



DISCUSSION

Maps prepared by United States Geological Survey (USGS) in collaboration with the Federal Emergency Management Agency (FEMA)-funded Building Seismic Safety Council (BSSC) and the American Society of Civil Engineers (ASCE). The basis is explained in commentaries prepared by BSSC and ASCE and in the references.

Ground motion values contoured on these maps incorporate:

- a target risk of structural collapse equal to 1% in 50 years based upon a generic structural fragility
- deterministic upper limits imposed near large, active faults, which are taken as 1.8 times the estimated median response to the characteristic earthquake for the fault (1.8 is used to represent the 84th percentile response), but not less than 150% and 60% g for 0.2 and 1.0 sec, respectively.

As such, the values are different from those on the uniform-hazard 1998 USGS National Seismic Hazard Maps for Hawaii posted at <http://earthquake.usgs.gov/hazmaps>.

Larger, more detailed versions of these maps are not provided because it is recommended that the corresponding USGS web tool (<http://earthquake.usgs.gov/designmaps> or <http://content.seis institute.org>) be used to determine the mapped value for a specified location.

REFERENCES

- Building Seismic Safety Council, 2009, NEHRP Recommended Seismic Provisions for New Buildings and Other Structures: FEMA P-750/2009 Edition, Federal Emergency Management Agency, Washington, DC.
- Huang, Yin-Nan, Whittaker, A.S., and Luco, Nicolas, 2008, Maximum spectral demands in the near-fault region, *Earthquake Spectra*, Volume 24, Issue 1, pp. 319-341.
- Klein, F., Frankel, A.D., Mueller, C.S., Wesson, R.L., and Okubo, P., 2001, Seismic hazard in Hawaii: high rate of large earthquakes and probabilistic ground-motion maps, *Bulletin of the Seismological Society of America*, Volume 91, pp. 479-498.
- Luco, Nicolas, Ellingwood, B.R., Hamburger, R.O., Hooper, J.D., Kimball, J.K., and Kircher, C.A., 2007, Risk-Targeted versus Current Seismic Design Maps for the Conterminous United States, *Structural Engineers Association of California 2007 Convention Proceedings*, pp. 163-175.

FIGURE 22-5 S_5 and S_1 Risk-Adjusted Maximum Considered Earthquake (MCE_R) Ground Motion Parameter for Hawaii for 0.2 and 1.0 Spectral Response Acceleration (5% of Critical Damping), Site Class B.