

# Agenda

Presented by Dr. Michael E. Ayers

## Concrete Pavement Types and Design Overview

- Course objectives and introductions
- Jointed plain concrete pavements (JPCP)
- Continuously reinforced concrete pavements (CRCP)
- Concrete overlays

## Subgrades and Bases

- Subgrade characterization
- Base types and applications

## Concrete Materials and Mix Design Basics

- Concrete materials
- Mix design and proportioning basics
- Testing

## AASHTO 1993 Pavement Design Procedure

- Basic design assumptions
- Rigid pavement design inputs
- Flexible pavement inputs

## AASHTO Pavement Design Example Using WinPAS Software

- Rigid pavement design example
- Flexible pavement design example

## StreetPave Pavement Design Procedure

- Basic Streetpave design assumptions
- Development of design inputs

## StreetPave Example Using StreetPave Software

- Rigid pavement design example
- Comparison with flexible pavement design

## Introduction to the Mechanistic-Empirical Pavement Design Guide (M-E PDG)

- Introduction to M-E design concepts
- Development of PavementME design inputs
- Evaluation of M-E design calculations

## Value Engineering Pavement Designs

- Introduction to design optimization
- Basic methodology of value engineering of concrete pavements

## Questions and Discussion Session

## Concrete Pavement Design, Construction and Rehabilitation

Lombard, IL - Wednesday, November 14, 2018



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## Learning Objectives

### You'll be able to:

**Identify** concrete pavement types and applications.

**Explore** subgrades and bases.

**Understand** mix design and proportioning basics.

**Apply** AASHTO 1993, WinPAS and StreetPave to design examples.

**Evaluate** design calculations using the Mechanistic-Empirical Pavement Design Guide (M-E PDG).

**Discuss** the basic methodology of value engineering of concrete pavements.



# Concrete Pavement Design, Construction and Rehabilitation

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**Review** concrete pavement types, materials and mix design basics

**Learn** about subgrade characterization and base types and applications

**Use** AASHTO 1993, WinPAS and StreetPave to examine and compare design procedures

**Receive** an introduction to the Mechanistic-Empirical Pavement Design Guide (M-E PDG)

**Enhance** your understanding of value engineering of concrete pavements

## Continuing Education Credits

### Professional Engineers

7.0 PDHs

### Contractors

Non-Credit Continuing Ed.



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# Faculty

**Michael E. Ayers, Ph.D.**, is the President of Global Pavement Consultants, Inc. (GPC). GPC conducts businesses worldwide and concentrates primarily on pavement design, construction, evaluation and rehabilitation. GPC also specializes in pavement analysis using the AASHTO mechanistic-empirical pavement design procedure, value engineering, forensic analysis, just-in-time-training prior to project start-up, and troubleshooting both during and after construction.

Dr. Ayers recently developed pavement design guides for the City of Honolulu and North and South Carolina and is currently working in Belarus, Uganda and Ukraine developing pavement designs, specifications and concrete mix designs. He has extensive experience in the design and construction of unbound and stabilized base courses including cement-treated bases, lean concrete bases and full depth reclamation utilizing existing asphalt materials. Dr. Ayers recently completed development of the aggregates and Portland cement concrete training modules for the Federal Highway Administration's Highway Materials Engineering course. He also serves as an expert witness on a variety of design and materials-related issues. Recently, under the direction of Dr. Ayers, GPC conducted the largest study to date using the MIT SCAN2 device to determine dowel bar locations on over 43 miles of interstate highway.

Prior to founding GPC in January 2011, Dr. Ayers was the director of education for design and construction for the American Concrete Pavement Association (ACPA) in Rosemont, Illinois. He managed the contractor-based education and training program for ACPA and worked on a variety of projects for both the public and private sectors. He has also served as a university professor, a division manager at ERES Consultants and a group leader at Applied Research Associates, Inc.

## Here's what past attendees had to say about the program and presenter Michael Ayers:

"Very good speaker." – *Professional Engineer*

Very knowledgeable on the class topic. Nice mix of book info and personal experiences." – *Civil Engineer*

"Good seminar." – *Project Manager/Civil Engineer*

# Seminar Information

## Hyatt Place Chicago - Lombard/Oak Brook

2340 South Fountain Square Drive  
Lombard, IL 60148  
(630) 932-6501

Registration  
8:00 - 8:30 am  
Morning Session  
8:30 am - 12:30 pm  
Lunch (on your own)  
12:30 - 1:30 pm  
Afternoon Session  
1:30 - 5:15 pm

## Continuing Education Credit Information

This seminar is open to the public and offers 7.0 PDHs to professional engineers in all states. Educators and courses are not subject to preapproval in Illinois.

HalfMoon Education is an approved continuing education sponsor for engineers in Florida, Indiana, Maryland, New Jersey (Approval No. 24GP00000700), New York (NYSED Sponsor No. 35), North Carolina, and North Dakota.

This course offers a non-credit continuing education opportunity to construction contractors.

Attendance will be monitored, and attendance certificates will be available after the seminar for most individuals who complete the entire event. Attendance certificates not available at the seminar will be mailed to participants within fifteen business days.

## Tuition

**\$279** for individual registration

**\$259** for three or more registrations.

*Each registration includes a complimentary continental breakfast and printed seminar manual.*

## How to Register

- Visit us online at [www.halfmoonseminars.org](http://www.halfmoonseminars.org)
- Mail-in or fax the attached form to 715-835-6066
- Call customer service at 715-835-5900

**Cancellations:** Cancel at least 48 hours before the start of the seminar, and receive a full tuition refund, minus a \$39 service charge for each registrant. Cancellations within 48 hours will receive a credit toward another seminar or the CD/manual package. You may also send another person to take your place.

## Can't Attend?

### Order the CD/Manual Package:

An audio recording of this seminar is available for \$289 (including shipping). Allow five weeks from the seminar date for delivery. Please refer to specific state licensing rules or certification requirements to determine if this learning method is eligible for continuing education credit.

# Additional Learning

## Webinar Series

### Off-grid Photovoltaic Master Class

• **Off-grid Photovoltaic Master Class, Part I**  
Wed., Oct. 3, 2018, 11:00 AM - 2:15 PM CDT

• **Off-grid Photovoltaic Master Class, Part II**  
Thurs., Oct. 4, 2018, 11:00 AM - 2:15 PM CDT

### Stormwater Management Systems

• **Basics of Stormwater Regulations and Requirements, Including New EPA Regulations**  
Thurs., Oct. 4, 2018, 11:00 AM - 12:00 PM CDT

• **Working with the Regulator**  
Thurs., Oct. 4, 2018, 12:30 - 2:00 PM CDT

• **Site Planning and Choosing Best Management Practices**  
Fri., Oct. 5, 2018, 11:00 AM - 12:00 PM CDT

• **Long-term Stormwater Management Practices**  
Fri., Oct. 5, 2018, 12:30 - 2:00 PM CDT

### Floodplain Mapping and Regulation

• **Floods, Floodplains and Introduction to Floodplain Management**  
Wed., Oct. 10, 2018, 11:00 AM - 12:30 PM CDT

• **Flood Maps and Flood Zones**  
Wed., Oct. 10, 2018, 1:00 - 2:30 PM CDT

• **Elevations in the National Flood Insurance Program (NFIP) and Floodplain Regulation**  
Thurs., Oct. 11, 2018, 11:00 AM - 12:30 PM CDT

• **Practical Floodplain Management**  
Thurs., Oct. 11, 2018, 1:00 - 2:30 PM CDT

### HEC-RAS Webinar Series

• **Hydraulic Principles and Applications**  
Thurs., Oct. 18, 2018, 11:00 AM - 1:00 PM CDT

• **Working with the HEC-RAS User Interface**  
Thurs., Oct. 18, 2018, 1:30 - 3:00 PM CDT

• **Water Surface Profiling**  
Fri., Oct. 19, 2018, 11:00 AM - 1:00 PM CDT

• **Steady Flow Surface Profile Demonstrations**  
Fri., Oct. 19, 2018, 1:30 - 3:30 PM CDT

### Construction Cost Estimating

• **Introduction to Cost Estimating**  
Thurs., Oct. 25, 2018, 11:00 AM - 12:30 PM CDT

• **Cost Components – A Closer Look at the Estimates**  
Thurs., Oct. 25, 2018, 1:00 - 3:00 PM CDT

• **Cost Estimate Organization and Examples**  
Fri., Oct. 26, 2018, 11:00 AM - 1:00 PM CDT

• **Cost Estimating Topics**  
Fri., Oct. 26, 2018, 1:30 - 3:00 PM CDT

For more information visit:  
[www.halfmoonseminars.org/webinars/](http://www.halfmoonseminars.org/webinars/)

# Registration

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How to Register		Registrant Information
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<b>Phone:</b> 715-835-5900		<b>Additional Registrants:</b> Name: _____ Occupation: _____ Email: _____ Phone: _____
<b>Fax:</b> 715-835-6066		
<b>Mail:</b> HalfMoon Education Inc., PO Box 278, Altoona, WI 54720-0278		Name: _____ Occupation: _____ Email: _____ Phone: _____
<b>Complete the entire form.</b> Attach duplicates if necessary.		Email address is required for credit card receipt, program changes, and notification of upcoming seminars and products. Your email will not be sold or transferred.

( ) I need special accommodations. Please contact me.

## Tuition

( ) **I will be attending the live seminar.** Single Registrant - **\$279.00**. Three or more registrants from the same company registering at the same time - **\$259.00** each.

( ) **I am not attending.** Please send me the CD manual package for **\$289.00**. (S&H included. Please allow five weeks from seminar date for delivery)

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