

ACI San Diego Chapter – September 9, 2008 Program

Engineering 101 for Non-Engineers

Presenters

Jay Thomas and Nils Fox with Structural Preservation Systems, Inc.

ABSTRACT:

During new construction, repair or modifications to concrete structures, it is important that contractors focus on structural safety issues. Given the speed at which construction and repair projects are being completed today, a basic understanding of the fundamental concepts of how reinforced concrete is designed, is critical to contractors. Ironically, the contractor who is responsible for ensuring that a structure is built or modified to meet the intended structural demands, may not possess the fundamental information required to recognize structural matters. Having a basic understanding of these concepts is critical - not to enable the contractor to make engineering judgments, but rather recognize those situations that could lead to structural issues and consult an engineer to avoid costly problems.

Unfortunately, these important technical issues relate to the principles of structural engineering and material science - topics that are neither contractor related nor are they typically taught at a practical level so that they can be understood by a “non-engineer.”

By presenting these critical concepts in a basic manner geared for non-engineers, attendees of this seminar will leave with a general understanding of how Reinforced, Post Tensioned and Precast concrete structures are built from a design perspective- simply put “Engineering 101 for Non-Engineers”. And more importantly, what are basic but critical aspects of concrete structures that a contractor must to understand during construction. The topic is not presented for the purpose of making structural decisions, but to recognize issues and know when to bring them to the engineer’s attention. This broad understanding is intended to:

- Insure the intended structural capacity is achieved
- Prevent structural damage or failure during construction and repair projects
- Insure modifications or changes are reviewed by the engineer prior to completion
- Assure costly back charges and delays are avoided

Also presented will be “How to Avoid” concepts during construction and practical repair solutions that can be utilized when problems do occur.

Attendees are typically Project Management, Pre planners, Estimators, Safety personnel and Field Superintendents.

The seminar presenters are contractors with both technical and construction experience. It is presented from a technical perspective, however at a technical level that directly relates to contractors.

SEMINAR AGENDA:

Structural Engineering 101 for the Non-Engineer- General overview of how reinforced concrete is designed for:

- Conventionally reinforced concrete
- Post-tensioned concrete
- Precast concrete

What happens on a jobsite that may impact the structural capacity of reinforced concrete:

- Missing or misplaced reinforcement
- Low strength concrete
- Voids/honeycombs and cold joints
- New loads on the structure
- Cutting new penetrations

Practical strengthening techniques to add or restore structural capacity:

- External post-tensioning
- Externally bonded carbon fiber composites
- Adding additional concrete – section enlargement and bonded overlays
- Adding steel supports and span shortening
- Techniques for strengthening new slab openings and penetrations
- Grouting voids and honeycombs
- Methods for blast upgrade of concrete structures

Speakers Bio

Jay Thomas is a Vice President of Structural Preservation Systems, Inc. He has a 26 years of construction experience in the repair/strengthening of commercial and industrial facilities. He has been involved in over 1200 strengthening projects including 700 FRP strengthening projects. Jay is a graduate engineering of the University of Pennsylvania and is a member of ACI (American Concrete Institute) committees 440 (FRP) and ACI 437 (Strength Evaluation), and the International Concrete Repair Institute.

Nils Fox is the Southwest Area Business Development Manager, Strengthening Division, of Structural Preservation Systems, Inc. He has 19 years of experience in repair and strengthening of various concrete and masonry structures in the Southwest. Nils is a graduate of the University of Arizona and is a member of SEAOSC, ACI (American Concrete Institute), and is past president of the Southern California Chapter of the International Concrete Repair Institute (ICRI).

Place: The Handlery Hotel and Resort (950 Hotel Circle North, San Diego)

Directions: Highway 163 (south) to Hotel Circle exit, turn left onto Hotel Circle North

Cost: **Member** - \$40.00 Non-Member - \$45.00 Walk-in Member or Non-Member - \$45.00
Student ACI Member - \$5.00 Student Non-ACI Member - \$10.00

Vendor Tables (6' table) \$50.00 – Members \$100.00 – Non-Members

Time: Registration 3:30PM – 4:00PM
Presentation 4:00 PM – 5:00 PM
Dinner 5:00 PM – 5:45 PM
Presentation 5:45 PM – 7:00PM

Reservation: MUST be received by **Friday September 5, 2008**
Heather at: Phone - 619.579.1940; Email – concreteaci@cox.net; Fax – 619.258.5839

PAYMENT MUST BE RECEIVED TO CONFIRM RESERVATION!!!!!!
Mail to: ACI, San Diego P.O. Box 12649 El Cajon, CA 92022

“Engineering 101 for Non-Engineers” September 9, 2008

Print Name of all Attendees: _____

Phone _____

Reservation Quantity Members _____ Reservation Quantity Non-Members _____ Vendor Member _____ Vendor Non-Member _____

Mailing Address _____ City _____ State _____ Zip _____

PAYMENT: ___ Check (payable to ACI, San Diego International Chapter) **OR** ___ Visa ___ MasterCard ___ American Express

Card # _____ Exp Date _____

Signature _____

Cancellation: Heather 619/579-1940 - Please CANCEL your reservation(s) at least 24 hours in advance if you are UNABLE to attend. NO SHOWS WILL BE INVOICED.