A Two-day Design Oriented Practical Course on

Advanced Design of Reinforced and Post-tensioned Concrete Floor Systems

Dubai, April 11-12, 2009

This two-day intensive and advanced course is intended for structural engineers with background to design of conventionally reinforced or post-tensioned floor systems. It presents the latest developments in building codes, design practice and analytical tools, and provides the answer to many critical questions facing structural engineers. *Course Director:* Dr. Bijan O. Aalami, Professor Emeritus of San Francisco State University.

TENTATIVE SCHEDULE OF PRESENTATION

DAY ONE

- Latest building codes and practice in design of RC and PT floor systems to resist wind and earthquake forces. Review of typical structural calculations, designs and detailing, including migration from UBC-97 to ASCE-7-05 and IBC-07 (International Building Code) and the latest provisions of ACI-318-08 for seismic design.

- Rational Integration of designs based on multi-story frame analyses, such as Robot, Etabs and Staad Pro with design of RC and PT floor systems; review of concept and procedures, followed by practical examples.

- Building Code requirements for design of PT Floor systems; Review the requirements of a model code, followed by the stipulations in IBC-2007 (International Building Code); ACI-318; European Code EC2; British Code BS8110, including comparison of features among the leading codes and comments on reports from professional organizations (TR43 and PTI).

- State-of-the-art modeling and design tools for seamless integration of 3D structural models to generation of structural drawings for reinforcement and tendon layout and preparation of shop drawings. This presentation features Revit® Structure and ADAPT-Floor Pro®.

- Review and demonstration of integration of a lateral analysis performed by a frame program, such as ETABS, with the gravity design of an RC for PT floor system.

DAY TWO

- Detailed long-hand step-by-step calculation of a post-tensioned floor system, using the requirements of ACI318; IBC; EC2; BS8110 and TR43, and highlighting the differences among various provisions.

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- Design for shortening of post-tensioned floors due to the long-term effects of creep and shrinkage, including means of crack mitigation due to constraint of supports. Design examples for calculation of shortening and the associated crack mitigation.

- Practical design example: Review of an actual design of a post-tensioned floor system, including modeling, analysis, design, structural and shop drawings with sample design criteria, calculation package, structural and shop drawings.

- State-of-the-art software design tools for building structures, featuring ADAPT-Floor Pro; ADAPT-PT and ADAPT-ABI.

- Specific topics of importance for senior structural design engineers

  o Long-term deflection assessment and code compliance

  o Cracking and cracked deflection

  o Hyperstatic moments due to prestressing; determination and consideration in design

  o Allowable stresses; determination and code compliance

  o Latest ACI requirements for Punching shear design

  o Judicial and optimum layout of tendons

  o Structural modeling of floor systems for analysis and design

  o Vibration assessment of floor systems and its acceptability

  o Mat foundation design

  o Investigation of Floor Systems: This forensic-based presentation reviews the state-of-the-art investigative procedures to determine the adequacy and code compliance of a existing floor systems.

PURPOSE AND BACKGROUND

This course is targeted to practicing and senior structural engineers, and plan checkers who are engaged in design of reinforced and post-tensioned buildings. It provides the know-how for a better understanding of the design concepts, and their application to practical projects. The course reviews in detail the critical features of the major building codes, design procedures, and software tools. The course covers the state-of-the-art tools of 3D graphical modeling (Revit Structure) and its integration with the analysis and design tool ADAPT-Floor Pro for seamless generation of structural calculations, post-tensioning and reinforcement drawings, shop (fabrication) drawings as well as estimates of quantities. It demonstrates the efficient integration of analysis results, obtained from third party software, such as Robot, Staad Pro and ETABS, for the overall stability of a structure under wind and earthquake and gravity design of floor systems.

ADAPT Educational Institute

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COURSE BENEFITS

Course attendees will receive comprehensive course notes and reference material including detailed design examples.

- o Find out about the latest code provisions for seismic and wind design of concrete buildings, their practical application and integration with gravity design of floor systems

- o Understand the requirements of ACI318; IBC (International Building Code); ASCE-7-05 building codes, and TR43 Report, and their impact on your design

- o Become skilled in tendon layout and detailing for good construction practice

- o Examine the possibilities of using powerful software tailored for the efficient design of post-tensioned and conventionally reinforced concrete, including modeling and design through ADAPT software system and Revit Structure

- o Learn to optimize the design process for efficiency and economy using the latest design tools.

FACULTY

DR. BIJAN O. AALAMI, a Life Member of the Post-Tensioning Institute and ASCE, is Professor Emeritus of San Francisco State University, Chartered Engineer, and CEO and Founder of ADAPT Corporation - a structural engineering firm in California specializing in the design of concrete structures. He has been actively engaged in the design and construction of numerous notable post-tensioned buildings, bridges and special structures. A renowned world leader and teacher in the design of concrete buildings, bridges, special structures and post-tensioning, through his worldwide educational seminars, Dr. Aalami has enriched the practice of many engineers in North and Latin America, Far East, Europe and the Middle East. His extensive publications on concrete design, in particular post-tensioning, are regarded as primary resources for practical design of post-tensioned buildings and bridges. For over twenty years, Dr. Aalami has been the project leader of the ADAPT software suite of programs that are serving concrete design engineers in over 85 countries worldwide.

DR. FLORIAN AALAMI earned a bachelor's degree in civil engineering from the University of California, Berkeley and both a master's degree in structural engineering and a doctoral degree in construction technology from Stanford University. Florian's extensive career in AEC software development began at Stanford's Center for Integrated Facility Engineering and extended to his founding of BuildPoint Corporation, where he served as CTO and Vice President of Business Development. As a specialist in construction technology, his interest and involvement in post-tensioned structures, is driving ADAPT's global activities as a leading provider of software and specialty consulting services for the concrete design industry

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VENUE & TIMING

Le Meridien, Dubai, UAE – Grand Ballroom 2.

The course is scheduled from 9:00am – 5:00pm with refreshments and lunch breaks.

FEE

Standard registration fee 2,750 Dhs

Early-bird registration fee 2,400 Dhs (payment received before March 15, 2009)

Group discounts apply

REGISTRATION

Booking can be made directly through ADAPT International (intl@adaptsoft.com) or eConstruct (Mohan.Sathishkumar@econstruct.ae), ADAPT's authorized representative in the UAE.

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REGISTRATION FORM

Advanced Design of Reinforced and Post-tensioned Concrete Floor Systems

Dubai, April 11 – 12, 2009

Please fill out and fax in a separate for per participant.

Name: _____

Title: _____

Organization: _____

Department: _____

Contact Email: _____

Contact Number: _____

Contact Fax Number:_____

To register for this 2-day course, please deposit the course fee of (please check one)
☐ AED 2,750/participant for standard registration or
☐ AED 2,400/participant if registering before March 15
in favor of e.Construct Fz LLC, Dubai to

Emirates Bank International Current Account number 0084 – 851100 – 001

Please fax the Bank's receipt to the Fax no: +971-40-3916860 or email to Mohan.Sathishkumar@econstruct.ae or intl@adaptsoft.com to obtain the course fee receipt & registration confirmation.

Detailed instructions, including a map, will be sent to all participants one week prior to the commencement of the course.

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