

## Credit Information

### Retaining Wall Design and Slope Stabilization Techniques

This webinar offers 7.0 PDHs to professional engineers and 7.0 HSW continuing education hours to architects licensed in all states. It offers 7.0 HSW continuing education hours to landscape architects in all states, except Florida, New Jersey and North Carolina.

HalfMoon Education is an approved continuing education sponsor for engineers in Florida (Provider No. 0004647), Indiana (License No. CE21700059), Maryland, New Jersey (Approval No. 24GP00000700), and North Carolina (S-0130). HalfMoon Education is deemed an approved continuing education sponsor for New York architects and landscape architects via its registration with the American Institute of Architects Continuing Education System (Regulations of the Commissioner §69.6(i)(2), and §79-1.5(i)(2)). Other states do not preapprove continuing education providers or courses.

This course has been approved by the American Institute of Architects Continuing Education System for 7.0 LU|HSW (Sponsor No. J885) and the Landscape Architecture Continuing Education System for 7.0 HSW PDHs. Only full participation is reportable to the AIA/CES and LA CES.

The Association of State Floodplain Managers has approved this course for 7.0 CECs for certified floodplain managers.

The International Code Council has approved this event for .65 CEUs in the specialty area of Sitework (Preferred Provider No. 1232).

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

### Deep Excavations

This webinar offers 6.5 PDHs to professional engineers and 6.5 HSW continuing education hours to architects licensed in all states.

HalfMoon Education is an approved continuing education sponsor for engineers in Florida (Provider No. 0004647), Indiana (License No. CE21700059), Maryland, New Jersey (Approval No. 24GP00000700), and North Carolina (S-0130). HalfMoon Education is deemed an approved continuing education sponsor for New York architects via its registration with the American Institute of Architects Continuing Education System (Regulations of the Commissioner §69.6(i)(2)). Other states do not preapprove continuing education providers or courses.

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## Live, Interactive Webinars

- Retaining Wall Design and Slope Stabilization Techniques
- Deep Excavations

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## Live, Interactive Webinars

### **Retaining Wall Design and Slope Stabilization Techniques**

- Wednesday, September 15, 2021 | 8:30 am - 5:00 pm CDT

### **Deep Excavations**

- Friday, September 17, 2021 | 8:30 am - 4:30 pm CDT

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## HalfMoon Education Online Learning Live, Interactive Webinars



### **Retaining Wall Design and Slope Stabilization Techniques**

Wednesday, September 15, 2021 | 8:30 am - 5:00 pm CDT

Credits: Professional Engineers: 7.0 PDHs      Architects: 7.0 HSW CE Hours  
AIA: 7.0 LU|HSW      Landscape Architects: 7.0 HSW CE Hours  
LA CES: 7.0 HSW PDHs      Floodplain Managers: 7.0 ASFPM CECs  
International Code Council: .7 CEUs (Sitework)



### **Deep Excavations**

Friday, September 17, 2021 | 8:30 am - 4:30 pm CDT

Credits: Professional Engineers: 6.5 PDHs      Architects: 6.5 HSW CE Hours  
AIA: 6.5 LU|HSW      International Code Council: .65 CEUs (Sitework)



# Retaining Wall Design and Slope Stabilization Techniques

Wednesday, September 15, 2021 | 8:30 am - 5:00 pm CDT

(incl. a 60-min break)

**Tuition:** \$289 per registrant, \$239 per registrant for three or more

**Credits:** Professional Engineers: 7.0 PDHs      Architects: 7.0 HSW CE Hours  
AIA: 7.0 LU|HSW      Landscape Architects: 7.0 HSW CE Hours  
LA CES: 7.0 HSW PDHs      Floodplain Managers: 7.0 ASFPM CECs  
International Code Council: .7 CEUs (Sitework)

## Agenda

### 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

- Commercial, residential projects
- Highway and institutional projects

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## Agenda

### Soil Mechanics Review, OSHA Requirements and Slope Stability

- Soil mechanics review
- OSHA requirements for excavations
- Safe vs. stable excavations
- Slope stability for excavations

### Shoring Options and Earth Pressure Theories and Influences

- Shoring options
- Earth pressure theories
- Influence of surcharges
- Influence of overlying slopes and seepage

### Vertical Excavation Design

- Modes of failure
- ASD and LRFD design methodologies
- Cantilever wall analysis
- Influence of movement
- Lateral earth pressures for braced walls
- Braced walls
- Anchored walls
- Cofferdams
- Basal heave
- Horizontal deformation
- Vertical deformation
- Structural design

### Case Histories

- Open cuts
- Vertical shoring
- Cofferdams
- Tie backs

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### Can't Attend? Order the Webinar as a Self-Study Package!

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# Faculty

## Retaining Wall Design and Slope Stabilization Techniques

**Mahsa Hedayati** *Senior Geotechnical Engineer, Freese and Nichols, Inc.*

Dr. Hedayati is a senior geotechnical engineer at Freese and Nichols, Inc and an adjunct faculty at the University of Texas at Arlington. Her experience with geotechnical engineering includes subsurface investigations, foundation analysis and design, slope stability and seepage analysis, numerical modeling, dam rehabilitation and redesign, levees, floodwalls and drainage structures design. As an adjunct faculty, she teaches courses on computational geotechnics and the geotechnical aspects of landfill design. Dr. Hedayati earned her B.Sc. degree in Civil Engineering from Amirkabir University of Technology (Tehran Polytechnic) and her M.Sc. degree from Tehran University, where she focused on polluted soils and decontamination methods. She earned her Ph.D. degree in Geotechnical Engineering from the University of Texas at Arlington.

## Deep Excavations

**James A. McKelvey, III, P.E., D.GE, F.ASCE**

*Director- Geotechnical Design Division at Earth Engineering Inc.*

Mr. McKelvey is the director of the Geotechnical Design Division at Earth Engineering Inc. in East Norriton, Pennsylvania. He is a registered professional engineer (P.E.) in California, Delaware, Maryland, New Jersey, Pennsylvania, Virginia and the District of Columbia. Mr. McKelvey is also a diplomate (D.GE) of the Academy of Geo-Professionals and a fellow of the American Society of Civil Engineers (F.ASCE).

Mr. McKelvey has extensive experience in geotechnical engineering including site assessment and field investigations; deep and shallow foundation design for buildings, bridges and other structures; retaining wall design; embankment stability; mechanically-stabilized soil structures; and subsurface hydrology.

He also has significant experience in mitigating heavy construction claims and in litigation support pertaining to impacted heavy construction projects. Mr. McKelvey has also handled construction support and construction quality assurance projects. His environmental engineering experience includes technical contributions to the remediation of many Superfund sites and over 50-landfill design projects.

Mr. McKelvey has published over 30 technical papers in journals, conference proceedings and trade magazines. He is the past chair for the Delaware Valley Geo-Institute (DVGI) and is a voting member in ASTM committees on soil and rock (D18), and geosynthetics (D35), and he is an editorial board member of the *Geotechnical Testing Journal*. Mr. McKelvey also serves on two Geo-Institute committees: Earth Structures and Embankments and Dams. For the latter, he is a member of the subcommittee on landslide risk assessment.

# Additional Learning

## Shallow Foundation Design, Construction, and Repair

- Tues, Aug 10, 2021 | 8:30 am - 5:00 pm CDT

## Participating in the WELL Building Certification Process

- Wed, Aug 18, 2021 | 12:00 - 4:00 pm CDT  
- Thurs, Aug 19, 2021 | 12:00 - 4:00 pm CDT

## Soil Mechanics, Bearing Capacity and Slope Stabilization

- Fri, Aug 20, 2021 | 8:30 am - 4:30 pm CDT

## Designing for Accessible Pedestrian Facilities

- Fri, Aug 20, 2021 | 9:00 am - 4:30 pm CDT

## The Tree Course: Science, Design, and Sustainability

- Fri, Aug 20, 2021 | 9:00 am - 4:30 pm CDT

## How To Handle Ethical Issues Associated with Defects and Failures

- Tues, Aug 24, 2021 | 9:00 - 11:00 am CDT

## Designing for Accessibility under ADA Standards and IBC

- Tues, Aug 24, 2021 | 8:30 am - 12:15 pm CDT  
- Wed, Aug 25, 2021 | 8:30 am - 12:15 pm CDT

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