



A Local Technical Assistance Program - LTAP
**ALABAMA
TECHNOLOGY TRANSFER
CENTER**
AT AUBURN UNIVERSITY

Presents a Seminar on

SHALLOW FOUNDATION DESIGN

**Pelham
November 3, 2009**

**Huntsville
November 4, 2009**

**Mobile
November 12, 2009**

**Montgomery
November 13, 2009**

Dear Colleague:

This seminar provides information on the design of shallow foundations for bridges, buildings, and other structures where column loads need to be distributed safely on the ground. Most structures are on shallow foundations. The foundations must withstand the structure's weight without moving. Proper foundation soils, footing shape and construction are required for successful shallow foundation design.

This seminar reviews all aspects of shallow foundation design, focusing on spread footing design. Site investigation, soil properties, strength of soils, bearing capacity, and compressibility of soils are examined. The effect of water on foundation stability is also reviewed. Water table fluctuations can have a significant effect on a foundation as well as on adjacent structures.

Remedial measures for poor sites are also addressed. Occasionally, the site soil conditions do not allow economical foundations to be built. In these cases, the soil must be strengthened or compressed before the site can be used. Several techniques for doing this are reviewed.

Once the proper soil properties are obtained and the footing sized, the structural design of a concrete footing can be accomplished. The fundamental concepts and theory of reinforced concrete design are covered along with design aids and examples. This seminar reflects the 2008 Building Code Requirements for Structural Concrete, as published by the American Concrete Institute.

Please complete and return the enclosed registration form. A fee of \$100.00 per person should be mailed with your registration. Payment may be made by phone or fax if paying with Visa, MasterCard or government agency purchase order. **Registrants are reminded that registration is not complete until payment is made.** The registration fee includes handout materials, break refreshments, lunch and a certificate of participation. Thank you for your continued support of the Alabama Technology Transfer Center. Larry Sellers, Garry Havron and I look forward to seeing you at this seminar.

Sincerely,

A handwritten signature in dark blue ink that reads "Robert L. Vecellio". The signature is written in a cursive, flowing style.

Robert L. Vecellio
Alabama T² Center Director

Course Schedule

| | |
|------------|------------------------------------|
| 8:00 a.m. | Registration and Check-In (Coffee) |
| 8:30 a.m. | Structural Concrete Design |
| 12:00 noon | Lunch |
| 1:00 p.m. | Soils |
| 4:00 p.m. | Adjourn |

Seminar Topics

Part I—Structural Concrete Design

- A. Fundamental Concepts
 - Definitions
 - Footing Types
- B. Loads
 - Load Types
 - Load Factors
 - Soil Pressures
- C. Reinforced Concrete Design (ACI 318-08)
 - Materials
 - Flexural Design
 - Shear Design
 - Development Length
 - Force Transfer
 - Reinforcement Details
- D. Design Examples

Part II—Soils

- A. Overview
- B. Site Investigation
- C. Shear Strengths of Soils
 - Evaluation
 - Compaction
- D. Bearing Capacity Calculations
 - Sands
 - Clays
- E. Settlement
 - Footings on Sands
 - Footings on Clays
- F. Remedial Site Measures
 - Compaction of Sands
 - Preloading of Clays or Sands

Locations and Dates

Pelham— November 3, 2009

Pelham Civic Center
500 Amphitheater Road
Pelham, AL 35124
205.620.6448

Huntsville— November 4, 2009

Holiday Inn - Research Park
5903 University Drive
Huntsville, AL 35816
800.845.7275

Mobile— November 12, 2009

Hilton Garden Inn
828 West I-65 Service Road South
Mobile, AL 36609
251.544.6000

Montgomery— November 13, 2009

Embassy Suites
300 Tallapoosa Street
Montgomery, AL 36104
334.269.5055

Seminar Instructors

Dr. David Elton is an Associate Professor of Civil Engineering at Auburn University. He received his undergraduate degree at Clarkson College of Technology, a Master of Science degree in geotechnical engineering from Utah State University, and a Doctorate in geotechnical engineering from Purdue University. His doctoral work on pavement evaluation resulted in a U. S. patent. Dr. Elton worked at The Citadel before coming to Auburn University.

Dr. Elton has authored many refereed publications, presented numerous papers at technical conferences, moderated sessions at national ASCE meetings, edited ASCE publications on soils and edited the International Geosynthetics Society Newsletter. He has presented many short courses on soils and geosynthetics, including erosion control, drainage, unpaved roads foundations, slope stability, reinforced earth walls and landfills. He headed the NSF/IFAI Professor Training Course for Geosynthetics.

For his work on asphalt systems, his paper won the Fred Burggraf Award of the Transportation Research Board. Dr. Elton serves on several ASCE and TRB committees related to geosynthetics and geotechnical engineering. He belongs to several engineering honor societies and is a registered professional engineer in Alabama.

Dr. Robert W. Barnes is the James J. Mallett Associate Professor of Civil Engineering at Auburn University, where he has taught the analysis and design of concrete and masonry structures for ten years. During that time he has won the William F. Walker Merit Teaching Award and has been selected as Outstanding Faculty Member in Civil Engineering twice.

Dr. Barnes is a past recipient of the American Concrete Institute's (ACI) Structural Research Award as well as the Southeastern Concrete Alliance Network Quality Award for Concrete Pavement Construction. His current research activities include studies of the behavior of prestressed structures constructed with self-consolidating concrete, the repair and strengthening of structural concrete using FRP reinforcement, and the rapid replacement of concrete bridge decks.

Dr. Barnes serves as Secretary of Joint ACI-ASCE Committee 445 (Shear and Torsion) and voting member of Joint ACI-ASCE Committee 423 (Prestressed Concrete) and ACI Committee 408 (Bond and Development of Reinforcement). A licensed professional engineer in the State of Alabama, Dr. Barnes earned his B.C.E. from the Georgia Institute of Technology and his M.S.E. and Ph.D. from the University of Texas at Austin.

Accommodation of Participants with Disabilities

It is the policy of Auburn University to provide accessibility to its programs and reasonable accommodation for persons defined as having disabilities under the Americans with Disabilities Act of 1990. Please contact us at least two weeks prior to the event so that proper consideration can be given to any special needs

Continuing Education Units

Participants completing this seminar will receive 0.60 Continuing Education Units (CEUs). The CEU is a nationally accepted measure of continuing education credit and is awarded at the rate of one CEU for each ten contact hours of qualifying instruction. Auburn University makes every effort to ensure that its CEU granting programs conform to the requirements of the State of Alabama Board of Licensure for Professional Engineers and Land Surveyors for the award of Professional Development Hours to support the annual renewal of professional registration.

Sponsorship

This seminar is one of the series of conferences and workshops being conducted as part of the Alabama Technology Transfer Center at Auburn University. This program is a part of the Local Technical Assistance Program (LTAP) supported by the Federal Highway Administration, the Alabama Department of Transportation and Auburn University.

This seminar is the 236th offered, with more than 34,000 attendees, since the program's inception in 1983. In addition to conducting training seminars, the T² Center also publishes a quarterly newsletter, distributes publications and maintains a lending library of videotapes on technical subjects. The Alabama Technology Transfer Center is administered at Auburn University through the Engineering Continuing Education office and the Department of Civil Engineering. For further information and suggestions for future programs, contact Robert L. Vecellio, Department of Civil Engineering, at (334) 844-4320 or vecellio@eng.auburn.edu

Cancellation Policy

We understand that circumstances may arise that could require you to cancel your registration, and we make every effort to accommodate your needs. Due to commitments to our instructors and facilities, the registration fee is not refundable if a registrant withdraws less than five working days before the seminar. You may substitute registrants; please notify us in advance if possible. Non-paid, no show registrants will be invoiced for the full cost of the seminar. Business and Engineering Continuing Education reserves the right to cancel or modify any program offering, but will provide registrants the option of a full refund. Auburn University will not be responsible for expenses incurred by a registrant as the result of a cancelled or rescheduled program.

Registration

Your pre-paid registration guarantees you a seat in the seminar as well as information on any changes to the seminar. Registration on the day of the seminar will be accepted on a space available basis, but enrollment will close when the capacity of the seminar is reached. **Participants are reminded that registration is not complete until payment is received.**

Registration Form

SHALLOW FOUNDATION DESIGN

- Pelham – Nov 3, 2009
 Huntsville – Nov 4, 2009
 Mobile – Nov 12, 2009
 Montgomery – Nov 13, 2009

Please print or type; register one person per form; photocopy if more forms are needed.

Name _____ Last Four Digits of SS# _____

Employer _____ Position _____

DOT Division/Bureau _____ Address _____

City _____ State _____ Zip+4 _____

Phone _____ Fax _____ E-mail _____

Fee: \$100.00

Payment by: Check (Payable to Auburn University)

Visa MasterCard American Express Discover P.O. # _____

Credit Card # _____

Expiration Date _____

Cardholder's Name _____

Signature _____

Are you an Auburn Alumnus? Yes No

Return Registration Form and Payment to:

Engineering Continuing Education
 217 Ramsay Hall
 Auburn University, AL 36849-5375
 Phone 1-800-446-0382 or (334) 844-4370
 Fax (334) 844-5715
www.engce.auburn.edu

Auburn University is an Equal Opportunity Educational Institution/Employer
2009-012-ATTC

- Pelham – November 3, 2009
- Huntsville – November 4, 2009
- Montgomery – November 13, 2009
- Mobile – November 12, 2009

SHALLOW FOUNDATION DESIGN

Auburn University
 Engineering Continuing Education
 Samuel Ginn College of Engineering
 217 Ramsay Hall
 735 Extension Loop
 Auburn University, AL 36849-5375



Non-Profit Org
 US Postage Paid
 Permit #530
 Montgomery, AL