POST-TENSIONED BUILDING DESIGN

A Hands-On Three-Day Workshop
Course Outline

Learn to design and detail a post-tensioned building/parking structure, and leave the workshop with a design of your project.

ABOUT THE COURSE

This workshop, specifically tailored to the needs of the post-tensioning design engineer and reviewer, is the culmination of over 25 years of design experience and training. Several thousands of engineers in 26 countries worldwide have participated in the earlier formats of these events, and improved their design skills and efficiency. Now, for the first time, with focus on the routines and practice of a successful consultant's office, the workshop offers the know-how needed to efficiently produce structural documents for construction.

ABOUT THE FACULTY

DR.BIJAN O.AALAMI is the primary instructor of the workshop. He is a *Professor Emeritus of San Francisco State University, Life Member of the Post-Tensioning Institute, Chartered Engineer, and CEO of ADAPT Corporation – a structural engineering firm in California specializing in design of concrete structures.* He has been actively engaged in the design and construction of numerous notable post-tensioned buildings, bridges and special structures for over 25 years. A renowned world leader and teacher in the design of concrete buildings, bridges, special structures and post-tensioning, through his worldwide educational workshops in 26 countries so far, Dr. Aalami has enriched the practice of thousands of engineers in North and Latin America, Far East, Europe and the Middle East. His extensive publications on concrete design, in particular post-tensioning, are the principal resource for practical design of post-tensioned buildings.

Dr Aalami brings you the in- depth understanding of post-tensioning to the point of practical application and your daily use – an experience not readily available.

For the last twenty years Dr. Aalami has been the project leader of the software suite ADAPT that is serving concrete design engineers in over 70 countries worldwide.

TENTATIVE SCHEDULE

DAY ONE

- Review design concepts, fundamentals, provisions of building codes, and design steps

DAY TWO

- Long hand calculations; design examples; structural drawings and construction detailing

DAY THREE

- Project design. Each participant will be guided and supervised to work a project type of interest to the participant. Participants can bring their own projects, or select one from the several options provided.

DAILY SCHEDULE

SESSION 1	8:30 AM	- 10:15 AM
SESSION 2	10:30 AM	- 12:00 NOON
SESSION 3	1 :00 PM	- 2:15 PM
SESSION 4	2:30 PM	- 4:30 PM

E-Mail support@adaptsoft.com www.adaptsoft.com
1733 Woodside Road, Suite 220, Redwood City, California, 94061, USA, Tel: (650) 306-2400 Fax (650) 306-2401

LEARNING OBJECTIVES

You will learn about:

- Current post-tensioning systems and construction practice in building and parking structures
- How to determine efficient layouts for post-tensioned structures
- Rules for quick sizing of members and estimate of quantities
- Breakdown of a complex project into simple and well-defined design steps
- Detailed procedures of post-tensioning design, including design for earthquake and wind
- Organization of structural drawings and detailing
- Design from crack mitigation
- Latest building code provisions for post-tensioned structures
- Long-hand calculation for design and design verification
- Industry standard software application to design of post-tensioned structures
- Finite element application to design of post-tensioned buildings – seamless flow from the architect's drawings to the generation of reinforcement and PT drawings
- Efficient tendon layout and detailing for construction

WORKSHOP BENEFITS

- Find out about the latest developments in post-tensioning systems and construction practice, including measures for durability and low maintenance
- Learn about the benefits and design procedures for post-tensioning in earthquake regions
- Know the changes in ACI and IBC building codes and their impacts on your design
- Learn how you can avoid costly errors by using an integrated approach in your design from architectural drawings to structural documents
- Become skilled in tendon layout and detailing for good construction practice
- Increase the productivity of your designs using the latest know how and tools
- Seamless flow of design from the architectural drawings to construction documents
- Learn how to increase the reliability and economy of your designs

EDUCATIONAL CREDIT UNITS

The participants receive 2.10 units of ECU; 21 PDH

WORKSHOP OUTLINE

DAY ONE

- Introduction to post-tensioning; post-tensioning systems; post-tensioning hardware
- Construction technology of post-tensioned structures; preferred construction practice
- Review of design concepts of concrete floors with specific reference to post-tensioning
- Detailed design procedure of post-tensioned floors and frames
- Long-hand design example of a post-tensioned column supported flat slab
- Long-hand design example of a post-tensioned parking structure beam and slab
- Industry standard computer applications for design of flat slabs, beams and frames; Equivalent Frame Method and beam frames (using ADAPT-PT)
- Sizing of post-tensioned members
- Preliminary designs and quantities
- Layout of post-tensioning tendons;detailing for tendons and rebar

DAY TWO

- Code provisions for design of post-tensioned members for gravity, wind and earthquake
- Shortening calculations for crack mitigation
- Stress losses and elongations in post-tensioned tendons
- Design and detailing of post-tensioned structures for earthquake
- One-way and punching shear design and reinforcement options for flat beams and slabs
- Finite element analysis and design case study of flat slab floor systems using ADAPT-FLOOR- Pro
- Review of steps for complete design of a post-tensioned building structure
- Review of the requirements and the essential information on structural drawings
- Review of the requirements and example of a structural design calculation package
- Questions and discussion

DAY THREE

- Each participant will be working on an actual building or parking structure project. The participants are encouraged to bring architectural drawings of their own project, or they can select one from the samples provided at the workshop. The target of the third day is to size, model, design and generate structural drawings of a complete floor.