



Engineering Seminar

Concept and development of post-tensioned low-damage solutions for seismic resistant bridge systems

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Abstract

The development of alternative solutions for precast concrete buildings based on jointed ductile connections has introduced innovative concepts in the seismic design of frame and shear wall systems: alternatively to the emulation of cast-in-place approach, pure precast elements are assembled through post-tensioning techniques, with the inelastic demand being accommodated within the connection itself (beam-to-column, column-to-foundation, wall-to-foundation critical interfaces). These solutions achieve low-damage in the structural members guaranteeing high seismic performance of the system.

In this presentation, the concept is extended to bridge piers and systems in order to verify the efficiency and potentiality of these solutions for the seismic response. Critical aspects concerning construction technology, design and seismic response of bridge piers and/or systems are herein discussed. The presentation also comprises an overview of the extensive experimental campaign carried out at the University of Canterbury on these low-damage post-tensioned bridge piers and a comparison with the response of traditional monolithic r.c. solutions.

DATE: Thursday, January 13, 2011

TIME: 3:00 P.M.

LOCATION: 223 JARVIS HALL, NORTH CAMPUS, UNIVERSITY AT BUFFALO

ORGANIZED BY: *Student Chapter of EERI at UB, CSEE-GSA, MCEER and Dept. of CSEE*

Snacks and Refreshments will be served !!!



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Dr. Alessandro Palermo is currently Senior Lecturer of Structural Engineering at University of Canterbury, New Zealand since 2009. He received a 5yr Degree in Civil Engineering in 1997, a 2yr Master Degree (post-graduate Specialization) in Concrete Structures in 1999, and a PhD in Seismic Engineering in 2004 from Politecnico di Milano. From 2004 to 2005 he has been appointed Fix-termed lecturer at University of Canterbury and from 2005 to 2009 he was Assistant Professor at Politecnico of Milano, Department of Structural Engineering. He is an experienced researcher for advanced structural analysis problems related to bridges, precast concrete and timber buildings. His main research areas deal with long term analysis of concrete structures, durability, seismic engineering, life-cycle engineering, sustainable seismic design of concrete systems. He is also an experienced consultant engineer and co-director of a spin-off company at University of Canterbury. Alessandro Palermo is the author or co-author of more than 90 scientific publications, from 1997 to present, including one international patent, 15 journal papers, and papers in conference proceedings. He is also reviewer for several international scientific journals. He has been recently coordinator of reconnaissance on Bridge structures after the Darfield-Canterbury earthquake, 4 September 2010. See the following web address: <http://db.nzsee.org.nz:8080/web/lfe-darfield-2010/home>

For additional information on Alessandro Palermo's scientific profile and activities please visit: <http://www.civil.canterbury.ac.nz/staff/apalermo.shtml>