IART 047

Development of Tri-axial Testing Equipment for Concrete, Rock and Soil

Clay Naito
Assistant Professor, Center for Advanced Technology for Large Structural Systems, Lehigh University, Bethlehem, PA

Sibel Pamukcu
Associate Professor, Department of Civil and Environmental Engineering, Lehigh University, Bethlehem, PA

Fatih Cetisli
Graduate Student, Center for Advanced Technology for Large Structural Systems, Lehigh University, Bethlehem, PA

Abstract

This project will serve two needs for the ATLSS research center. It will: 1) improve the concrete material testing capabilities at the center, and 2) provide a means for advanced geotechnical evaluation of rock and soil. This will be achieved through the development of a tri-axial cell mechanism for the ATLSS center. The cell will be capable of applying lateral confinement pressures of up to 10 ksi on 4"x 8" samples of concrete, rock or soil. Advanced feedback controls will allow for conventional zero dilation testing of soil and rock, as well as complex lateral load histories on concrete. This equipment will be used in combination with the existing Satec compression test machine. To validate the performance of the equipment, a study of confined concrete will be conducted. Partner companies include Langan Consultants and CMT Consultants.