

Engineering Seminar

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“Toward Resilience-Based Design”

The seminar addresses a new design methodology for civil engineering structures called “Resilience-Based Design” (RBD) which can be considered as the next generation of Performance-Based Design (PBD). Currently designers and engineers approach a structure without considering its interaction with the community. This interaction should be considered as an integrated part of the design process. The structure should be not be considered as an independent unit, but as part of a group of buildings using the “Portfolio Approach” which would allow a regional loss analysis. The concept of “housing units” is essentially moved to the one of “housing blocks” within this methodology. The goal of RBD is to make individual structures and communities as “resilient” as possible by developing technologies and actions that allow each structure and/or community to regain its functionality as promptly as possible. The fundamental concepts of community resilience are analyzed and a common reference framework is established which is based on the Population and Demographics, Environmental/Ecosystem, Organized Governmental Services, Physical Infrastructure, Lifestyle and Community Competence, Economic Development, and Social-Cultural Capital (PEOPLES) Resilience Framework. Emphasis is given to hazard intensity measures, engineering demand parameters, and new performance levels are proposed for RBD. Some applications incorporating both performance and resilience objectives are shown in order to illustrate the feasibility of the proposed methodology for RBD.

DATE: Monday, April 2, 2012

TIME: 11:00AM-12:00PM EST

LOCATION: 140 Ketter Hall, North Campus, University at Buffalo

WEBCAST URL: [HTTP://CIVIL.ENG.BUFFALO.EDU/WEBCAST/](http://civil.eng.buffalo.edu/webcast/)

TECHNICAL DIFFICULTIES: SEESLWEBCAST@GMAIL.COM

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

Refreshments will be served!!!

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Dr. Cimellaro is currently the Chair of the ASCE Disaster Resilience of Structures, Infrastructures and Communities Subcommittee and Assistant Professor in the Politecnico di Torino. He received his Ph.D. degree in Civil Engineering from the University at Buffalo (SUNY) in 2008, his M.S. in Earthquake Engineering from the University at Buffalo (SUNY) in 2005 and his B.S. in Civil Engineering from the University of Rome "La Sapienza" in 2001. He recently received the Fib Achievement Award for Young Engineers 2011 in recognition of his outstanding contributions to structural concrete, sponsored by Fib. Dr. Cimellaro's primary field of investigation is Earthquake Engineering with an emphasis on defining Quantification of Resilience of physical infrastructural systems. He is currently P.I. of the Project ICRED - Integrated Community Resilience of European Disasters. He has authored 23 journal papers and 50 international conference proceedings, and 3 book chapters. For details, please refer to <http://www.cimellaro.com>.