

Agenda

Presented by Joseph S. Cooke, PE

Science of Structures 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
- Soil tiebacks
- Carbon fibers
- Soldier beams
- Crack repair
- Secant-tangent walls
- Underpinning
- Reconstruction

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Foundation Damage and Repair: Science, Materials and Techniques

Live, Interactive Webinar - Wed., February 3, 2021

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Learning Objectives

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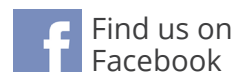
Identify and **calculate** the loads that act on foundations.

Describe the impact of soil types on bearing capacity, and identify the impacts of water, frost and the freeze/thaw cycle on foundation integrity.

Examine the design and construction of shallow foundations, slab foundations, basements and retaining walls.

Identify foundation and slab damage from settlement, expansive soils, subsurface erosion, cracking, frost heave and subsidence.

Evaluate repair techniques, including the use of piers, piles, underpinning, soil tiebacks and ground improvement.



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Review typical loads on shallow foundations, foundation walls and slabs

Consider the effects of soils, water and frost

Evaluate foundation and slab damage from settlement and frost heave

Explore damage caused by shrinkage and subsurface erosion

Evaluate repair options, including piers, piles and soil tiebacks

Get tips on repairing cracks and reconstructing foundation walls

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Joseph S. Cooke, PE *Geotechnical Engineer*

Mr. Cooke’s work experience includes services in the geotechnical, construction, construction testing/inspection and environmental engineering fields. His project experience includes projects as large as over 1,400 acres, buildings as large as 1.5 million square feet, “portfolio” work on as many as 75 projects in one package, and linear projects as long as 40 miles. Mr. Cooke’s 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. He has provided geotechnical engineering on over 1,500 projects in over 15 states. Mr. Cooke received his BS and MS degrees in Civil Engineers from the University of Kentucky. He is a licensed engineer in Kentucky, Ohio, and Tennessee with over 27 years of experience.

Webinar Information

Log into Webinar 8:30 - 9:00 am CST	Break 12:15 - 12:45 pm CST
Morning Session 9:00 am - 12:15 pm CST	Afternoon Session 12:45 - 4:30 pm CST

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- Tues., Jan. 12, 2021 | 11:00 am - 2:45 pm CST

Introduction to HEC-HMS Modeling

- Tues., Jan. 12, 2021 | 8:30 am - 5:00 pm CST

Stormwater Best Management Practices

- Wed., Jan. 13, 2021 | 8:30 am - 5:00 pm CST

Structural Forensic Engineering

- Wed., Jan. 13, 2021 | 10:00 am - 1:45 pm CST
- Thurs., Jan. 14, 2021 | 10:00 am - 1:45 pm CST

Practical Site Engineering: Science & Techniques

- Thurs., Jan. 14, 2021 | 11:00 am - 3:15 pm CST
- Fri., Jan. 15, 2021 | 11:00 am - 2:15 pm CST

Slab-on-Grade Concrete and Pavement for Private Facilities

- Tues., Jan. 19, 2021 | 11:00 am - 2:45 pm CST
- Wed., Jan. 20, 2021 | 11:00 am - 2:45 pm CST

Complying with Fire Protection and Building Codes

- Fri., Jan. 22, 2021 | 8:30 am - 5:00 pm CST

Engineered Lumber Design and Construction

- Fri., Jan. 22, 2021 | 8:30 am - 5:00 pm CST

Structural Design Loads under the ASCE 7 Standard

- Fri., Jan. 22, 2021 | 8:30 am - 5:00 pm CST

Soil Mechanics, Bearing Capacity, and Slope Stabilization

- Mon., Jan. 25, 2021 | 8:30 am - 4:30 pm CST

Seismic Design and Construction in the Eastern U.S.

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Completion certificates will be awarded to participants who complete this event, respond to prompts and earn a passing score (80%) on the quiz that follows the presentation (multiple attempts allowed).

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Foundation Damage and Repair: *Science, Materials and Techniques*
Live, Interactive Webinar - Wednesday, February 3, 2021

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