

# UNIVERSITY of HOUSTON

CULLEN COLLEGE of ENGINEERING  
Department of Civil & Environmental Engineering

## ***Distinguished Lecture Series***

### **Professor Mehdi Saiid Saiidi**

University of Nevada, Reno

### **Innovation in Accelerated Bridges Construction in High Seismic Zones**

**Friday, September 7, 2012**

12:00 – 1:00 p.m. Seminar

Room L2D2, Engineering Lecture Hall, UH

#### **Abstract**

The primary clientele of bridge structures is the public. To better serve the public, bridges need to be constructed rapidly and efficiently with minimal interruption to traffic and reduced delays, be durable, require minimal maintenance under environmental and other loads, and be resilient under extreme loads such as earthquakes, hurricanes, fires, blasts, etc.

Accelerated bridge construction (ABC) is a nationwide initiative to address some of the requirements of a successful bridge. ABC relies heavily on precast members that are connected in the field. Because connections are critical under seismic loads, ABC becomes particularly challenging in earthquake prone areas. An extensive experimental and analytical study has been in progress at the University of Nevada, Reno to address different aspects of ABC in high seismic zones. Both emulative design utilizing standard steel couplers and innovative details and materials are being investigated. The objective of emulative design research is to facilitate the adoption of ABC for seismic bridge design. The study of emulative design consists of testing and analysis of large-scale column models with different connection details under cyclic loads. Research on innovative details consists of developing new pipe-pin connections for column bases, column pile-shaft connections, precast columns with high-performance concrete, plastic hinges with shape memory alloys, plastic hinges with built-in-rubber segments, and grouted ducts with high-performance concrete.

The presentation will summarize the benefits of emulative and innovative ABC and will include the highlights of the research projects and lessons learned with a brief discussion of bridges of the future

#### About the speaker:



**Professor Mehdi Saiid Saiidi** received an MS degree in civil engineering from Tehran University in 1973 and an MS and PhD degree in structural engineering from the University of Illinois at Urbana-Champaign in 1977 and 1979. He joined the University of Nevada, Reno upon graduation where he is currently a professor. He chaired the Civil and Environmental Engineering Department from 1986 to 1994 and served as the inaugural Director of university-wide Office of Undergraduate Research from 2003 to 2009. His research focus has been on earthquake engineering and he has published more than 420 technical papers and reports and given over 300 technical presentations, many as keynote speeches. He has conducted research with funding from NSF, FHWA, Caltrans, NCHRP, the Nevada Department of Transportation, and private industries.

A registered professional engineer in California and Nevada, Dr. Saiidi is a Fellow of ASCE and ACI and is the founding and past chairman of ACI Committee 341, Earthquake-Resistant Concrete Bridges. He is a member of ACI 318 Subcommittee on flexure and axial loads and several other technical committees. Dr. Saiidi has received many awards including the UNR Outstanding Researcher Award, Foundation Professorship, Nevada Regents Researcher Award, the University of Illinois at Urbana-Champaign Distinguished Alumni Award, and the Lemelson Innovation Award.