

JANUARY, 2009 MEETING

Wednesday, January 14, 2009

TECHNICAL PROGRAM

Analysis of Four Axial Compression Load Tests on High Capacity Augered Cast-in-Place Piles in the Texas Gulf Coast Soils

Speaker: Mr. Raghu N. Dass, Ph.D., P.E. of Trinity Soil Investigation Laboratories Inc.

PRESENTATION SUMMARY

To an audience of about 50 at the HESS Club, Dr. Dass, FPA Member, Chief Engineer for Trinity Soil Investigation Laboratories, and a licensed professional engineer in Texas with MS and PhD degrees in civil engineering from Southern Illinois University at Carbondale presented, "Analysis of Four Axial Compression Load Tests on High Capacity Augered Cast-in-Place (ACIP) Piles in the Texas Gulf Coast Soils".

Dr. Dass' presentation began with the type of equipment needed to install the ACIP Pile system, the advantages of ACIP Piles, followed with past concerns of these types of support systems. Next, Dr. Dass discussed the conditions where the ACIP Piles could be installed and the design considerations.

The main portion of the presentation discussed the test of four 18-inch diameter piles that were used as foundations for two different high rise buildings in the greater Houston area.

The load tests of three of the piles were taken to failure, and the load test data was recorded. One of the piles did not reach failure, although the test exceeded the design requirements by a significant amount. In all tests, the actual capacities of the in-place pilings exceeded the expected design loads. Based on the study, Dr. Dass reached the following conclusions:



- Side resistance of ACIP piles in over-consolidated Beaumont clays is being conservatively predicted using the existing methods.
- Based on load test data for these two projects, alpha values of 0.72 to 0.84 with an average value of 0.78 were calculated for ACIP piles in Beaumont clays.
- No appreciable change was noticed in the beta values for sands encountered at the site.
- Design of ACIP piles in Beaumont clays may be based on an alpha value of 0.75. (i.e., 36% more than the currently used alpha value of 0.55).

Load tests should be performed to confirm design capacity of ACIP piles in Beaumont clays for a more rational ultimate capacity resulting in higher pile capacities and lower foundation costs. Doing this test should cost less than supplying AGIP piles designed to the standard alpha value of 0.55.

To download the paper that Dr. Dass presented, click [here](#)

To download the slides that Dr. Dass presented, click [here](#)