



COURSE NUMBER

FHWA-NHI-132042

COURSE TITLE

Design of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes

Mechanically stabilized earth walls (MSEWs) are commonly used on roadway projects and are typically cost effective and aesthetically pleasing. The basic concept behind MSEWs is to combine soil, reinforcing materials made of steel or polymers, and appropriate facing to produce a composite system with engineering properties that are ideal for most roadway applications. Reinforced soil slopes (RSS) utilize the same types of reinforcement for the construction of steep embankments. Both MSEWs and RSS structures can provide substantial savings in construction time and costs when compared with other types of earth retaining systems.

The goal of the course is to educate agencies about state-of-the-practice design tools. This includes comprehensive instruction on the design of MSEWs using load resistance factor design (LRFD). The course also presents construction practices to promote implementation of mechanically stabilized earth technology in cost effective earth retention structures. This course would most benefit persons who are involved in the design and construction of earth retention structures for surface transportation projects.

NOTE TO PARTICIPANT: Please bring a calculator that performs trigonometric calculations, a note pad, and a pencil.

NOTE TO HOST: In addition to the typical host requirements of NHI courses, for this course the host state technical contact is asked to bring 30 copies of the standard MSE wall and the RSS specifications (or special provisions), a complete set of applicable state DOT state construction specifications, standard plates, standard details, inspection guidelines, etc. pertaining to earth retaining structures. Copies should be forwarded to the instructors a month before the course. The host agency is also asked to provide approximately 20-25 pounds of dry sand. About 1/2 bag of “play” sand from a hardware store will suffice.

OUTCOMES

Upon completion of the course, participants will be able to:

- Recognize potential applications for MSEWs and RSS structures in transportation facilities
- Prepare conceptual and basic (i.e., for simple geometry) designs, and be able to check contractor-submitted designs for walls and slopes
- Examine and select appropriate material properties and parameters used in design
- Calculate the cost of conceptual MSEWs and RSS structures and determine if construction is a cost-effective option
- Select appropriate specification/contracting method(s) and prepare detailed specifications for materials and methods of construction
- Define and communicate major components of construction inspection of MSEWs and RSS structures to confirm compliance with design

TARGET AUDIENCE

The primary audience for this course is agency and consultant bridge/structures, geotechnical, and roadway design engineers; engineering geologists; and consultant review specialists. In addition, management, specification and contracting specialists, and construction engineers interested in design and contracting aspects of MSEWs and RSS structures are encouraged to attend. Attendees should have a basic knowledge of soil mechanics and structural engineering. (Note that NHI offers a 1-day course, FHWA-NHI-132043 Construction of MSEW and RSS.)

TRAINING LEVEL: Intermediate

FEE: 2021: \$470 Per Person; 2022: N/A

LENGTH: 3 DAYS (CEU: 1.8 UNITS)

CLASS SIZE: MINIMUM: 20; MAXIMUM: 30

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