San Francisco 25 years after Loma Prieta: Water under the bridge?

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What causes damage? Fire following EQ
What causes damage?

Ground Failure
What causes damage?
Ground Shaking
Hazard – Location and soil type

Loma Prieta EQ (USGS)

Hayward fault M 7.0 Scenario (ABAG)
Vulnerability –
Type and age of structure
Public Mitigation Programs

Source: USGS
Water Delivery

Source: ABAG/EBMUD/SFPWS
Water Delivery Systems

Source: EBMUD

Source: SF Power Water Sewer
Bay Area Airports

Source: USGS
Maritime Ports
Transportation - BART
Transportation - Caltrans
Bay Bridge – Eastern Span

Source: USGS
Emergency Operations Centers
Fire Stations
City Hall Buildings
Hospitals – SB 1953
Higher Education

- University of California
- Stanford University
- California State University
- Community Colleges
Mitigation of Private Buildings –
The Challenge for LP50
Public/Private: K-12 Schools
Unreinforced Masonry Building
“Retrofitted” URM
Owner Negotiation
Non-Ductile Concrete Buildings

Source: USGS
Soft-Story Multi-Family Housing
Source: USGS
Soft-Story Single Family
Living Space Over Garage
FEMA P-50 - Assessment Tool

- Identifies seismic vulnerabilities
- Written for use by House Inspector (non-engineer)
- Partially funded by CEA
CEA and FEMA joined forces to create ATC 110

- Expanded prescriptive provisions for retrofit
- New provisions for use by engineer

Prestandard for the Evaluation and Seismic Retrofit of Single Family (1-4 units) Residential Buildings
Earthquakebracebolt.com

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