AUGUST 2015 MEETING
Wednesday, August 12, 2015 *(1.0 PDH)*

TECHNICAL PROGRAM

Slab on Grade on Shrink Swell Soils: A New Method

Speaker: Jean-Louis Briaud, Ph.D., P.E., Spencer J. Buchanan Chair, Zachry Department of Civil Engineering at Texas A&M University, tel no. 979-845-3795.

Professor Jean-Louis Briaud is a Distinguished Professor and Holder of the Spencer J. Buchanan Chair in the Zachry Department of Civil Engineering at Texas A&M University and a Professional Engineer. He received his bachelor's degree in France in 1972 and his Ph.D. degree from the University of Ottawa in Canada in 1979.

His expertise is in foundation engineering and more generally geotechnical engineering. He has served as President of the Association of Geotechnical Engineering Professors in the USA, President of the Geo-Institute of the American Society of Civil Engineers, President of the International Society for Soil Mechanics and Geotechnical Engineering and is the current President of the Federation of International Geoengineering Societies. His awards include the ASCE Ralph Peck Award from the USA, the CGS Geoffrey Meyerhof Foundation Engineering Award from Canada and the Honorable Aitalyev Medal from Kazakhstan. He is also a member of the National Academy of Natural Sciences in Russia.

Over the last 30 years, Dr. Briaud has conducted about 10 million dollars of research, most of which was on foundations and retaining walls. He has supervised 50 PhD students and 90 Master students. He is the author of a new book entitled Geotechnical Engineering and one entitled The Pressuremeter. Professor Briaud has published about 300 articles and reports in geotechnical engineering. In his spare time, he enjoys tennis, soccer, and rugby, and plays jazz piano at the amateur level.

PRESENTATION SUMMARY

Stiffened slabs on grade are one of the most economical solutions for one- to three-story buildings on shrink-swell soils. They consist, for example, of 1m deep, 0.3m wide beams resting on the soil, spaced 4m apart in both directions covered by a 0.1m thick slab on grade. The challenge is to optimize the beam depth, width, and spacing for the slab to be stiff enough that the movement of the soil at the edges of the slab will not cause undue bending of the foundation and the structure above it. Indeed shrink-swell soils are affected by the weather and/or by irrigation at the edges of the foundation and will swell and shrink as a result.

This Cross USA Lecture presents a new method to design stiffened slabs on grade such that the differential movement divided by the length over which this movement takes place is within tolerable limits. The method gives the beam depth necessary to achieve such stiffness, as well
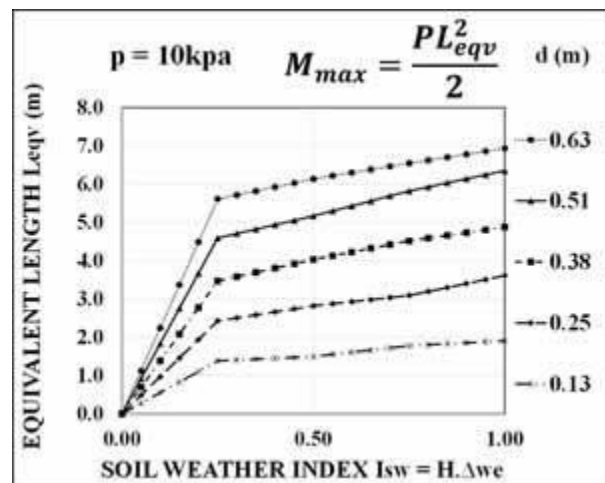
as the bending moment and shear force to be resisted. The method is automated in a spread sheet called TAMU-SLAB.

To download a copy of Dr. Briaud's slide presentation, click here

To read a summary of previous FPA presentations by Dr. Briaud, please click:

June 2007 New Design Procedures for Foundation Slabs on Shrink-Swell Soils
March 2005 Intelligent Compaction
March 2002 Smart Foundations for Light Building on Shrink-Swell Soils

PAST PRESENTATIONS (click here)