MARCH 2013 MEETING

Wednesday, March 13, 2013 (1.0 PDH)

TECHNICAL PROGRAM

Non-Destructive Test Methods for Structural Repairs and Rehabilitation

Speaker: Jacob Bice, Ph.D., P.E., Walter P Moore, 1301 McKinney, Suite 1100, Houston, TX 77010. Tel. 713-410-1465 [mobile/direct] 713-394-5628 [office]

Jacob Bice is a Senior Associate and Project Manager at Walter P Moore and Associates in Houston, Texas. He received his bachelors and master's in civil engineering from Texas Tech University in Lubbock, TX and his Ph.D. from Purdue University in 2006. Dr. Bice manages nondestructive testing services for Walter P Moore's Diagnostics Group and performs evaluations and testing, conducts analyses, and develops designs for repairs of existing structures throughout the United States and Canada. He is secretary of ACI Committee 224: Cracking and a voting member of Committee 228: Nondestructive Evaluation of Concrete.

PRESENTATION SUMMARY

To a crowd of about 60, Dr. Bice presented information on Non-destructive Evaluation (NDE) of structures and repair methods. The presentation provided a brief overview of common nondestructive techniques, discusses their advantages and limitations, and illustrated their implementation on a variety of projects in a series of case studies.

Structural engineers face unique challenges when developing structural repair solutions in existing buildings. These challenges often are unknown extents or causes of distress, uncertainty about the as-built construction and/or condition of a given structure, and the need to provide economical, targeted, and effective repair solutions. Nondestructive Evaluation (NDE) of structures offer engineers valuable tools for rapidly characterizing the as-built conditions of structures and inform decisions by the owner, architect, and engineer. A wide variety of test methods are available which can be implemented to gather an assortment of information about a given structure. Therefore, it is important that one understands the capabilities and limitations of several of the most common test methods so that effective testing programs can be used to capture the desired information for a given structure.

Dr. Bice presented an overview of NDE methods including thermography, infrared, visual, stress wave, nuclear, electrical, electromagnetic, magnetic, and short pulse radar among others. Short pulse radar is also referred to as ground penetrating radar. The strengths and weaknesses of each method were discussed, and case studies were presented along with repair methods.

For a copy of Dr. Bice's slide presentation please click here.

PAST PRESENTATIONS (click here)