

Agenda

Presented by Binod Tiwari

Types of Retaining Walls

Traditional cantilevered retaining walls

- Reinforced concrete walls
- Reinforced concrete masonry walls

Soldier pile and lagging walls

Traditional timber walls

Traditional gravity walls

Reinforced soil retaining walls

Anchored retaining walls (tie-backs, soil nailing, etc.)

Temporary retaining walls

Over-steepened reinforced slopes

Gabion walls Crib walls

Private-sector vs. highway retaining wall systems

Cost of retaining walls

Retaining Wall Design

Soil design parameters

Lateral earth pressure

External stability

- Sliding - Overturning
- Bearing capacity
- Settlement - Scour

Internal stability Global stability

Special considerations for tiered retaining walls

Backfill Groundwater

Service life Design software

Slope Stabilization

Science of slope stability

Surficial vs. deep-seated slope stability

Long term vs. short term stability

Slope stabilization techniques

- Regrading
- Excavation and replacement
- Slope reinforcement/pinning
- Ground improvement
- Toe retaining walls

Retaining Wall and Slope Stabilization Case Histories

Various commercial, residential projects

Various highway and institutional projects

**Retaining Wall Design and
Slope Stabilization Techniques**
Irvine, CA - Tuesday, August 28, 2018

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Learning Objectives

You'll be able to:

Identify and quantify the forces that act on retaining walls.

Examine different types of retaining walls including traditional cantilevered walls, gravity walls, and anchored retaining walls.

Compare private sector vs. highway retaining wall systems.

Discuss the factors that impact slope stability and can lead to slope failures.

Evaluate crucial slope stabilization techniques including regrading, reinforcement and ground improvement.



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Identify types of retaining walls and understand when to use each

Review soil design parameters

Design retaining walls for internal and external stability

Analyze key factors that influence long term and short term slope stability

Explore slope stabilization techniques such as reinforcement and ground improvement

Continuing Education Credits

California Engineers

Non-Credit Continuing Ed.

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Architects & Landscape Architects

7.0 AIA HSW Learning Units

7.0 LA/CES HSW PDHs

Contractors

Non-Credit Continuing Ed.



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Faculty

Binod Tiwari *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 2003 in Geotechnical Engineering and is expert in the fields of slope stability and stabilization, landslide mitigation, applied GIS, soil behavior and characterization, earth retaining structures, and geotechnical earthquake engineering. Dr. Tiwari is a member of various technical committees for the American Society of Civil Engineers and the International Society for Soil Mechanics and Geotechnical Engineering, and he is an editor as well as a reviewer for various international journals pertinent to geotechnical engineering. He was post-doc at Niigata University, Japan, and at Virginia Tech for more than three years prior to joining CSUF in 2006. Dr. Tiwari is a licensed professional engineer in the state of California and has more than 25 years experience in design and implementation of projects pertinent to slope stability and stabilization as well as earth retaining structures.

Heres what past attendees had to say about the program and presenter Binod Timari:

“Very knowledgeable.” - *P.E. (Civil)*

“Binod was very knowledgeable and clear in his presentation.” - *Architect*

Good refresher!” - *Architect/Engineer*

Seminar Information

Irvine Marriott 18000 Von Karman Avenue Irvine, CA 92612 (949) 553-0100	Registration 8:00 - 8:30 am Morning Session 8:30 am - 12:15 pm	Lunch (on your own) 12:15 - 1:15 pm Afternoon Session 1:15 - 5:00 pm
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Tuition

\$279 for individual registration
\$259 for three or more simultaneous registrations.
Each registration includes a complementary 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 availability and job description, please visit www.halfmoonseminars.org.

- How to Register**
- Visit us online at 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 (CDT), 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

- National Electrical Code**
- **National Electrical Code, Part I**
Tues., July 24, 2018, 11:00 AM - 3:30 PM CDT
 - **National Electrical Code, Part II**
Weds., July 25, 2018, 11:00 AM - 3:30 PM CDT
 - **National Electrical Code, Part III**
Thurs., July 26, 2018, 11:00 AM - 3:30 PM CDT

- Retaining Walls and Slope Stabilization**
- **Retaining Wall Basics**
Thurs., July 26, 2018, 11:00 AM - 12:00 PM CDT
 - **Geosynthetics and Retaining Walls**
Thurs., July 26, 2018, 12:30 - 3:00 PM CDT
 - **Slope Stability and Geosynthetics**
Fri., July 27, 2018, 11:00 AM - 12:30 PM CDT
 - **Slope and Retaining Wall Failures, Fixes and Prevention**
Fri., July 27, 2018, 1:00 - 3:00 PM CDT

For more information visit:
www.halfmoonseminars.org/webinars/

Continuing Education Credit Information

This seminar is open to the public and offers 7.0 non-credit continuing education hours to California professional engineers and architects. It will qualify for required continuing education credit in all other states, except Florida architects.

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. HalfMoon Education is deemed an approved continuing education provider for New York architects. Other states do not preapprove educators or courses.

The American Institute of Architects has approved this seminar for 7.0 HSW Learning Units (Sponsor No. J885). The subject matter of this seminar does not qualify for California architect continuing education credit.

This course offers a non-credit continuing education opportunity to California landscape architects. It has been approved by the Landscape Architecture Continuing Education System for 6.5 HSW PDHs.

The Association of State Floodplain Managers has approved this event for 7.0 CECs.

This course offers a non-credit continuing education opportunity to construction contractors. It has not been approved in any state with a mandatory continuing education.

Attendance will be monitored and reported, as required. 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.

- The Distributed Battery Webinar Series**
- **The Distributed Battery Webinar, Part I**
Wed., Aug. 1, 2018, 11:00 AM - 2:15 PM CDT
 - **The Distributed Battery Webinar, Part II**
Thurs., Aug. 2, 2018, 11:00 AM - 2:15 PM CDT

Handling Ethical Issues in Professional Engineering Practice
Fri., Aug. 3, 2018, 11:00 AM - 12:00 PM CDT

- Technical Writing**
- **Technical Writing Basics**
Thurs., Aug. 9, 2018, 12:00 PM - 2:00 PM CDT
 - **Planning Documents**
Thurs., Aug. 9, 2018, 2:30 - 4:30 PM CDT
 - **Writing Documents**
Fri., Aug. 10, 2018, 12:00 PM - 2:00 PM CDT
 - **Revising and Editing Documents**
Fri., Aug. 10, 2018, 2:30 - 4:30 PM CDT

Registration

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How to Register		Registrant Information
Online: www.halfmoonseminars.org		Name: _____
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		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.
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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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