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Soil Mechanics Information
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Soil Suction

Foundation and pavement damage often results from construction on reactive clay soils where the potential for differential movement is affected by moisture migration. One might expect moisture to move readily from soils with high water contents to those with low water contents. Such predictions are reasonable when the soils have similar grain sizes. But what happens when soil gradations are not alike? Moisture has actually been shown to move from coarse grained sands with low water contents to clays with much higher water contents because of negative pore water pressure sometimes referred to as soil suction. Researchers have identified soil suction as a useful predictor of the potential for damaging movement in areas where reactive clay is prevalent.

Methods to measure soil suction have included the use of filter paper, the thermocouple psychrometer, and triaxial, swelling pressure, and oedometer laboratory tests.

A revolutionary new device called the transistor psychrometer offers potential improvements in measurement range and response times. It is essentially an electronic adaptation of the wet and dry bulb thermometer used for measuring relative humidity.

On-going research at the Geotechnical Laboratory is aimed at using soil suction measurements to develop improved design and construction techniques for pavements and structures in the U.S. Point of contact is Dr. Marian Rollings/ 601-634-2952.

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The SMIAC bulletin is published and distributed periodically. Please contact the Director of SMIAC for more information:

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Centrifuge Testing	Mr. Richard Ledbetter	3380
Cutoff Walls	Mr. Roy Leach	2727
Dam Safety Evaluation	Mr. Milton Myers	2640
Dredged Material Disposal	Mr. Milton Myers	2640
Drilling/Sampling	Mr. Mark Vispi	2254
Earth Reinforcement	Dr. Ed Perry	2670
Centrifuge Testing	Mr. Richard Ledbetter	3380
Earthquake Engineering	Dr. Mary Ellen Hynes	2280
Earthquake Instrumentation	Mr. Robert Ballard	2201
Engineering Geology	Dr. Lawson Smith	2497
Engineering Seismology	Dr. Ellis Krinitzsky	3329
Erosion Control	Mr. Hugh Taylor	3454
Foundations in Soil	Dr. Vic Torrey	2619
Foundations in Rock	Dr. Glenn Nicholson	3611
Geomorphology	Dr. Lawson Smith	2497
Geophysical Explorations	Dr. Dwain Butler	2127
Geotextiles	Mr. Milton Myers	2640
Groundwater Modeling	Dr. James May	3395
In Situ Testing, Soils	Dr. Richard Peterson	3737
In Situ Testing, Rock	Mr. James Warriner	3610
Instrumentation in Soils	Mr. Earl Edris	3378
Instrumentation in Rock	Dr. W. O. Miller	3147
Levee Evaluation	Mr. Milton Myers	2640
Mobility Testing	Mr. Newell Murphy	2447
Moisture Migration	Dr. Marian Rollings	2952
Numerical Modeling (Soils)	Dr. John Peters	2590
Pavement Design	Dr. George Hammitt	3304
Pile Foundations	Mr. Milton Myers	2640
Relief Wells	Mr. Roy Leach	2727
Rock Mechanics	Mr. Glen Nicholson	3611
Seepage	Dr. Ed Perry	2670
Site Characterization	Dr. A. G. Franklin	2658
Slope Stability	Mr. Earl Edris	3378
Soil Dynamics	Dr. Mary Ellen Hynes	2280
Soil Mechanics	Mr. Milton Myers	2640
Soil Properties	Dr. Vic Torrey	2619
Soil-Structure Interaction	Dr. John Peters	2590
Soil Lab Testing	Mr. David Bennett	3974
Subdrainage	Dr. Ed Perry	2670
Swelling Soils	Dr. Richard Peterson	3737
Tunneling	Dr. Gen-hua Shi	2230
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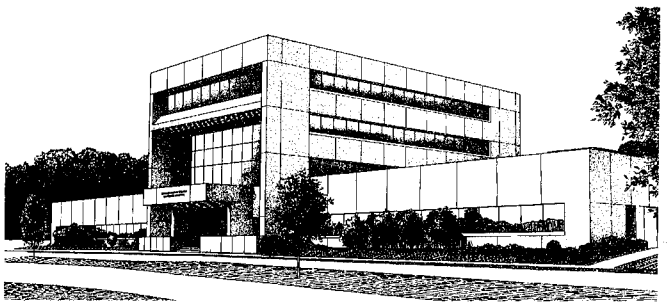

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