The 2004 John Adjeleian Lecture

The 2004 John Adjeleian Lecture, titled ***"In Search of Elegance: The Evolution of the Art of Structural Engineering"*** will be delivered by Dr. Michael P. Collins, B.E., Ph.D., P.Eng. University Professor and Bahen-Tanenbaum Professor, Dept. of Civil Engineering, University of Toronto on November 22, 2004 in the Senate Room, 6th Floor, Robertson Hall (RO). A reception will follow the lecture.

"In Search of Elegance: The Evolution of the Art of Structural Engineering"

Michael P. Collins, B.E., Ph.D., P.Eng

Professor Collins is a structural engineer whose research is concerned with the design and evaluation of reinforced and prestressed concrete buildings, bridges, nuclear containment structures and offshore oil platforms: how structures stand up and why they sometimes fall down. He has concentrated his research effort on understanding how cracked reinforced concrete resists shear stress. Shear failures can cause concrete structures to collapse without warning and hence, accurate analytical models for shear behaviour are critical for public safety. Unfortunately, most traditional shear design procedures rely upon empirical design rules which lack a rigorous theoretical basis and can be dangerous if applied to new situations. The Modified Compression Field Theory, developed by Professor Collins and his colleagues at the University of Toronto, provides a rational basis for shear design and has received world-wide recognition.

Professor Collins is involved in formulating structural design standards for Canada and the United States and has participated in the investigation of a number of major structural failures. Significant structures that he has contributed to the design or evaluation of include the CN Tower, the Prince Rupert Grain Terminal, the Rion-Antirion Bridge in Greece, the Hibernia oil platform and nine other concrete offshore oil platforms in Norway, the UK and Australia.

Professor Collins believes that the true delight of a university scholar is not only to learn and to write, but also to teach. His lectures convey both the science and the art of structural engineering. He introduces his students to the history of this ancient discipline and shows them what they can learn from structures like Hadrian's pantheon and from remarkable engineers like Leonardo da Vinci, Robert Hooke, Rodolphe Perronet, Robert Stephenson and Leslie Robertson.

With a B.E. from the University of Canterbury in New Zealand in 1964 and a Ph.D. from the University of New South Wales in Australia in 1968, he joined the University of Toronto in 1969, was appointed to the *Bahen-Tannenbaum Chair in Civil Engineering* in 1995 and was selected as a University Professor in 1999. For his "outstanding contributions to the development and practice of structural engineering" he received the Sanderson Award from the Canadian Society for Civil Engineering in 1997 and the Kelly Award from the American Concrete Institute in 1994.

His teaching has been recognized by a number of awards including the 1995 University of Toronto Alumni Association Award of Excellence and the 1996 Canadian Council of Professional Engineers Medal for Distinction in Engineering Education. He is the author of over 70 technical papers, 8 of which have received research prizes. In 2005, Collins was chosen as one of 10 provincial finalists in TV Ontario's first Best Lecturer competition.