

JUNE 2007 MEETING

Wednesday, June 13, 2007

TECHNICAL PROGRAM

New Design Procedures for Foundation Slabs on Shrink-Swell Soils

Speaker [Jean-Louis Briaud, Ph.D., P.E.](#) Spencer J. Buchanan Professor, Zachry Department of Civil Engineering, Texas A&M University, tel. no. 979-845-3795.

PRESENTATION SUMMARY

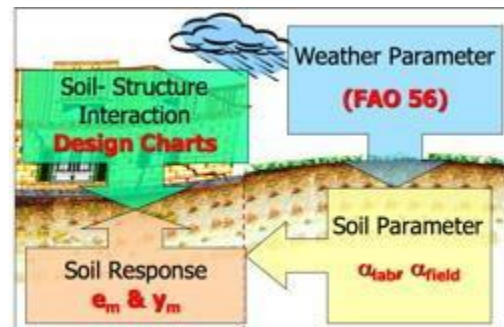


To a room of about 80 attendees, Dr. Briaud presented a new method proposed by one of his doctoral students for the design of slabs on grade built on shrink-swell soils. The project is funded by the Buchanan Chair at TAMU and has not yet been published. The method being proposed was presented to be close in accuracy to the PTI procedure, but with less complex calculations using design charts giving slab cantilever lengths, which is more similar to the WRI method.

The design procedure presented by Dr. Briaud included at least four charts that allowed the user to pick moments, shears, deflections and edge gaps (like E_m from PTI). Input into the charts include change in moisture content of the soil over the seasons (Δw) and grade beam depth. Δw comes from the shrink-swell test but

other charts were also available if suction tests are run instead, as the PTI method requires.

Dr. Briaud described a case history that was monitored as part of the research program. It was a conventionally reinforced stiffened slab on grade foundation with 48" grade beams at 10 ft centers over expansive clays with PI's of 40-70 % and an active zone down to 9 ft. Borehole monitoring was done at the 1, 2, 3, 4 and 5 meter depths. A benchmark was used to monitor the slab movements since construction in July 2004. The foundation baseline elevations showed it was constructed 1.0" out of level. The overall foundation heaved during the monitoring period because trees within the foundation's footprint were removed just prior to construction.



To read a summary of past FPA presentations by Dr. Briaud, click one of the following:

March 2005 [Intelligent Compaction](#)

March 2002 [Smart Foundations for Light Building on Shrink-Swell Soils](#)

[PAST PRESENTATIONS \(click here\)](#)