

Agenda

Presented by Binod Tiwari, Ph.D., P.E. (CA)

Science of Structures and Soils

- Typical loads on shallow foundations
- Gravity loads
 - Lateral loads
- Typical loads on basement 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 Design and Construction

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

Diagnosing Foundation and Slab Damage and Evaluating Repair Methods

- Identifying damage
- Settlement
 - Frost heave
 - Expansive soils
 - Shrinkage
- Repair methods
- Piers
 - Soil tiebacks
 - Underpinning
 - Rebuilding

Diagnosing Basement Wall Damage and Evaluating Repair Methods

- Identifying damage
- Settlement
 - Frost heave
 - Expansive soils
 - Shrinkage
 - Cracking
 - Failure of connections to supporting diaphragms
- Repair methods
- Piers
 - Soil tiebacks
 - Carbon fibers
 - Soldier beams
 - Crack repair methods

**Foundation Design, Damage and Repair:
Science, Materials and Techniques**
Irvine, CA - Tuesday, February 26, 2019



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Learning Objectives

You'll be able to:

- Define** and quantify typical loads on shallow foundations and slabs.
- Understand** the effect of soil on foundations.
- Explore** the design and construction of shallow foundations, including continuous wall footings and column footings.
- Consider** the design of special features including walk-outs and partially-exposed foundations.
- Learn** about foundation damage from settlement, expansive soils and shrinkage.
- Discuss** repair methods including piers, soil tiebacks, carbon fibers and soldier beams.



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- Explore** typical loads on shallow foundations
- Consider** the effect of different types of soils on foundation design and integrity
- Discuss** the design and construction of shallow foundations and slab foundations
- Identify** foundation damage caused by settlement, expansive soils and shrinkage
- Review** repair methods, including piers, underpinning, soil tiebacks and carbon fibers

Continuing Education Credits

- | | |
|--|--|
| Professional Engineers
6.5 PDHs | Contractors
Non-Credit Continuing Ed. |
| Architects
6.5 HSW Continuing Ed. Hours*
6.5 AIA HSW Learning Units | *Does not qualify for California accessibility requirement |



Faculty

Binod Tiwari, Ph.D., P.E. *California State University, Fullerton*

Dr. Tiwari is a professor in the Civil and Environmental Engineering Department of California State University, Fullerton. He earned his Ph.D. degree in Geotechnical Engineering in 2003 and is expert in the fields of slope stability and stabilization, landslide mitigation, applied GIS, soil behavior and characterization, and geotechnical earthquake engineering. Dr. Tiwari is a member of various technical committees for ASCE and the International Society for Soil Mechanics and Geotechnical Engineering, and he is editor as well as reviewer for various international journals. He was post-doc at Niigata University, Japan, and at Virginia Tech for more than three years prior to joining CSUF in the fall of 2006. Dr. Tiwari is a licensed professional engineer in the state of California and has more than 20 years experience in design and implementation of projects pertinent to slope stability and stabilization.

Seminar Information

Irvine Marriott 18000 Von Karman Avenue Irvine, CA 92612 (949) 553-0100	Registration 8:00 - 8:30 am Morning Session 8:30 - 11:45 am	Lunch (On your own) 11:45 am - 12:45 pm Afternoon Session 12:45 - 4:30 pm
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Tuition
\$279 for individual registration
\$259 for three or more simultaneous registrations.
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Additional Learning

Webinar Series
Commercial Solar Peaker Batteries

- **Commercial Solar Peaker Batteries, Part I**
Wed., Jan. 9, 2019, 11:00 AM - 3:15 PM CST
- **Commercial Solar Peaker Batteries, Part II**
Thurs., Jan. 10, 2019, 11:00 AM - 2:15 PM CST

Proposal Writing
Fri., Jan. 11, 2019, 11:00 AM - 3:30 PM CDT

Technical Writing

- **Technical Writing Basics**
Mon., Jan. 14, 2019, 11:00 AM - 1:00 PM CST
- **Planning Documents**
Mon., Jan. 14, 2019, 1:30 - 3:30 PM CST
- **Writing Documents**
Tues., Jan. 15, 2019, 11:00 AM - 1:00 PM CST
- **Revising and Editing Documents**
Tues., Jan. 15, 2019, 1:30 - 3:30 PM CST

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Continuing Education Credit Information

This seminar is open to the public and offers 6.5 PDHs to professional engineers and 6.5 HSW continuing education hours to architects in all states with continuing education requirements. This seminar does not qualify for California’s mandated accessibility continuing education requirement for architects.

This seminar is approved by the American Institute of Architects for 6.5 HSW Learning Units (Sponsor No. J885). Only full attendance can be reported to the AIA/CES.

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This course also offers a non-credit continuing education opportunity for construction contractors. Credit approval is not being sought in any state with a contractor continuing education requirement.

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.

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Fiber-Reinforced Composites

- **Portland Cement and Masonry**
Thurs., Jan. 17, 2019, 11:00 AM - 1:00 PM CST
- **Fiber-Reinforced Composites**
Thurs., Jan. 17, 2019, 1:30 - 3:30 PM CST
- **Fiber-Reinforced Polymer (FRP) Composites Reinforcement**
Fri., Jan. 18, 2019, 11:00 AM - 1:00 PM CST
- **Overview of Sandwich Materials and Structures**
Fri., Jan. 18, 2019, 1:30 - 3:30 PM CST

Pumping and Piping Systems

- **Introduction to Pumps: Operation, Principles and Calculations**
Thurs., Jan. 24, 2019, 12:00 - 2:00 PM CST
- **Design Standards and Codes**
Thurs., Jan. 24, 2019, 2:30 - 3:30 PM CST
- **Piping System Components, Materials and Calculations**
Fri., Jan. 25, 2019, 12:00 - 2:00 PM CST
- **Handling Pump and Piping System Problems**
Fri., Jan. 25, 2019, 2:30 - 3:30 PM CST

Registration

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