

Thursday, January 21, 2016, 12:15pm
Engineering Building, Room 315, 1930 SW 4th Avenue, Portland, OR, 97201

Civil Infrastructure Seminar Series: Lessons Learned from Failed MSE Walls

Dov Leshchinsky

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Abstract: During the past three decades, Mechanically Stabilized Earth (MSE) walls have gained acceptance in major critical applications. Generally, MSE walls are economical, aesthetically pleasing and, if properly designed and constructed, safe. However, as is the typical case with fine-tuned efficient structures, details are critically important since structural redundancy could be limited. Five case histories of failed MSE walls are presented. These walls include metallic and geosynthetic reinforcement, and facing made of steel mesh, small concrete units, or large reinforced concrete panels. One wall had a simple geometry, two had multiple tiers, one failed a year after construction, and one was a 6 mile long seawall. Four cases were in the US while the seawall case was in Sydney, Australia. Forensic studies are discussed. It is concluded that the likely reason for the failure of one wall was design error while the other four walls failed due to poor construction. Not surprisingly, it is shown that the cost of repair is far more expensive than the savings due to skimped construction.

Speaker Bio: Professor Emeritus Dov Leshchinsky retired from the University of Delaware after 32 years of service. Prior to joining the faculty in Delaware, he worked as a geotechnical engineer with the Association of American Railroads in Chicago. At the University of Delaware he conducted research on slope stability, soil reinforcing, geosynthetics and dredged materials. The National Science Foundation, US Army Corps of Engineers, Federal Highway Administration and private industries have sponsored various research projects he had conducted. Much of his work has focused on comprehensive design methods for geosynthetic reinforced steep slopes and walls as well as geotextile tubes. He has co-developed well-known design-oriented computer programs: FoSSA, ReSSA, MSEW, ReSlope, GeoCoPS. These design tools are being used worldwide. Dov Leshchinsky has also been involved with advanced geotechnical consulting and as an expert for the past 25 years. As a consultant he coauthored the design manual “Guidelines for Geofabric Applications in Embankment Projects,” sponsored and published by NCHRP. He co-developed an NHI short course on Slopes and Embankments. He has been co-teaching short courses on MSE Walls Reinforced Soil Slopes, Shallow Foundations, Slopes and Embankments, and Geosynthetic Reinforcement. Dov Leshchinsky had served on various editorial boards (e.g., ASCE Journal of Geotechnical Engineering; Geotextiles and Geomembranes; Soils and Foundations). He had also served on various committees such as HITEC and ASCE Slopes and Embankments. He was invited to deliver keynote presentations in several international conferences. Dov Leshchinsky received the ASCE Martin S. Kapp Award in 2010 which states: “For his innovative contribution to the unified method of design and analysis of earth retaining structures and slopes as well as implementation of such technology through computer software and continuing education”.

