

Wednesday; May 14, 2003 (AGM/CGS Cross-Canada Lecture)

TOPIC: Masonry Block Reinforced-Soil Retaining Walls: A New Technology

PRESENTATION BY: Professor Richard J. Bathurst, GeoEngineering Centre at Queen's-RMC

This lecture describes recent developments related to the innovative design and construction of vertical or near-vertical geosynthetic reinforced soil retaining walls that incorporate modular masonry blocks as the wall facing. The facing is integrated with horizontal layers of high-performance polymeric inclusions (geosynthetics) in order to reinforce the retained backfill materials. The characteristic feature of these systems is the use of dry-stacked modular blocks that are typically manufactured using specially moulded dry-cast masonry concrete. Since their introduction in the mid-1980's, these structures have gained wide popularity in North America and now internationally largely due to their good performance, relatively low cost, ease of construction, and wide variety of available aesthetically pleasing finishes. However, the discrete nature of modular block facing systems requires specialised testing and design considerations not found in other retaining wall technologies. The lecture gives a brief review of the design procedure for these systems with special emphasis on interface shear and masonry unit-reinforcement connection load requirements. In addition, National Concrete Masonry Association testing protocols, originally developed at the Royal Military College of Canada (RMC) are discussed. Case studies that demonstrate the good performance of these systems are presented. Finally, a unique long-term RMC research project involving the construction and testing to failure of 7 instrumented full-scale masonry block test walls is described. The results of this program are being used to refine current design methods for soil-reinforced masonry walls currently found in NCMA, FHWA and AASHTO design guidelines.

Dr. Bathurst is Professor of Civil Engineering at the Royal Military College of Canada in Kingston, Ontario where he has taught since 1980. He also holds a cross-appointment as Professor of Civil Engineering at Queen's University at Kingston and is an Adjunct Professor at the University of Waterloo. Dr. Bathurst obtained a Ph.D. in soil mechanics from Queen's University at Kingston in 1985. Prior to RMC, Dr. Bathurst worked for Golder Associates 1978 - 1980 as a Geotechnical Engineer and was employed on a variety of large civil engineering projects in Canada and overseas.

Venue : Royal Glenora Club (11160 River Valley Road)

Time: Cocktails: 5:30 PM, Dinner: 6:00 PM Presentation: 7:00 PM

Date : Wednesday; May 14, 2003

Cost : GSE Members \$ 30; Students \$ 20, Non Members \$ 45