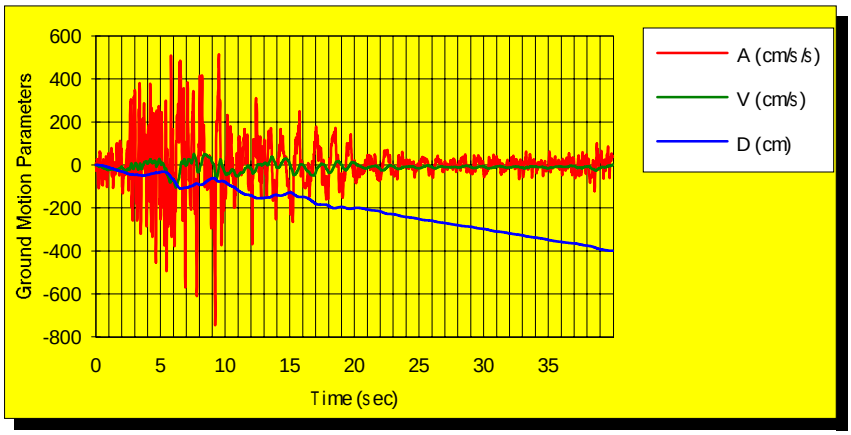
JOHN A. MARTIN & ASSOCIATES, INC.
RESEARCH & DEVELOPMENT DEPARTMENT
1212 S. FLOWER ST., LOS ANGELES, CA 90015
http://www.johnmartin.com/research

Earthquake Engineering Research Series

DESIGN GROUND MOTION CRITERIA FOR BASE-ISOLATED CALIFORNIA HOSPITAL BUILDINGS

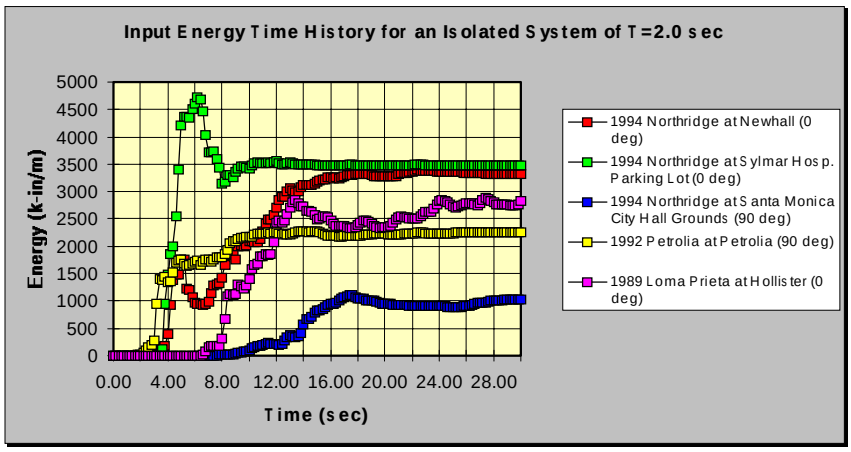
Hospital buildings in California are being required to provide a higher lelvel of seismic safety because of the nature of the critical functions they provide during and after great natural disasters, especially earthquakes. Seismic base isolation is being considered more seriously as a means of counteracting the effects of strong ground shaking due to earthquakes. Many hospital buildings in California, currently under design or construction, are either implementing, or seriously considering, the seismic isolation concept.



This research effort was funded by the County of Los Angeles, as a component of a five part study for development of a *Tentative Design Guideline for Analysis and Design of County Facilities*.

The research report examines current code provisions and interpretations governing design ground motion and dynamic time history analysis requirements for seismic base isolated California hospital buildings.

The provisions of UBC-91, Title 24 of the California Administrative Code, the 1993 supplement to the UBC, the published drafts of the UBC-94, and a draft criteria published by the Office of Statewide Health Planning are evaluated, compared and contrasted. Where applicable, tables are provided to aid in design and rational alternatives are presented to enhance, or replace, existing criteria.



It is shown that the use of design spectrum compatible time histories cause exaggeration of displacement demand and energy input. This in turn results in seismic isolation designs which are optimized to perform well during very extreme and unlikely events at the cost of less effective isolation during the less drastic, more frequent events with a significant construction cost impact.