Dr. Dale Lamphere, South Dakota’s Artist Laureate, to create a monumental sculpture representing the leap of faith we take in life to transform our dreams into reality. The artist’s vision was a set of two arc-shaped structures reaching toward each other across the Big Sioux River. After much modeling, wind testing, and reworking of designs, the design team selected an open-pipe framework wrapped with helix-shaped plates. Following fabrication, the Arc was erected, one side at a time, over a period of several weeks. On the days the massive 260-ton crane set the final assembled pieces onto the foundations, large crowds gathered to watch. The process of assembling and erecting the pieces in place in a busy section of the downtown area required collaboration between SculptureWalk, property owners, the city of Sioux Falls, the contractors, crane erectors, Dale and his crew, and the engineering team. The Arc of Dreams has permanently altered the skyline of Sioux Falls, towering 70 feet above the Big Sioux River.

CIVIL ENGINEERING & LAND SURVEYING SERVICES

infrastructure
noun in-fra-struc-ture
the underlying foundation, framework and structures that are needed for a country, region, or organization to function properly.

IT'S WHAT WE DO.



3241 E. BISON TRAIL | 20 S. MAPLE | 520 N. LAWLER ST, #400
SIOUX FALLS, SD | WATERTOWN, SD | MITCHELL, SD
605-271-5527 | 605-878-2120 | 605-292-0231

InfrastructureDG.com

STRUCTURAL ENGINEERING / MUNICIPAL ENGINEERING / TRANSPORTATION ENGINEERING & PLANNING / WATER RESOURCES
SITE DEVELOPMENT / CONSTRUCTION OBSERVATION / PARKS & RECREATION / LAND SURVEYING

12:10—1:55pm Thursday Keynote & Awards

12:10—12:55pm **Thursday Keynote**

66 Years of Engineering Applications

Jerry Lohr, President, Chairman,
J. Lohr Vineyards & Wines



The son of a hard-working South Dakota farming family, Jerry Lohr graduated from South Dakota State University in 1958. He received an M.S. from Stanford in 1959, and completed all coursework for a Ph.D. in civil engineering by 1961 before joining the Air Force. As an Air Force captain, he was posted as a research scientist at the NASA Ames Research Center, Moffett Field, from 1961-1964. Returning to civilian life, Jerry opened a land development and custom home building business. But his passion for farming and an appreciation of wine soon led him to take on a new challenge: winegrowing.

In the late 1960s, Jerry dove headfirst into his new endeavor with an extensive investigation of California grape growing regions. Aware of the importance of climate, soil quality and location, he finally selected the Arroyo Seco region of Monterey County for his first vineyard in 1972.

Throughout the success of J. Lohr Vineyards and Wines, Jerry has remained connected to South Dakota and SDSU, joining the SDSU Foundation Board in 1988 and leading several fundraising campaigns. He was among the first funders of the landmark Jackrabbit Guarantee scholarship program and has since created the Lohr Scholars, a renewable \$5,000 scholarship for high-achieving South Dakota students majoring in engineering.

In addition receiving the SDSU Distinguished Alumnus Award and the College of Engineering’s Distinguished Engineer Award, the College of Engineering was renamed the Jerome J. Lohr College of Engineering in 2013. Lohr has been the complete team player for SDSU and the Foundation—a transformational donor, a relentless fundraiser and an always-present volunteer.

**Thank you to our
Keynote Speaker Sponsors:**



1:00—1:15pm **NSPE Update**

The Current State of Engineering

David Martini, PE, FNSPE, NSPE Past
President, Principal Engineer, Bolton & Menk, Inc.



Now more than ever, the engineering community needs to come together to advocate for the profession and educate the public, policy makers and educators on the importance of licensing engineers. As both immediate past president of NSPE and a consulting engineer, David will share a brief update on NSPE activities and current advocacy efforts regarding the engineering profession.

Established in 1934, the National Society of Professional Engineers (NSPE) was established, dedicated to the interests of licensed professional engineers, regardless of practice area, to protect engineers and the public from unqualified practitioners, build public recognition for the profession and stand against unethical practices. Today, NSPE’s vision is still a world where the public can be confident that engineering decisions affecting their lives are made by qualified and ethically accountable professionals.



1:20—1:50pmAwards Ceremony

South Dakota Engineering Society and American Council of Engineering Companies of South Dakota Awards Ceremony

Brad Ludens, PE, SDES Awards Chair,
City of Sioux Falls



The SDES and ACEC/SD Awards Ceremony is typically held during our Annual Conference in the spring but, due to the postponement of the conference due to COVID-19, we were also forced to postpone our award ceremony. Although we wish we could recognize our colleagues and their achievements in person, we hope you join us as we recognize the SDES Young Engineer of the Year, SDES Engineer of the Year and SDES—ACEC/SD Outstanding Engineering Achievement award winners.

Candidates for SDES Young Engineer of the Year



Black Hills Chapter:
Brett Belzer, PE
RESPEC

Eastern Chapter:
Joseph Stonesifer, PE, CFM
City of Sioux Falls



Candidates for SDES Engineer of the Year



Black Hills Chapter:
Jason Hinds, PE
FMG Engineering

Central Chapter:
Teri Morford, PE

South Dakota Department of Transportation



Eastern Chapter:
Aaron Hartwell, PE, SE
Albertson Engineering, Inc.

Candidates for SDES—ACEC/SD Outstanding Engineering Achievement Award

Black Hills Chapter: VRC Metal Systems Headquarters

Engineering Firm: FourFront Design

Contributing Firms: Albertson Engineering, West Plains

Engineering and Scull Construction Services

Project Ownership: VRC Metal Systems

Project Location: Box Elder, SD

Eastern Chapter: Yankton Collector Well and Water Treatment Plant Expansion

Engineering Firm: HDR Engineering, Inc.

Contributing Firms/Entities: City of Yankton, SD, and GeoTek

Engineering & Testing Services

Project Ownership: City of Yankton

Project Location: Yankton, SD

Eastern Chapter: Arc of Dreams

Engineering Firm: Albertson Engineering Inc.

Contributing Firms/Entities: Dr. Dale Lamphere, GeoTek

Engineering & Testing Services,

Inc., and Rowan Williams Davies &

Irwin, Inc.

Project Ownership: Sculpture Walk Sioux Falls

Project Location: Sioux Falls, SD

**Thank you to our
Award Ceremony Sponsors:**



2:00—2:55pm *Session Three*

2:00—2:55pm **1.0 PDH**

Autonomous Vehicles: Where Are We?

Egil Juliussen, Ph.D, Consultant,
Columnist at *EE Times*



With over 35 years of experience in the high-tech and automotive industries, most recently focused on autonomous vehicles (AV) and mobility as a service, Egil will provide an overview and summary of the autonomous vehicle industry. This session will include the topics of AV fundamentals, AV use cases, AV technology including hardware and software platforms and future perspectives.

SPN **Schmucker, Paul, Nohr and Associates**
2100 North Sanborn Blvd.—PO Box 398
Mitchell, SD 57301
Toll Free 1-800-952-3598

H **elms & Associates**
Civil Engineers & Land Surveyors

221 Brown Co. Hwy 19
P.O. Box 111
Aberdeen, S.D. 57402
Toll Free 1-888-378-4394

CIVIL / MUNICIPAL ENGINEERING
Water Distribution and Treatment, Wastewater Collection and Treatment, Drainage, Streets, Highways, Airports, Land Development, Master Planning, GIS, Solid Waste, Ag Waste, Land Surveying-GPS

3:30—5:00pm *Session Four*

3:30—4:25pm **1.0 PDH**

Automated Vehicles: Technology and Policy Overview



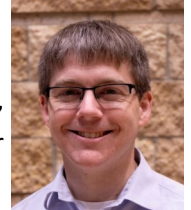
Anita N. Kim, Technology Policy Analyst,
Volpe National Transportation Center
U.S. Department of Transportation

This presentation will provide an overview of current technology and policy developments regarding automated vehicle technologies. It will discuss the technology landscape, current policy initiatives and related activities being pursued by the U.S. Department of Transportation.

4:30—5:00pm **0.5 PDH**

City of Sioux Falls and POET: A Public / Private Partnership

Dustin Hansen, Streets Operations Manager,
City of Sioux Falls



Bart Plocher, General Manager,
POET Biorefining, Chancellor

Public / Private partnerships with solid planning and good communication can bring success to both parties. This session will review the Public / Private Partnership between the City of Sioux Falls and POET Biorefining, including an outline of the specifics of the landfill gas project and continuing partnership, and a look at other possibilities.

Close of Thursday's Session

A few Reminders:

- Please take a minute to complete our survey for the opening day of the conference. It will help the Conference Planning Committee prepare for next year's conference.
- Remember to use Friday's link and login to join tomorrow's session.
- Tomorrow's great list of presenters starts promptly at 8 a.m. Central. Have a great evening!

**Thank you to our
Speaker Sponsor:**

STOCKWELL



WE KNOW YOU CARE MORE ABOUT THE CHARACTERISTICS, CAPABILITIES AND PERFORMANCE.

We offer a diverse selection of precast concrete products to meet the most rigorous design criteria required by you while affording the contractor the best quality product that installs quickly without issue. Cemcast is committed to producing innovative concrete products with an exceptionally high level of quality.



26088 466th Avenue • Hartford, SD • cemcast.com

Friday, September 11th, 2020

8:00—10:35am

Session Five

8:00—8:30am 0.5 PDH

Meandering Statistics: Hydrologic Analysis of One of the Nation's Biggest Rivers

Adam Nies, PE, CFM, Water Resources Engineer, Houston Engineering, Inc.



Updating the Flood Insurance Study through Bismarck, ND wouldn't be complete without the hydrology determination on the Missouri River. With a complex series of reservoirs along the mainstem and no hydrologic modeling available, the flow frequency analysis relies solely on a statistical analysis of USGS gage records. The plot thickens when the data is discovered to have gaps in it and broken flow records must be used to establish the flow downstream from a major tributary. Bulletin 17c prevails as the hero of the story as we showcase the methodologies it has for handling these unique situations.

8:35—9:30am 1.0 PDH

A Changing Climate: Issues and Impacts for Water (and many others) in the Midwest/Plains

Dr. Dennis Todey, Director, USDA-ARS Midwest Climate Hub

Dr. Todey's session will discuss changing climate issues and impacts on water, temperature and associated conditions in the Midwest/Plains. The presentation will address causes, as well as current and possible future changes .

DGR ENGINEERING
Trusted. Professional. Solutions.

Streets • Sewer • Drainage
 Water • Airports • GIS
 Electrical Power

Sioux Falls, SD
 605-339-4157

dgr.com email:dgr@dgr.com

Thank you to our
Keynote Speaker Sponsors:



9:40—10:35am 1.0 PDH

**ABC Bridge Replacement with Press Brake Tub
Girders**

Guy Nelson, PE, SE, Business
Development Director, Valmont
Structures



St. Clair County Road Commission received MDOT local agency funding for an accelerated bridge replacement of the Starville Road bridge. This project was a complete replacement of the Starville Road bridge and required less than 35 working days of road closure. This project also received FHWA A.I.D. grant funding for utilizing Ultra High Performance Concrete (UHPC) joints in both the substructure and superstructure.



GEOTECHNICAL & ENVIRONMENTAL
ENGINEERING, MATERIALS TESTING,
BUILDING TECHNOLOGY,
NON DESTRUCTIVE TESTING



www.amengttest.com

Conveniently Located Throughout the Region
SOUTH DAKOTA: Pierre, Rapid City, Sioux Falls
NORTH DAKOTA: Dickinson, Williston
WYOMING: Casper, Gillette, Sheridan
Call us at 605-388-0029

11:00—11:55am **Friday Keynote Speaker**

A Congressional Update

**The Honorable Representative
Dusty Johnson (R-SD)**



In 2004, Dusty was elected statewide to the South Dakota Public Utilities Commission. He worked with his colleagues to maintain a fair and reasonable regulatory environment, facilitating the investment of hundreds of millions of dollars into rural energy and telecommunications infrastructure. In 2010, Governor Dennis Dugaard asked Dusty to serve as chief of staff, the chief operating officer for much of state government. In that role, Dusty oversaw many of the Governor’s top projects and initiatives, especially those related to infrastructure and public safety.

Prior to being elected to Congress, Dusty served as vice president for Vantage Point Solutions, a South Dakota-based engineering and consulting firm specializing in rural telecommunications. Dusty is an expert in state and national telecommunications policy, especially Federal Communications Commission reform efforts and the transformation of the Universal Service Fund.

Johnson brings an energetic and optimistic style to Washington as South Dakota’s lone voice in the U.S. House of Representatives. A “policy guy,” he works hard to be a knowledgeable and value-added member on issues related to his two primary committee assignments: Agriculture and Education & Labor.

Committee on Agriculture – A recognized leader in issues related to rural America, agriculture, and welfare reform, Dusty was grateful to receive the unusual honor of being named ranking member of the Nutrition, Oversight, and Department Operations Subcommittee as a freshman. Dusty also serves on the Commodity Exchanges, Energy, and Credit Subcommittee.

Committee on Education & Labor – Dusty is involved with workforce development issues on the full committee and focuses on healthcare and other employer benefit issues as a member of the subcommittee on Health, Employment, Labor, and Pensions. His seat on the Civil Rights and Human Services Subcommittee allows him to pursue his passion for reforming welfare.

1:00—4:20pm

Session Six

1:00—1:55pm 1.0 PDH

Ethics in Engineering

David Martini, PE, FNSPE, NSPE Past
 President, Principal Engineer, Bolton & Menk, Inc.



The NSPE Code of Ethics for Engineers states: “Engineering is an important and learned profession. As members of this profession, engineers are expected to exhibit the highest standards of honesty and integrity. Engineering has a direct and vital impact on the quality of life for all people. Accordingly, the services provided by engineers require honesty, impartiality, fairness, and equity, and must be dedicated to the protection of the public health, safety, and welfare. Engineers must perform under a standard of professional behavior that requires adherence to the highest principles of ethical conduct.” This session will explore the topic of ethics in engineering and challenge us all to follow the Code.

2:05—3:00pm 1.0 PDH

Microgrids and Energy Storage Applications

Paul Newman, Microgrid Sales Manager,
 Caterpillar Inc.

This session will discuss microgrids, generating assets and controls, and energy storage applications. The presenter will also explore a case study on using solar + energy storage to reduce fuel consumption in an off-grid microgrid.

FOURFRONT DESIGN INC.

DESIGNS THAT MATTER

605.342.9470 fourfrontdesign.com

SERVICES

- Architecture
- Mechanical Engineering
- Electrical Engineering

SPECIALTIES

- Medical
- Commercial
- Industrial
- Governmental

HAYWARD BAKER IS NOW

KELLER

NORTH AMERICA'S LEADER IN GEOTECHNICAL SOLUTIONS

Bearing capacity/settlement control • Excavation support
 Heavy foundations • Liquefaction mitigation
 Releveling structures • Seepage control
 Slope stabilization • Underpinning • Design-build

keller-na.com • 800-456-6548

*Thank You to the Eastern Chapter
 Conference Planning Committee!*

Philip Gundvaldson, PE, Co-Chair

Gabriel Laber, PE, Co-Chair

Kari Johnson, PE

Lee Kaffar, PE

Krista May, PE

Ben Scholtz, PE

Shannon Schultz, PE

Chad Stensland, PE

NSPE-SD® EASTERN CHAPTER
 SOUTH DAKOTA
 ENGINEERING SOCIETY

3:10-4:05pm1.0 PDH

SSSBA Pre-Fabricated and ABC Steel Bridges

Michael Barker, PE, PhD, Professor
University of Wyoming



Steel bridges meet owners’ and the public’s desire for economy, aesthetics, performance and accelerated construction. Bridge manufacturers and fabricators have developed innovative, efficient and economical solutions to meet typical and complex bridge project needs. Several bridge projects from manufacturers and pre-fabricated built bridges will be showcased to demonstrate their merits in bridge quality and accelerated construction.

Conference Wrap-Up

- Please take a minute to complete our survey for the second day of the conference. It will help the Conference Planning Committee prepare for next year’s conference.
- Up to 10.5 PDH hours are available through this conference. If you missed a session, please contact the SDDES office at sdengineeringsociety@gmail.com for a link to the recorded sessions.
- PDH Certificates will be emailed over the course of the next few weeks.

Thank you to our Door Prize Sponsors:







IF YOU ARE NOT A MEMBER OF THE SOUTH DAKOTA ENGINEERING SOCIETY ALREADY — JOIN TODAY!

SDES/NSPE MEMBER BENEFITS INCLUDE:

- ◆ Networking with Colleagues, Clients and 26,000 of the World’s Most Talented and Respected Engineers
- ◆ Leadership Opportunities at the Chapter, State and National Levels
- ◆ Chapter and State Newsletters with Local, State and National News
 - ◆ Social Events
 - ◆ Scholarship and Award Opportunities
- ◆ Monthly PDH opportunities at the Chapter Level
- ◆ 15 Free Online Courses per year through NSPE
- ◆ Member rates for State and National Conferences, Webinars and other PDH Events
- ◆ Volunteer and Youth Outreach Opportunities
- ◆ Timely Legislative Updates during South Dakota’s Legislative Session
- ◆ PE Magazine, plus Members Only E-newsletters
 - ◆ Access to State and National Job Boards
 - ◆ Membership in the Organization Focused on Protecting the PE
 - ◆ Access to Online Communities
- ◆ Discounted Pricing on FE, PE and SE Exam Books and Digital Review, and FE, PE and SE Prep Courses
 - ◆ And Much More!

JOIN TODAY AT NSPE.ORG OR CONTACT SDDES AT 605.951.1004 SDENGINEERINGSOCIETY@GMAIL.COM