The Canadian Geotechnical Society
Southern Ontario Section

La Société Canadienne de Géotechnique
Section Sud de l'Ontario

2019 CGS-SOS Dinner Lecture (Qualified for CPD Hours)

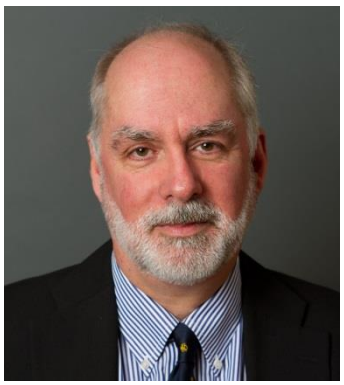
Recent Development in MSE Wall Design

Wednesday, March 13, 2019

St. Bernard Church, 1789 Lawrence Ave W, Toronto, ON, M6L 1E3 (https://goo.gl/maps/66Eah9RwiFv)

Evening Program:	**5:30 PM**	**Cocktails and Socializing**
	6:30 PM	**Dinner**
	7:00 PM	**Lecture**

Abstract: Mechanically stabilized earth (MSE) walls constructed with steel and geosynthetic reinforcing elements are now well-established a technology. The lecture gives a brief historical overview and then a review of current approaches to the design of these systems including strength-based limit equilibrium methods and reinforcement stiffness-based methods. The use of measured reinforcement loads from instrumented full-scale laboratory and field structures to quantify the accuracy of current design methods to calculate reinforcement loads under operational conditions is demonstrated. The lecture explains how these measured data have been used to develop simple load models that are more accurate and result in rational load and resistance factors for LRFD. Thus, these models are candidates for future editions of the AASHTO and Canadian Highway Bridge Design (CHBDC). Finally, the movement towards reliability-based internal stability analysis and design of MSE walls, and the link to LRFD calibration is explained.



Distinguished Speaker: Dr. Richard Bathurst (P.Eng., Ph.D., FRSC, FEIC, FCAE) is Professor of Civil Engineering at the Royal Military College of Canada where he has taught since 1980. He is the immediate Past-President of the Engineering Institute of Canada (2016-2018), a Past-President of the Canadian Geotechnical Society (CGS) and the International Geosynthetics Society. Dr. Bathurst has authored or co-authored more than 400 papers in referred journals, conference proceedings and research monographs. He has made contributions in the areas of micromechanics of granular soils, railway ballast and track dynamics, pavements, unsaturated soil-geotextile behaviour, constitutive modelling of geosynthetic soil reinforcement materials, new test methods and the development of transparent granular soil surrogates for geotechnical laboratory-scale testing.

Dr. Bathurst's current research activities are focused on the use of geosynthetic and metallic reinforcement in earth retaining wall systems, numerical modelling, seismic performance and design of these systems, probabilistic design of reinforced and unreinforced soil structures, reliability-based design, load and resistance factor design (LRFD) calibration of soil-structures, and LRFD code development. Dr. Bathurst is editor of the peer-reviewed technical journal Geosynthetics International, published by the Institute of Civil Engineers in the UK, and co-editor of the International Journal of Geomechanics published by the ASCE.