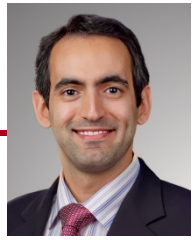
EERI New England Regional Chapter Meeting



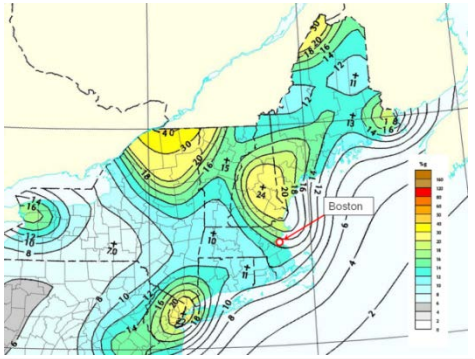
Ehsan Kianirad, PhD

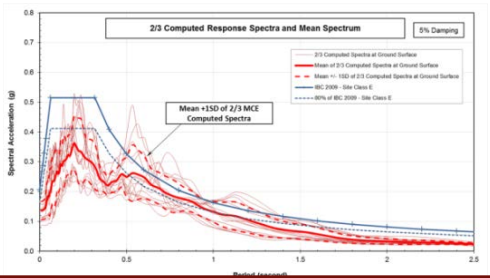
HALEY & ALDRICH

Geotechnical-Earthquake Engineering Building Code Provisions and Impacts on Design

ABSTRACT: Seismic considerations of building codes have a significant impact on the design of structures. This presentation will shed light on important concepts and parameters that play a major role in seismic code provisions for buildings including the seismic hazard level, Maximum Considered Earthquake (MCE), site effects from soil and rock conditions, spectral acceleration coefficients, and seismic design category. Earthquake motions are represented by spectral acceleration coefficients provided in seismic hazard maps for the MCE. At a particular site, these motions are subject to site effects depending on soil and rock conditions. The spectral acceleration coefficients are combined with the site class to determine the design accelerations. Alternatively, site specific response analysis could be performed to obtain a design response spectrum for a particular site. Consequently, seismic design category (SDC) is determined from the design response spectrum and the structure's desired level of performance. Applicable building design requirements are expressed as a function of the SDC in the building codes. A background on these issues will be provided, the process for determining the relevant parameters will be explained, and impacts on building designs will be discussed including regional considerations. Case histories will be used to illustrate key points.

Bio: Ehsan Kianirad is a senior geotechnical earthquake engineer with Haley & Aldrich. He has a Ph.D. from Northeastern University in geotechnical and geo-environmental engineering. His technical experience includes earthquake engineering, ground motion analysis, computer modeling, foundation design, and soil dynamics. His responsibilities have included performing seismic analyses, 2D and 3D computer modeling, seismic risk assessment, probabilistic damage analysis, and foundation design. He is experienced in evaluating seismic hazard, developing ground motion time histories, performing one and two dimensional site response analysis, evaluating slope stability and deformation, liquefaction analysis, lateral spreading, and seismic evaluation of retaining walls, seawalls, and dam embankments. He has worked on the seismic studies of multiple high-rise buildings, bridges, dams and embankments during his time at Haley & Aldrich.





Thursday, June 26, 2014
6:00– 8:00 PM
GEI Seminar Room
400 Unicorn Park Drive
Woburn, MA 01801

Meeting Sponsor GEI Consulting Engineers and Scientists