

Shake, rattle, no roll: Construction guide for earthquake-resistant buildings

July 29 2009

A guide* for designing buildings using steel moment frames to resist earthquakes has been published by the National Institute of Standards and Technology (NIST) as part of its support for the National Earthquake Hazards Reduction Program (NEHRP).

Beams, columns and beam-column connections are specially designed in "structural steel special moment frames" to withstand [building](#) sway during the ground shaking that accompanies earthquakes. The new publication, *Seismic Design of Steel Special Moment Frames: A Guide for Practicing Engineers*, consolidates requirements of the International Building Code, which is the code generally adopted throughout the United States, and related standards including ASCE 7, AISC 341 and AISC 358.

The guide covers code requirements and accepted approaches to their implementation, including background and sketches to illustrate the requirements. It also includes chapters on the use of special moment frames, their principles, guidance on analysis and design, additional requirements and detailing and constructability issues. The authors, professional engineers Ronald O. Hamburger, Helmut Krawinkler, James O. Malley and Scott M. Adan, also present best practice recommendations for design and construction that may not be specifically required by the codes or standards.

Seismic Design of Steel Special Moment Frames: A Guide for Practicing Engineers is written for structural engineers, building

officials, educators and students. It is the second in a series of technical briefs that NIST is publishing to address topics of interest to [earthquake](#) professionals, primarily those in the design and construction industries. Future technical briefs are expected to cover performing nonlinear structural analyses and seismic analysis and design of reinforced concrete diaphragms.

More information: The guide is available at www.nehrp.gov/pdf/nistgcr9-917-3.pdf .

* R.O. Hamburger, H. Krawinkler, J.O. Malley and S.M. Adan. Seismic design of steel special moment frames: A guide for practicing engineers (NIST GCR 09-917-3). June 2009.

Source: National Institute of Standards and Technology ([news](#) : [web](#))

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