

# Agenda

*Presented by Daniel Messmer, PE, LAP, D.GE*

## 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

## Retaining Wall Design and Slope Stabilization Techniques

Camp Hill, PA - Friday, April 17, 2020

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## Learning Objectives

### You'll be able to:

**Identify** and quantify the forces that act on retaining walls.

**Define** the characteristics of and applications for different types of retaining walls, including traditional cantilevered walls, timber walls and gravity walls.

**Design** retaining walls for external, internal and global stability.

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

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

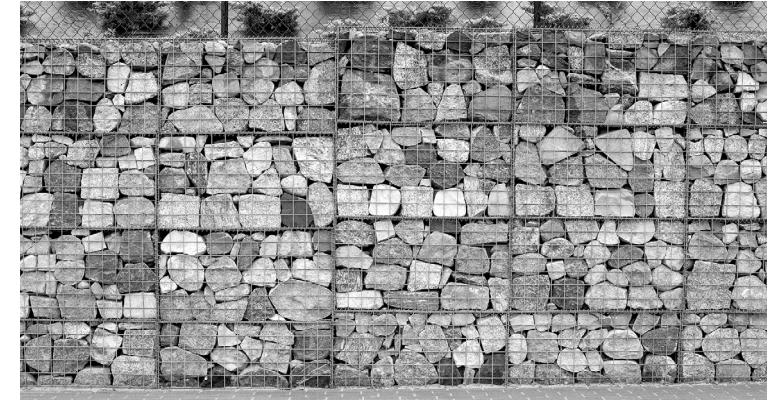


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# Retaining Wall Design and Slope Stabilization Techniques

Live in-Person Seminar or Live Online Webinar

Camp Hill, PA - Friday, April 17, 2020



**Identify** types of retaining walls and understand when to use each

**Review** the forces acting on retaining walls including pressure from retained soil and the impacts of groundwater

**Design** retaining walls for interior and exterior stability

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

**Use** slope stabilization techniques such as reinforcement and ground improvement

## Continuing Education Credits

### Architects

7.0 HSW Continuing Ed. Hours

7.0 AIA LU|HSW

### Landscape Architects

7.0 HSW Clock Hours

7.0 LA CES HSW PDHs

### Professional Engineers

7.0 PDHs

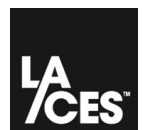
### Floodplain Managers

7.0 ASFPM CECS

*As a result of recent health and safety concerns, this seminar will also be offered as a live webinar. Instructions will be sent via email before the date of the webinar. Visit us online at [www.halfmoonseminars.org](http://www.halfmoonseminars.org) to learn more.*



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# Faculty

**Daniel Messmer, PE, LAP, D.GE**  
*Project Manager with The Gateway Engineers, Inc., in Pittsburgh*

Mr. Messmer has over 30 years of engineering experience in analysis, design, plan/specification development, and project management/personnel supervision for geotechnical, foundation and structural engineering projects in the transportation, industrial, municipal and commercial fields of civil engineering. Throughout his career he has placed an emphasis on quality control and staff training. Mr. Messmer is a member of the American Society of Civil Engineers, the American Concrete Institute, the American Society of Highway Engineers and the Society of American Military Engineers. He earned his B.S. degree in Civil Engineering from the University of Pittsburgh. Mr. Messmer was accepted into the Academy of Geo-Professionals in 2013.

# Seminar Information

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|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| <b>Radisson Hotel Harrisburg</b><br>1150 Camp Hill Bypass<br>Camp Hill, PA 17011<br>(717) 763-7117 | Registration<br>8:00 - 8:30 am<br><br>Morning Session<br>8:30 am - 12:15 pm | Lunch (On your own)<br>12:15 - 1:15 pm<br><br>Afternoon Session<br>1:15 - 5:00 pm |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------|

**Tuition**  
**\$299** for individual registration  
**\$279** for three or more simultaneous registrations.

**Included with your registration:**  
*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 availability and job description, please visit [www.halfmoonseminars.org](http://www.halfmoonseminars.org).

**How to Register**

- Visit us online at [www.halfmoonseminars.org](http://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, 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 self-study package. You may also send another person to take your place.

**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.

# Additional Learning

**Webinar Series**

**Structural Forensic Engineering**

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

For more information and other online learning opportunities visit:  
[www.halfmoonseminars.org/webinars/](http://www.halfmoonseminars.org/webinars/)

**Water Conservation**

- **Reviewing the Owner's Commitment to Water Conservation and Applicable Codes and Standards**  
Thurs., April 23, 2020, 11:00 AM - 12:30 PM CDT
- **Assessing the Building Site**  
Thurs., April 23, 2020, 1:00 - 2:00 PM CDT
- **Conserving and Reducing Water Use**  
Fri., April 24, 2020, 11:00 AM - 1:00 PM CDT
- **Onsite Water Recycling and Minimizing Water Use**  
Fri., April 24, 2020, 1:30 - 3:30 PM CDT

**Special Inspections under the IBC Chapter 17**

- **Special Inspections under the IBC Chapter 17, Part I**  
Wed., April 29, 2020, 11:00 AM - 2:15 PM CDT
- **Special Inspections under the IBC Chapter 17, Part II**  
Thurs., April 30, 2020, 11:00 AM - 3:15 PM CDT

## Continuing Education Credit Information

This seminar is open to the public. It offers 7.0 HSW continuing education hours to architects (non-mandatory in PA) and landscape architects and 7.0 PDHs to professional engineers in most states, including Pennsylvania. Educators and courses are not subject to preapproval in Pennsylvania.

This seminar is approved by the American Institute of Architects Continuing Education System for 7.0 LU|HSW (Provider No. J885) and the Landscape Architecture Continuing Education System for 7.0 HSW PDHs. Visit [www.halfmoonseminars.org](http://www.halfmoonseminars.org) for complete AIA/CES course information under this seminar listing. Only full attendance is reportable to the AIA/CES and LA/CES.

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

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

This seminar offers a non-mandatory continuing education opportunity for construction contractors. It has not been reviewed by any state contractor licensing entity with a 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 within 15 business days.

# Registration

## Retaining Wall Design and Slope Stabilization Techniques

Camp Hill, PA - Friday, April 17, 2020

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| <div><b>How to Register</b></div> <div><b>Online:</b><br/><a href="http://www.halfmoonseminars.org">www.halfmoonseminars.org</a></div> <div><b>Phone:</b><br/>715-835-5900</div> <div><div><b>Fax:</b><br/>715-835-6066</div><div><b>Code:</b></div></div> <div><b>Mail:</b><br/>HalfMoon Education Inc.,<br/>PO Box 278, Altoona, WI<br/>54720-0278</div> <div><b>Complete the entire form.</b> Attach duplicates if necessary.</div> | <div><b>Registrant Information</b></div> <div>Name: _____</div> <div>Company/Firm: _____</div> <div>Address: _____</div> <div>City:_____State: _____ Zip_____</div> <div>Occupation: _____</div> <div>Email: _____</div> <div>Phone: _____</div> <div><b>Additional Registrants:</b></div> <div>Name: _____</div> <div>Occupation: _____</div> <div>Email: _____</div> <div>Phone: _____</div> <div>Name: _____</div> <div>Occupation: _____</div> <div>Email: _____</div> <div>Phone: _____</div> <div>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.</div> <div>( )  I need special accommodations. Please contact me.</div> |
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**Tuition**

( ) **I will be attending the live, in-person SEMINAR.**

( ) **I will be attending the live, online WEBINAR.**

Single Registrant – **\$299.00**  
Three or more registrants from the same company registering at the same time – **\$279.00** each

( ) **I am not attending.** Please send me the self-study package:

☐ Downloadable MP3 Audio/PDF Manual for **\$279.00**.

☐ CD/Manual Package for **\$299.00**. ☐ USB/Manual Package **\$299.00**.  
(S&H included. Please allow five weeks from seminar date for delivery)

**Checks:** Make payable to HalfMoon Education Inc.

**Credit Card:** *Mastercard, Visa, American Express, or Discover*

Credit Card Number: \_\_\_\_\_

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