Foundation Damage and Repair: Science, Materials and Techniques

Nashville, TN - Thursday, April 30, 2020

You’ll be able to:

Explore typical loads on shallow foundations.

Understand soil properties, bearing capacity, and soil settlement.

Discuss the design of shallow and slab foundations.

Identify the damaging effects of water, frost and the freeze/thaw cycle.

Evaluate different types of foundation damage caused by expansive soils, settlement and heaving.

Conduct foundation repairs.

Explore repair techniques, including piers, piles, soil tiebacks, underpinning and ground improvement.

Learning Objectives

Foundations and Soils

- Typical loads on shallow foundations
  - Gravity loads
  - Lateral loads
- Typical loads on walls
  - Gravity loads
  - Soil loads
- Typical loads on slabs

Soil mechanics and effects on structures
- Soil properties
- Bearing capacity
- Soil settlement
- Effects of water, frost and freeze/thaw cycle

Foundation Features, Materials and Functionality

- Design and construction of shallow foundations
  - Continuous wall footings, column footings
- Design and construction of slab foundations
- Design and construction of basements and retaining walls
- Design and construction of specialty features: walk-outs, partially-exposed foundations

Evaluating and Repairing Foundation/Slab Damage

- Inspecting, monitoring and assessing damage
  - Settlement
  - Frost heave
  - Expansive soils
  - Shrinkage
  - Subsurface erosion
  - Subsidence
  - Cracking
  - Utility failures
- Repairing foundations and slabs
  - Piers, piles
  - Soil tiebacks
  - Underpinning
  - Ground improvement

Evaluating and Repairing Wall Damage

- Inspecting, monitoring and assessing damage
  - Settlement
  - Frost loading
  - Expansive soils
  - Shrinkage
  - Poor drainage
  - Utility failures
- Repairing wall damage
  - Piers, piles
  - Carbon fibers
  - Crack repair
  - Underpinning
  - Crack repair
  - Secant-tangent walls
  - Reconstruction

Continuing Education Credits

- Architects
  - 6.5 HSW PDHs
  - 6.5 AIA LU|HSW
- Professional Engineers
  - 6.5 HSW PDHs
- International Code Council
  - .65 CEUs (Building)
- Tennessee Code Inspectors
  - Non-Credit CE
- Contractors

Enjoy HalfMoon Education’s flexible scheduling and different program delivery options! In the event of health concerns, program may be offered as a live webinar or be rescheduled, and will also be available as an on-demand course.
Joseph S. Cooke, PE
Principal and Director of Engineering at Consulting Services Incorporated (CSI)
Mr. Cooke grew up around construction projects. His work experience includes services in the geotechnical, construction, construction testing/inspection and environmental engineering fields. Mr. Cooke's project experience includes projects as large as 1,000 acres, buildings as large as 1.5 million square feet, “portfolio” work on as many as 40 projects in one package, and linear projects as long as 60 miles. His specific specialties include earthwork and soil issues, construction materials and project performance, forensic analysis of geotechnical and materials issues, large project planning and geotechnical-related construction planning and analysis. Mr. Cooke has provided geotechnical engineering on over 1,500 projects in more than 15 states.

Mr. Cooke's project experience includes:
- 1,000-acre projects
- Buildings as large as 1.5 million square feet
- “Portfolio” work on as many as 40 projects in one package
- Linear projects as long as 60 miles
- Forensic analysis of geotechnical and materials issues
- Large project planning and geotechnical-related construction planning
- Geotechnical engineering on over 1,500 projects in more than 15 states

Mr. Cooke's education includes:
- B.S. in Civil Engineering from North Carolina State University
- M.S. in Geotechnical Engineering from the University of Wisconsin-Madison

Mr. Cooke's professional memberships include:
- American Society of Civil Engineers (ASCE)
- Society for Mining, Reclamation, and Environment (SMREE)
- American Geotechnical Society (AGS)
- National Society of Professional Engineers (NSPE)

Mr. Cooke's professional recognitions include:
- ASCE Geotechnical Engineering Award (2000)
- AGS Outstanding Young Geotechnical Engineer Award (2005)
- ASPEN Award for Excellence in Geotechnical Engineering (2010)

Mr. Cooke's publications include:
- “Geotechnical Engineering: Principles and Applications” (2010)

Mr. Cooke's presentations include:
- “Geotechnical Challenges in Large Projects” (2015)
- “Geotechnical Risk Management” (2018)

Mr. Cooke's courses include:
- “Geotechnical Engineering for Geologists” (2019)
- “Geotechnical Engineering for Civil Engineers” (2020)

Mr. Cooke's clients include:
- Large construction companies
- Government agencies
- Universities

Mr. Cooke's current projects include:
- Large-scale foundation design and construction
- Geotechnical risk assessment for major projects
- Geotechnical training for professionals

Mr. Cooke's contact information includes:
- Phone: 715-835-5900
- Email: jcooke@consulting-si.com
- Website: www.consulting-si.com

Mr. Cooke's company address includes:
- HalfMoon Education Inc.
- 4001 West 90th Street
- Savage, MN 55378
- Phone: 715-835-5900
- Email: info@halfmoonseminars.org

Additional Learning

Webinar Series
- Distributed Batteries for Solar PV Systems, Part I
  - Thurs., April 2, 2020, 11:00 AM - 1:30 PM CDT
- Distributed Batteries for Solar PV Systems, Part II
  - Fri., April 3, 2020, 11:00 AM - 1:30 PM CDT

Compliance with the 2018 International Building Code
- Compliance with the 2018 International Building Code, Part I
  - Wed., April 8, 2020, 11:00 AM - 1:30 PM CDT
- Compliance with the 2018 International Building Code, Part II
  - Wed., April 8, 2020, 1:30 - 3:30 PM CDT
- Compliance with the 2018 International Building Code, Part III
  - Thurs., April 9, 2020, 11:00 AM - 1:30 PM CDT

Tree Science
- Biology and Benefits of Trees
  - Wed., April 15, 2020, 11:00 AM - 1:30 PM CDT
- Tree Infrastructure: Design Elements That Appreciate
  - Wed., April 15, 2020, 1:30 - 3:30 PM CDT
- Trees and Site Requirements
  - Thurs., April 16, 2020, 11:00 AM - 1:30 PM CDT
- Project Completion and Tree Threat Prevention
  - Thurs., April 16, 2020, 12:30 - 2:30 PM CDT

Structural Forensic Engineering
- Overview of the Role of Forensic Engineering
  - Thurs., April 16, 2020, 11:00 AM - 12:30 PM CDT
- Forensic Engineering Process and Forensic Engineering Report
  - Fri., April 17, 2020, 11:00 AM - 1:00 PM CDT
- Causes of Structural Failures
  - Fri., April 17, 2020, 11:00 AM - 1:30 PM CDT
- Forensic Examination of Structures and Use in Litigation
  - Fri., April 17, 2020, 1:30 - 3:00 PM CDT

For more information and other online learning opportunities visit:
www.halfmoonseminars.org/webinars/

Continuing Education Credit Information
This seminar is open to the public and offers 6.5 HSW PDHs to architects and engineers in all states. Educators and courses are not subject to preapproval in Tennessee.

This seminar is approved by the American Institute of Architects Continuing Education System for 6.5 LUS/HSW (License No. 74683). Visit www.halfmoonseminars.org for complete AIA/LUS course information under this seminar listing. Only full attendance is reportable to the AIA/CES.

HalfMoon Education is an approved continuing education sponsor for engineers in Florida, Indiana (License No. CE2700090), Maryland, New Jersey (Approval No. 24GP00000700), North Carolina, and North Dakota. HalfMoon Education is deemed an approved continuing education sponsor for New York architects and engineers.

The International Code Council has approved this event for .65 CEUs in the specialty area of Building Code, Part I.

HalfMoon Education has applied to the Tennessee Department of Commerce and Insurance, Division of Fire Protection for course approval for Building Code Inspectors, which is pending.

HalfMoon Education has applied to the International Code Council for approval of this seminar for 6.5 CEUs.

This seminar is open to the public and offers 6.5 HSW PDHs/continuing education hours to architects and engineers in all states. Educators and courses are not subject to preapproval in Tennessee.

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Updates on pending credits can be found at www.halfmoonseminars.org under this seminar listing.

This seminar offers a non-credit continuing education opportunity to construction contractors. HalfMoon Education is not seeking contractor continuing education approval in any state.

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
- $299 for individual registration
- $279 for three or more simultaneous registrations.

Tuition includes:
- Complimentary continental breakfast and printed seminar manual.
- Receive a reduced tuition rate of $101 by registering to be our on-site coordinator for the day.

For more information and other online learning opportunities visit:
www.halfmoonseminars.org/webinars/

Can't Attend? Order the Manual and Audio from the Live Seminar as a Self-Study Package!
Audio recordings of this seminar are available for purchase starting at $279. See registration panel for more information and please refer to specific state licensing rules or certification requirements to determine if this learning method is eligible for continuing education credit.

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How to Register
- Online: www.halfmoonseminars.org
- Phone: 715-835-5900
- Fax: 715-835-6066
- Mail: HalfMoon Education Inc., PO Box 278, Altoona, WI 54720-0278

Complete the entire form. Attach duplicates if necessary.

Tuition
- $279.00 Single Registrant -$299.00 Three or more registrants from the same company registering at the same time - $279.00 each

Checks: Make payable to HalfMoon Education Inc.
Credit Card: Mastercard, Visa, American Express, or Discover
Credit Card Number: ___________ CVV2 Code: ___________
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