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Seismic Performance Research Series

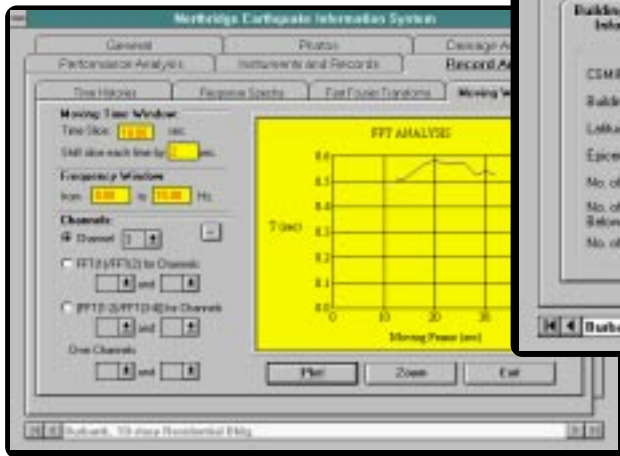
SEISMIC PERFORMANCE OF 20 EXTENSIVELY INSTRUMENTED BUILDINGS DURING THE JANUARY 17, 1994 NORTHRIDGE EARTHQUAKE
-- An Interactive CD-ROM Based Information System --

This project was funded in part by a grant from State of California, Department of Conservation, Division of Mines and Geology, Strong Motion Instrumentation Program (SMIP).

In the aftermath of the January 17, 1994 Northridge earthquake, hundreds of strong ground motion and building response accelerograms were retrieved from stations throughout the greater Los Angeles basin. Particularly important among the building response records were the data obtained from 17 instrumented buildings which experienced peak base acceleration greater than 0.25g, two downtown skyscrapers, and a base isolated Fire Command Control building.

This research and a companion CD-ROM disc document are the result of an elaborate two-year research and development project which included inspection of the buildings, damage assessment, performance evaluations, and contrasting forces, displacements, and dynamic characteristics interpreted from recorded data with those suggested by building codes.

A very unique feature of this project, which is embodied in the companion interactive information system, is



the publication of not only the results of the investigations – as is customary – but also the tools of the research. The relational database engine of the information system may be modified and expanded to accommodate new buildings and/or other seismic events with relative ease.

For each building, the code-recommended values for natural periods, design base shears, and drift indices are compared with those experienced by the buildings during the Northridge earthquake. Key response parameters and characteristics of each building are discussed in detail.