

CE 754 (CE496) – DESIGN OF FOUNDATIONS FOR EXPANSIVE SOILS

A graduate course on the above subject will be offered in the Spring semester 2006. It is offered to both graduate students and upper level undergraduate students. It is scheduled for MW 4:45 to 6:00. (Undergraduate students should register for CE 496. See Laurie Howard for details. Graduate students should register for CE 754.)

Colorado State University is one of very few universities that offer a course that addresses this subject. The instructor will be Dr. John D. Nelson. He is the author of one of only two books published in the United States that specifically addresses this subject.

The design of foundations for light structures founded on expansive soils is very different from that for ordinary soil sites. In the western United States, and in particular the Front Range of Colorado, billions of dollars of damages have been sustained because of improper design. Many of the problems result from inadequate design and construction as a result of the failure to identify expansive soils on the site, failure to accurately predict heave associated with the expansive soil, specification of inappropriate foundation systems, and/or improper construction practices. This course will present the basic fundamentals of design of foundations for expansive soil sites. It will discuss the general nature of expansive soil and different foundation systems to be used on these soils. It will present methodologies to predict slab and pier heave and apply these methodologies to the design of foundation systems.

COURSE OUTLINE

1. INTRODUCTION
2. DAMAGE FROM EXPANSIVE SOIL
3. SITE INVESTIGATION
4. SOIL SUCTION
5. LABORATORY TESTING OF EXPANSIVE SOILS
6. HEAVE PREDICTION
7. FOUNDATION SYSTEMS
8. DRILLED PIER DESIGN
9. POST TENSIONED SLABS-ON-GROUND
10. LATERAL EARTH PRESSURES
11. DESIGN EXAMPLES

For more info contact Dr. Nelson at clovrblm@ezlink.com or (970) 222-6054 (cell).