MARCH 2002 MEETING

Wednesday, March 20, 2002

TECHNICAL PROGRAM: Smart Foundations for Light Building on Shrink-Swell Soils

Speaker: Jean-Louis Briaud, PhD, PE, Spencer J. Buchanan Professor, Dept of Civil Engineering, Texas A&M University, ASCE National Chair of Shallow Foundations Committee 1989-94

PRESENTATION SUMMARY

Dr. Jean-Louis Briaud of TAMU presented an excellent PowerPoint presentation to a packed room of about 60 on various subjects relating to expansive soils. The last few slides directly addressed the title of his presentation in which he proposed adjustable crawl space foundations rather than spend the money to design a foundation which will not move.

A large part of the presentation covered the basics of soil suction. Dr. Briaud said that suction occurs because of the basic attraction between water and silica. He said that because of this phenomenon, water will rise in a small diameter glass tube, but the same could not occur for other fluids or other tube materials. He described this phenomenon as matrix suction. He also discussed osmotic suction, which results from the natural phenomenon of fresh water being drawn toward saltwater. He pointed out that water content is tied to soil suction. He mentioned that the International Standards Society was dropping the pF scale for measuring suction in lieu of the kPa scale (pF is the log(kPa) + 1).

Dr. Briaud discussed the swell test but said he preferred not to use it except to prove that a soil is not collapsible (i.e., if it swells, it is not a collapsible soil). He preferred rather a shrink test because he can get many more data points along the volume change cycle as the sample is dried. He said that for a given clay in the saturated zone, its stress/strain curve is linear. By stress/strain he meant the change in moisture content (which causes internal stress) along the y-axis vs. DeltaVolume/TotalVolume along the x-axis.

For a copy of Dr. Briaud's presentation, click here.

PAST PRESENTATIONS (click here)