100 Years of Seismic Safety in California*

1906 1910 1920 1930 1940 1950 1960 1970 1980 1990 2000 2006

DISASTER/ MAJOR FOCUSING EVENTS

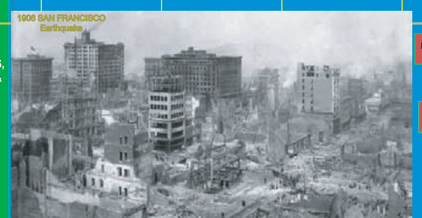
- SAN FRANCISCO Earthquake 4/18/1906
- LONG BEACH Earthquake 1933
- IMPERIAL VALLEY Earthquake 1940
- ALASKA Earthquake 1964 **
- SAN FERNANDO Earthquake 1971
- OROVILLE Earthquake 1975
- SANTA BARBARA Earthquake 1978
- GILROY/HOLLISTER Earthquake 1979
- EUREKA Earthquake 1980
- COALINGA Earthquake 1983
- MEXICO CITY Earthquake 1985
- MORGAN HILL Earthquake 1984
- WHITTIER Earthquake 1987
- LOMA PRIETA Earthquake 1989
- NORTHRIDGE Earthquake 1994

POLICY OUTCOMES:

STATE ORGANIZATIONS

- Joint Legislative Committee on Seismic Safety 1969-1975
- Governor's Earthquake Council 1972-1975
- California Seismic Safety Commission (created1975)

STATE LAWS, REGULATIONS, DIRECTIVES, & PROGRAMS



- Field Act 1933
- Garrison Act 1939
- Riley Act 1933
- Various scientific reports *
- 1 6 new laws passed
- 2 4 new laws passed
- 3 3 new laws passed
- 4 4 new laws passed
- 5 3 new laws passed
- 6 5 new laws passed
- 7 4 new laws passed
- 8 2 new laws passed
- 9 27 new laws passed
- 10 4 new laws passed
- 11 26 new laws enacted 2001 through 2006

IMPROVEMENTS in BUILDING & SAFETY STANDARDS

- Improvements of building & safety standards
- Improvements of building & safety standards

FEDERAL ACTIONS: laws, regulations, and plans influenced by CA

- NEHRP 1977- present
- Response Plan for Catastrophic Earthquakes 1987
- Natural Disaster Response Plan 1989
- Federal Response Plan 1992
- National Response Plan 2002

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CHART NOTES

*This chart features significant historic earthquakes resulting in significant seismic safety laws in the State of California. Since 1975, CSSC has facilitated the creation and enactment of more than 200 seismic safety laws, many of which are not featured in this chart. Details about other roles and functions of the CSSC (reviews, investigations, studies, and programs) are not covered here but are available on the website www.seismic.ca.gov. Causal relationships are shown by dashed lines. On occasion the specific determinant of an outcome is not known, hence no dashes appear. Most of the information presented came from the California Seismic Safety Commission history report. Possible future revisions of this chart may also include information about the actions and outcomes of other CA departments and agencies.

FOOTNOTES

1) SAN FERNANDO EARTHQUAKE (1971)
 (a) Seismic Safety General Plan Element (SB 519)
 (b) Hospital Seismic Safety Act (SB 352)
 (c) Alquist-Priolo Earthquake(1977) Geologic Hazards Zone Act (SB 520)
 (d) Strong Motion InstrumentationPrograms (SB 1374)
 (e) State Capitol Seismic Evaluaton (SCR 84)
2) OROVILLE EARTHQUAKE (1975)
 (a) No liability for earthquake predictions (SB 1950)
 (b) Highway Emergency Fund established (AB 387)
 (c) School Inspection Program revised (AB 212)
 (d) Seismic design of LNG facility (SB 1081)
3) SANTA BARBARA EARTHQUAKE (1978)
 (a) Earthquake hazard reduction program (SB 1279),
 (b) Registration of construction inspectors (SB 1367)
 (c) Request that Auburn Dam be seismically safe (AJR 14)
4) GILROY/HOLLISTER EARTHQUAKE (1979)
 (a) Lower building standards for pre-1933 buildings (SB 445),
 (b) So. CA Earthquake Preparedness Project (AB 2202),
 (c) Seismic-safe gas valves (AB 2438) and
 (d) Study of mobile home bracing (ACR 96),
5) EUREKA EARTHQUAKE (1980)
 (a) Mobile home bracing devices (SB 360),
 (b) Earthquake Education (SB 843),
 (c) Hospital inspections (SB 961),
6) COALINGA EARTHQUAKE (1983)
 (a) Coalinga investigation (SB 612),
 (b) Removal of SSC sunset date (SB 1782),
 (c) Earthquake Education (SB 1893),
 (d) Earthquake preparedness (AB 2662), and
 (e) Earthquake insurance (AB 2865)
7) MORGAN HILL EARTHQUAKE (1984)
 (a) Essential buildings (SB 239),
 (b) Unreinforced masonry building program (SB 547),
 (c) Hazardous buildings (SB 548), and
 (d) Private school construction (AB 3249),
8) WHITTIER EARTHQUAKE (1987)
 (a) Funding for Strong Motion Instrumentation Program (SB 593)
 (b) Earthquake insurance study (AB 1885),
9) LOMA PRIETA EARTHQUAKE (1989)
 (a) Levels of risk (SB 920),
 (b) Earthquake bond (SB 1250),
 (c) Bridge inspections (SB 1742),
 (d) Inventory of state bridges (SB 2104),
 (e) Hospital anchorage (SB 2453),
 (f) Mobile home bracing (AB 631),
 (g) So. CA Earthquake Preparedness Project (AB 725),
 (h) Safety elements (AB 890),
 (i) Water heaters (AB 1890),
 (j) Homeowner's guide (AB 2959),
 (k) Retrofit guidelines for state buildings (AB 3313),
 (l) Seismic hazard mapping program (AB 3897),
 (m) Liability for volunteers. (SBX1 46),
 (n) Health care study (ABX1 16),
 (o) Higher Ed bond Act (SB 119),
 (p) Essential buildings (SB 122),
 (q) Seismic retrofit guidelines (SB 597),
 (r) Permits for mobile home bracing (SB 1716),
 (s) Retrofit not new construction (AB 43),
 (t) Earthquake preparedness guide distribution (AB 200),
 (u) Liquefaction in safety elements (AB 908),
 (v) Local bonds for seismic safety (AB 1001),
 (w) Classes of inspectors (AB 1230),
 (x) Commercial owner's guide (AB 1968),
 (y) Bond act to retrofit after Northridge earthquake (SB 131),
 (z) Hospital seismic requirements (SB 1953) and
 (aa) transportation contracts – bidders (AB 1958).
10) NORTHRIDGE EARTHQUAKE (1994)
 (a)Transportation bond act (SB 146),
 (b) Earthquake research (SB 1864), CA
 (c) Earthquake Authority (AB 13) ,), CA
 (d) Earthquake Authority (SB 1993)
11) These are not directly linked to specific earthquake events.

** Although this catastrophic earthquake occurred in Alaska, it led to significant studies by California scientists and influenced both California and national earthquake mitigation measures. The transfer of knowledge was facilitated by Prof. Karl Steinbrugge among others.

ACRONYMS

AB	Assembly Bill
BAREPP	North California Earthquake Preparedness Program
CSSC	California Seismic Safety Commission
FRP	Federal Response Plan
SB	Senate Bill
SCEPP	South California Earthquake Preparedness Program
UC	University of California

RESOURCES

CSSC. *A History of the California Seismic Safety Commission: "Living Where the Earth Shakes"* (1975-2000). Plus unpublished addendum, 2001 through 2005.

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