Vancouver Geotechnical Society
A Local Section of the Canadian Geotechnical Society

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NOTICE OF UPCOMING DINNER PRESENTATION

WEDNESDAY, NOVEMBER 13, 2013

SUBJECT: **Critical Role of Laboratory Characterization in Geotechnical Modeling and Practice**

SPEAKER **Dr. Yogi Vaid**

Professor emeritus, University of British Columbia

Dr. Yogi Vaid was born in India and graduated in Civil Engineering in 1959 from Panjab University. He was awarded an M.A.Sc. degree in 1969 and Ph.D. in 1971 by the University of British Columbia. He was an Associate Professor at McMaster University from 1976-1979. In 1979 he moved to the University of British Columbia as an associate professor and became full professor in 1984. He has also held positions as visiting professor and research fellow at the Norwegian Geotechnical Institute, Oslo and Kyoto Universities, Japan, Federal Institute of Technology, Zurich, and University of Canterbury, New Zealand.
A fundamental understanding of the static and dynamic mechanical behaviour of soils by experimental methods has been the focus of his research, which has been inspired by its implications in practical applications. He has authored over 60 reviewed journal papers in this field, including an ASTM award winning paper.

CONTENT: Great advances have been made over the last three to four decades in numerical solution of boundary value problems of continuous media. Their applications to geotechnical problems, in particular, has far outpaced our abilities to characterize realistically the mechanical properties of geomaterials – the key input required for meaningful results from the analysis. Idealized material models, with increasing degrees of complexities are being frequently used, with little experimental verifications as to their validity. Often the mechanical parameters derived from triaxial compression tests are used to calibrate the model, which is also assumed valid under generalized stress systems.

This presentation is intended to show that the soil response is much more complex than that revealed by the triaxial compression test. Among the many factors that influence soil behaviour include: (i) initial state variables, which are comprised of void ratio, effective stress state, soil fabric, and any prior stress/strain history experienced by the soil; (ii) the stress path during loading, and also; (iii) the consequence of the tacit undrained assumption in problems of rapid loading. Experimental evidence from carefully controlled laboratory element tests (which forms the foundation of most of our understanding of soil behaviour) is presented in its support. The apparent lack of consensus in the literature on several of these issues is addressed. Their implications in practical design using either laboratory tests on samples or the current practice of using

indices of some in-situ tests (e.g. SPT & CPT) are pointed out.

No claim is made as to any easy incorporation of the complex mechanical behaviour of soils in any numerical model. It is hoped that the thoughts presented herein will encourage analysts to recognise limitations of the results, which simple idealization of the geomaterials involved. An appreciation of the various facets of the actual material behaviour will encourage caution in a blind reliance on the numerical results obtained. It will also assist in intelligent interpretation of in-situ tests for the selection of design parameters.

DETAILS

Executive Inn, 4201 Lougheed Highway, Burnaby, BC V5C 3Y6 (Phone: 604-298-2010)
Social Hour: 5:30 to 6:30 pm (drinks available at the hotel bar)
Technical Presentation: 6:30 to 7:30 pm
Dinner: 7:45 pm ($30 will be charged for dinner)
RSVP: Dinner reservation to ali.amini@shaw.ca or at the door