

# editorial

## Seismic Provisions of ASCE #7

By Bob Bachman



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Over the past 30 years, advances in seismic design have occurred at an astounding rate. New analysis techniques, new design approaches, new procedures for establishing design ground motions and entirely new technologies are now firmly embedded in the various codes and standards that govern our profession. These advances have been prompted primarily by observed behavior of structures in recent earthquakes, especially the San Fernando, Mexico City, Loma Prieta, Northridge and Kobe earthquakes. The pace of these advances, combined with the pace of the codes and standards revision cycles, have not always permitted the volunteer committees that write the standards the time necessary to ensure that each revision was as clear, concise, and easily useable as possible.

In preparing for the 2005 revision cycle of the seismic provisions of ASCE 7, the Seismic Task Committee (STC) of ASCE 7 took a hard look at the provisions and decided that simple revision wasn't sufficient – the committee needed to reformat, reorganize, and clarify the seismic wherever possible. This effort was considered imperative, since both U.S. model building codes (International Building Code and National Fire Protection Association 5000) no longer present detailed seismic requirements, but rather reference ASCE 7.

To accomplish both a major reorganization of the provisions, while also processing dozens of changes to the same provisions, the work was divided into two distinct projects. The first project involved taking the seismic provisions contained in the 2002 edition of ASCE 7 and reformatting, reorganizing and clarifying them, without making any substantial changes—essentially creating a 2002R edition. Assistance for the first project was provided by the Federal Emergency Management Agency (FEMA) who funded the development of a proposal for reformatting the document under the guidance of the Code Resource Support Committee of the Building Seismic Safety Council (BSSC).

The second project was structured to revise the 2002 provisions themselves using revisions that were developed through the update process that produced the 2003 edition of the *NEHRP Recommended Provisions for Seismic*

*Regulations for Building and Other Structures* (FEMA 450), which was done for FEMA by BSSC. At the end of the two projects, the revisions were integrated into the reformatted document to create ASCE 7-05.

In undertaking the reformat effort, the STC adopted several ground rules and goals to guide their efforts.

First, the group wanted the ordering of the provisions to mirror an average design process. Those provisions that would be used only by a small fraction of the profession were relocated to the back, and those provisions that were used by everyone were moved towards the front.

Second, the STC wanted to reduce the amount of numbering that it took to identify different portions of the provisions to make it easier to identify, remember and cite various provisions. This ground rule resulted in an increase in the number of sections devoted to seismic requirements.

Third, the group wanted to substantially reduce the cascading of the provisions where the requirements for one seismic design category were predicated on the requirements of two or three other categories.

And last, the STC wanted to make it as clear as possible when the provisions do not apply.

This summer, the reformat effort and the technical revisions were considered and balloted by the main ASCE 7 standards committee. Your thoughts and comments on the proposed reformatting will be greatly appreciated. Although we can't promise that everyone's ideas will be accepted, we certainly will review them and provide the best set of seismic provisions that we can.

If you'd rather not wait for 2005, you can view an annotated outline of the proposed reformatted provisions at [www.seinstitute.org](http://www.seinstitute.org).

One final note -- Current plans call for the pace of change to slow. The *NEHRP Recommended Provisions* will next be published by FEMA in 2008, and the next full edition of ASCE 7 is now scheduled for publication in 2010. Future editions will be published at 5 or 6 year intervals. We believe that this longer schedule will result in improved standards, while making the impact on the design profession somewhat easier to manage. ■