

Simplified Procedures for a Peruvian Standard of Analysis and Design of Buildings with Energy Dissipation Systems

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Abstract - The application of the simplified procedures of Chapter 18 of ASCE 7-16 is studied together with the seismic Peruvian E.030 standard for the design of new buildings with energy dissipation systems in Peru. An example of design for the seismic force-resisting system of a 5-story reinforced concrete building with fluid viscous dampers located in the city of Lima is developed. The analyses performed show that it is possible to reduce the dimensions of the structural elements of the corresponding undamped original building, while controlling the story drifts and deformations as required by the E.030 standard. The results of the proposed methods were compared with the results of nonlinear time-history analyses and in general conservative predictions of maximum roof displacements, story drifts and base shears were obtained.

Keywords: Seismic protection, energy dissipation, Peru, earthquakes.