



# EERI New England Regional Chapter Meeting

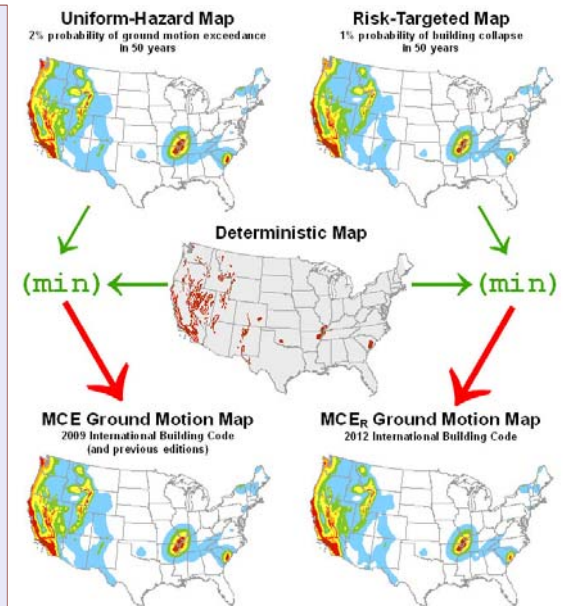
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## Basis for Maximum Considered Earthquake Ground Motions in New England

**ABSTRACT:** The presentation will summarize the USGS computation of hazard curves for New England and explain the calculation of risk-targeted ground motions. A comparison will be made between Risk-Targeted Maximum Considered Earthquake (MCER) values in New England to their uniform-hazard Maximum Considered Earthquake (MCE) counterparts. Furthermore, the reasons for any changes in the New England region ground motion maps in the various editions of the IBC will be discussed. The MCER ground motion maps in the 2012 and 2015 editions of the International Building Code and MCE ground motion maps in previous editions are all based on the computations of the USGS National Seismic Hazard Mapping Project. For the MCE ground motions, the Building Seismic Safety Council interpolated the hazard curves at an exceedance probability that corresponds to 2% probability in 50 years. The interpolated ground motions are known as “uniform-hazard” ground motions, since the exceedance probability is geographically uniform. In contrast, for the MCER ground motions, all of the points on the computed hazard curves were used to develop maps that target a 1%-in-50-years collapse probability for new buildings. Since collapse probability is synonymous with collapse risk, the resulting ground motions are referred to as “risk-targeted.”

**Bio:** Nicolas Luco is a Research Structural Engineer with the United States Geological Survey (USGS). His research interests lie at the intersection of structural engineering, probability and statistics, and seismology. At the USGS he leads the Seismic Design Maps task of the National Seismic Hazard Mapping Project, and is co-Project Chief of the Engineering Risk Assessment Project. In these roles, he serves as a liaison between the broader earthquake hazard, design/retrofit, and risk communities. He is the USGS liaison for the Building Seismic Safety Council (BSSC) Provisions Update Committee, and the American Society of Civil Engineers (ASCE) 7 Standard Seismic Subcommittee. Prior to joining the USGS, he was a Senior Analysis Engineer with the catastrophe loss modeling company AIR Worldwide Corporation. His education includes a Ph.D. in civil engineering and an M.S. in statistics, both from Stanford University, and an M.S. in civil engineering from the University of California at Berkeley.



**Thursday, April 3, 2014**  
**6:30– 8:00 PM**  
**Haley and Aldrich**  
**Seminar Room**  
**465 Medford Street**  
**Suite 2200**