Colorado

University of Colorado, Boulder Department of Civil, Architectural & Environmental Engineering
Structural Engineering and Structural Mechanics Seminar Series
1:00 – 2:00 PM Friday October 19, 2012
ECCE 1B41 (see map at http://bit.ly/LaJS8H) and online via WebEx (see attached instructions)
For a calendar of SESM seminars, see http://bit.ly/PFnVgZ

New "Risk-Targeted" Seismic Maps Introduced into Building Codes

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Throughout most municipalities of the United States, structural engineers design new buildings using the U.S.-focused International Building Code (IBC). Updated editions of the IBC are published every 3 years. The latest edition (2012) contains new "risk-targeted maximum considered earthquake" (MCE_R) ground motion maps, which are enabling engineers to incorporate a more consistent and better-defined level of seismic safety into their building designs.

The new maps were developed by the Building Seismic Safety Council and its Seismic Design Procedures Reassessment Group, in collaboration with the USGS and with funding from the Federal Emergency Management Agency (FEMA). Following their initial publication in the 2009 NEHRP Recommended Seismic Provisions for New Buildings and Other Structures (FEMA P–750), the maps were adopted into the 2010 edition of the American Society of Civil Engineers (ASCE) Standard ASCE/SEI 7–10, Minimum Design Loads for Buildings and Other Structures, and subsequently into the 2012 IBC.

The MCE_R ground motion maps are used by structural designers in the same manner as the maximum considered earthquake (MCE) maps included in previous editions of the IBC. By locating the planned building site on the maps, an engineer can find the level of earthquake ground motion that his or her design must consider.

As their name suggests, however, the new "risk-targeted" maps were developed differently. As opposed to the MCE maps, which required that buildings throughout the country be designed to resist so-called uniform-hazard ground shaking levels, the new MCE_R maps require that buildings be designed to provide the same level of seismic performance, meaning that they will be equally (un)likely to collapse in earthquakes.

This seminar will summarize the conceptual advances and updated ground motions and collapse probabilities upon which the new MCE_R maps are based, and their impact for design.

At the USGS, Dr. Luco leads the Seismic Design Maps Task of the National Seismic Hazard Mapping Project, and is co-Project Chief of the Engineering Risk Assessment Project, thereby serving as a liaison between the broader earthquake hazard, design/rehabilitation, and risk communities. He is a member of the Building Seismic Safety Council (BSSC) Provisions Update Committee, and the American Society of Civil Engineers (ASCE) 7 Standard Seismic Subcommittee. Dr. Luco received a B.S. in civil engineering, M.S. in statistics, and Ph.D. in civil engineering from Stanford University as well as a M.S. in civil engineering from the University of California at Berkeley. His research interests lie at the intersection of structural engineering, probability and statistics, and seismology.

To attend this meeting online via WebEx

Topic: CU SESM seminar: Nico Luco, New “Risk-Targeted” Seismic Maps Introduced into Building Codes
Date: Friday, October 19, 2012
Time: 1:00 pm, Mountain Daylight Time (Denver, GMT-06:00)
Meeting Number: 623 356 897
Meeting Password: Nico

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