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Special Issue of the Journal

Earthquake-Induced Collapse of Structural Systems

Call for Papers

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Earthquake Engineering and Structural Dynamics dedicates selected issues of the journal, normally no more than one issue a year, to a special topic. The *Special Issue* publication is attractive to authors as well as readers. To researchers and practicing professionals it provides a forum to present their work in a publication of related papers on one subject. To readers it provides a comprehensive view of a timely subject in one venue.

Each *Special Issue* normally consists of (a) original papers (submitted in response to a *Call for Papers*) and (b) an invited State-of-the-Art or review paper, as deemed appropriate for the topic. The Editorial Board encourages the submission of manuscripts that address the following areas: basic research papers that advance fundamental knowledge of the subject; applied research papers that extend and re-interpret existing results, and then present these results in a form suitable for use in engineering practice; and papers that report on applications of research to solve practical problems. A *Guest Editor*, appointed for each *Special Issue*, reviews the contributed papers, with the advice and assistance of other reviewers. The Guest Editor for this issue is Professor Gregory G. Deierlein of Stanford University.

The objective of the special issue is to examine the state-of-the-art in the development, validation and application of advanced methods of nonlinear dynamic analysis for simulating the collapse of structures under earthquakes. Simulation of earthquake-induced collapse presents unique challenges of capturing inelastic strength and stiffness deterioration and complex structural interactions that trigger instability under strong ground shaking. While ensuring safety against collapse is a central tenet of earthquake engineering, only recently have computational analysis technologies, model calibration, and characterization of ground motions advanced to the point of beginning to enable reliable estimation of collapse risk. Building codes and standards are beginning to recognize these advancements with more explicit requirements for minimum collapse risk safety, although, questions remain as to how reliably this risk can be quantified.

The Journal is dedicating a Special Issue to **Earthquake-Induced Collapse of Structural Systems** to provide a forum for current research on experimental and computational research, field studies, and enabling technologies to (1) improve understanding of structural collapse due to earthquakes, (2) development and validation of techniques to reliably simulate collapse, and (3) development and application of performance-based methods to assess collapse risk. Examples of topics—as they apply to the theme—include the following:

- Validation and calibration of models to simulate cyclic and strength deterioration in structural components
- Validation of nonlinear collapse analysis of structural systems through shake table testing
- Analysis case studies of building collapse in recent earthquakes
- Benchmarking collapse safety provided by building codes and standards
- New methodologies to rigorously assess collapse risk
- Overcoming numerical computation challenges for reliable response simulation
- High-performance computing technologies for simulating collapse
- Characterization and propagation of modeling uncertainties in collapse simulation
- Influence of ground deformations and soil-foundation-structure interaction on collapse
- Unique challenges in characterizing extreme ground motions for collapse analyses

Manuscripts have a length limitation of 22 single-spaced pages in 12-point font, including tables and figures. Tables and figures should appear in close proximity to where they are mentioned in the text. Manuscripts should be submitted to the Wiley online system (http://www.mc.manuscriptcentral.com/eqe) with Anil Chopra as the designated editor. The deadline for submission of manuscripts is **June 30, 2015.**

Gregory G. Deierlein   Anil K. Chopra
Guest Editor   Executive Editor