

**ADAPT SOFTWARE AND DESIGN WORKSHOP SERIES**  
Hands-On Software Training With Practical Design Lectures

Atlanta, GA, October 2-5, 2007

*Learn to design Post-Tensioned projects faster and with improved quality using ADAPT software.*

**ABOUT THE WORKSHOP SERIES**

This workshop series is specifically tailored for ADAPT clients who want to improve their design procedures, productivity and quality using ADAPT-PT and/or ADAPT-Floor Pro software. Each workshop offers intensive hands-on training on ADAPT software with 2 hours of design instructions from Dr. Bijan Aalami. Workshop participants will be taught advanced skills in the application of ADAPT software and gain practical knowledge for the design of post-tensioned floor systems and beams. This unique combination of software training and design knowledge prepares the practicing structural engineer for the day-to-day challenges of designing post-tensioned projects. The ADAPT software, used as the basis of the course, is the worldwide industry standard and covers both the Equivalent Frame Method and 3D Finite Element Methods of analysis and design. The hands-on software and design training draws on over 35 years of the instructors design experience and teaching.

The participants receive 0.7 units of CEU; 7 PDH for each workshop day

**WORKSHOP SCHEDULE**

All workshops are conducted as hands-on computer lab sessions; each participant will be provided with a computer loaded with ADAPT software.

Date	Software	Topic
October 2 <sup>nd</sup> , 2007	ADAPT-PT [EFM Design]	Advanced Applications
October 3 <sup>rd</sup> , 2007	ADAPT-Floor Pro & MAT [3D FEM Design]	Introduction for Beginners
October 4 <sup>th</sup> , 2007	ADAPT-Floor Pro & MAT [3D FEM Design]	Advanced Applications I
October 5 <sup>th</sup> , 2007	ADAPT-Floor Pro & MAT [3D FEM Design]	Advanced Applications II

**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 software and specialty consulting firm in California specializing in design of post-tensioned concrete structures.* He has been actively engaged in the design and construction of numerous notable post-tensioned buildings, bridges and special structures for over 28 years. Dr. Aalami is a renowned world leader and teacher in the design of concrete buildings, bridges, and special structures with a special emphasis on post-tensioning. Through his worldwide educational workshops in 26 countries, he 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 an in-depth understanding of post-tensioning from the point of view of practical application to design from an outstanding teacher with a unique background and experience.

For the last twenty five years Dr. Aalami has been the visionary force driving the development of ADAPT software, which is used by structural engineers in over 78 countries worldwide.

## WORKSHOP OUTLINE

### DAILY SCHEDULE

8:30 AM – 4:30 PM

### DAY 1 – ADVANCED ADAPT-PT WORKSHOP (October 2<sup>nd</sup>, 2007)

The objective of this workshop is to provide you with the skill and know-how you need to efficiently design post-tensioned floor systems and beam frames. It is assumed that you have had some previous exposure to post-tensioning design, in particular the application of ADAPT-PT software.

#### Software Training

- Learn how to break down a complex floor system into rational design strips
- Distinguish the differences between one-way and two-way design strips and the applicable codes
- Go through a detailed design of a column supported two-way flat slab
- Design a one-way beam and slab construction typical of parking structures
- Gain the skill of optimizing your ADAPT-PT design for best economy and performance
- Explore the methods of modeling and designing complex design strips with steps and irregular span geometry

#### Design Lectures

- Construction practice of post-tensioned floor systems
- Guidelines for initial steps in design of a post-tensioned floor selection; design criteria, design parameters; member sizing and quantities

### DAY 2 – BEGINNER ADAPT-Floor Pro WORKSHOP (October 3<sup>rd</sup>, 2007)

The objective of this workshop is to provide you with the basic skill and know-how you need to efficiently design post-tensioned floor systems and beam frames using ADAPT-Floor Pro. It is assumed that you have had some previous exposure to post-tensioning design.

#### Software Training

- Learn how to efficiently create your 3D structural model from an imported DWG file
- Become familiar with model editing tools
- Apply loads and define load combinations
- Set design criteria – material, code, cover, etc.
- Become skilled at creating support lines using splitters – for openings and partial floor section design
- Export a design strip to ADAPT-PT for preliminary design and re-import tendons
- Generate an analysis mesh for your model
- Study modeling of tendons – banded, distributed, mapping, modifications, etc.
- Analyze your structure and explore the solution
- Generate design sections to carry out code checks and rebar design
- Discover the basics of report generation

#### Design Lectures

- Structural modeling of floor systems for design, calculation of design values and code check
- Review of design parameters, detailing, and construction documents of three typical post-tensioned structures: (i) multi-story building, (ii) podium slab, (iii) beam and slab parking structure

## DAY 3 – ADVANCED ADAPT-Floor Pro WORKSHOP I (October 4<sup>th</sup>, 2007)

The objective of this workshop is to provide you with the advanced skill and know-how you need to efficiently design complex post-tensioned floor systems, beam frames and MAT foundations using ADAPT-Floor Pro. It is assumed that you have had some previous exposure to post-tensioning design and have a basic working knowledge of ADAPT-Floor Pro.

### Software Training

- Advanced import of DWG files – combining new DWG with existing model
- Learn the do's and don'ts of modeling openings along slab edge
- Apply and modify user defined boundary conditions
- Skip and reduce live load
- Viewing selected items only
- Advanced meshing – node shift and troubleshooting
- Advanced modeling tips – intersecting column lines and complicated layout
- Study the options of support line results
- Export complex steps to ADAPT-PT
- Manually generated design sections
- Add base reinforcement (mesh rebar)
- Master features of Advanced Dynamic Rebar Design (DRD) module
- Calculate cracked section deflections
- Generate PDF reports using Adobe Acrobat

### Design Lectures

- Layout of post-tensioning tendons in floor systems
- Nonprestressed reinforcement in post-tensioned floor systems and detailing

## DAY 4 – ADVANCED ADAPT-Floor Pro WORKSHOP II (October 5<sup>th</sup>, 2007)

This workshop builds on the curriculum of day 3 and provides you with additional skills and knowledge needed for the advanced application of ADAPT-Floor Pro and ADAPT-MAT.

### Software Training

- Review modeling of shear walls with in-plane restraint
- Carry out exercises for various tendon layouts
- Detect tendon interference – tendon diameter
- Review tendon properties – (Un) bonded, calculation method, losses, etc.
- Calculate and report tendon elongations
- Learn how to design for lateral loads
- Generate tendon and rebar quantities for your project
- Use PT Shop drawing module to calculate and report chair (support) heights
- Conduct a detailed review of stress check capabilities (verification)
- Q&A

### Design Lectures

- Critical concepts and procedures in design of post-tensioned buildings
- Design of post-tensioned floors for shortening and crack mitigation