

CALIFORNIA SEISMIC SAFETY COMMISSION

FINDINGS AND RECOMMENDATIONS ON HOSPITAL SEISMIC SAFETY



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Introduction

The Alfred E. Alquist Hospital Seismic Safety Act (“Hospital Act”) was enacted in 1973 in response to the moderate Magnitude 6.6 Sylmar Earthquake in 1971 when four major hospital campuses were severely damaged and evacuated. Two hospital buildings collapsed killing forty-seven people. Three others were killed in another hospital that nearly collapsed.

In approving the Act, the Legislature noted that:

[H]ospitals, that house patients who have less than the capacity of normally healthy persons to protect themselves, and that must be reasonably capable of providing services to the public after a disaster, shall be designed and constructed to resist, insofar as practical, the forces generated by earthquakes, gravity and winds. (Health and Safety Code Section 129680)

When the Hospital Act was passed in 1973, the State anticipated that, based on the regular and timely replacement of aging hospital facilities, the majority of hospital buildings would be in compliance with the Act’s standards within 25 years. However, hospital buildings were not, and are not, being replaced at that anticipated rate. In fact, the great majority of the State’s urgent-care facilities are now more than 40 years old¹.

The moderate Magnitude 6.7 Northridge Earthquake in 1994 caused \$3 billion in hospital-related damage and evacuations. Twelve hospital buildings constructed before the Act were cited (red tagged) as unsafe for occupancy after the earthquake. Those hospitals that had been built in accordance with the 1973 Hospital Act were very successful in resisting structural damage. However, nonstructural damage (for example, plumbing and ceiling systems) was still extensive in those post-1973 buildings²

Senate Bill 1953 (“SB 1953”), enacted in 1994 after the Northridge Earthquake, expanded the scope of the 1973 Hospital Act. Under SB 1953, all hospitals are required, as of January 1, 2008, to survive earthquakes without collapsing or posing the threat of significant loss of life. The 1994

¹ RAND, “Estimating the Compliance Cost for California, SB 1953” (pending release, Winter 2001)

² California Seismic Safety Commission, “Northridge Earthquake: Turning Loss to Gain” (CSSC 95-01), 1995.

Act further mandates that all existing hospitals be seismically evaluated, and retrofitted, if needed, by 2030, so that they are in substantial compliance with the Act (which requires that the hospital buildings be reasonably capable of providing services to the public after disasters). SB 1953 applies to all urgent care facilities (including those built prior to the 1973 Hospital Act) and affects approximately 2,500 buildings on 475 campuses.

SB 1953 directed the Office of Statewide Health Planning and Development (“OSHPD”), in consultation with the Hospital Building Safety Board, to develop emergency regulations including “...earthquake performance categories with subgradations for risk to life, structural soundness, building contents, and nonstructural systems that are critical to providing basic services to hospital inpatients and the public after a disaster.” (Health and Safety Code Section 130005)

Seismic Safety Commission Evaluation of the State’s Hospital Seismic Safety Policies

In 2001, recognizing the continuing need to assess the adequacy of policies, and the application of advances in technical knowledge and understanding, the California Seismic Safety Commission created an Ad Hoc Committee to re-examine the compliance with the Alquist Hospital Seismic Safety Act. The formation of the Committee was also prompted by the recent evaluations of hospital buildings reported to OSHPD that revealed that a large percentage (40%) of California’s operating hospitals are in the highest category of collapse risk (SPC-1).

Two public hearings were convened to examine the status of implementing SB 1953 and to solicit advice and recommendations on the future of the hospital seismic safety program, pursuant to SB 1953. The Ad Hoc Committee developed the following findings and recommendations based on the testimony at the hearings, information submitted to the Commission, and discussions among Commissioners and staff.

SEISMIC SAFETY COMMISSION FINDINGS

Status of Hospitals’ Seismic Readiness

- A) Hospitals are highly complex facilities that provide critical medical care and emergency services to the public and must remain in service following earthquakes, both to treat injured citizens and to reassure the public that the State’s infrastructure will continue to serve us.
- B) California faces a growing seismic risk from the aging, vulnerable hospital infrastructure. This growing risk is attributable to the State’s rapidly expanding population, the continuing decline in the number of emergency rooms, a greater percentage of non-ambulatory patients in the total hospital population, and fewer available hospital beds. These trends contribute to increased reliance on outpatient clinics that may not be designed or equipped to provide emergency services.

- C) A significant number of older hospital buildings pose unacceptable risks to life due to their potential for collapse and/or other failures. Hospitals built after the passage of the 1973 Act may also require improvements in order to achieve substantial compliance with existing hospital seismic safety laws by 2030.
- D) Currently, only 14 hospitals statewide (fewer than 1 percent) are capable of being self-sufficient, using on-site utilities to support emergency acute care operations for a period of up to 72 hours after disasters.
- E) Fourteen rural counties of the State have only one available local hospital. If that hospital were to be closed, earthquake victims may need to be transported long distances to seek emergency medical care after a local earthquake.
- F) Rural hospitals are typically housed in one- and two-story wood frame buildings, which can be more readily retrofitted than other building types.

Ability to Construct Earthquake-resistant Hospitals

- G) Since enactment of the 1973 and 1994 hospital seismic safety laws, the State has developed much better technical information about earthquake hazards and damage, performance of buildings during earthquakes, methods to manage the risk and the degree of vulnerability of any specific hospital.
- H) The Commission recognizes that there have been substantial recent improvements in engineering for evaluating, designing and retrofitting hospitals. However, the Commission does not anticipate any major new breakthroughs in our understanding of earthquakes or building vulnerability in the near future to warrant delays in implementing SB 1953 in anticipation of new technical developments.
- I) Exercising its authority to issue emergency regulations for the implementation of SB 1953, OSHPD has successfully minimized delays in hospitals' completion of seismic evaluations, retrofits and new construction.

Financial Challenges Impacting Seismic Upgrading

- J) Compliance with SB 1953 is likely to be the factor that triggers the next round of direct and indirect capital expenditures for many hospitals, and that will result in other significant long-term costs and benefits to medical care --above and beyond seismic safety-related costs.
- K) According to a recent financial report³ reviewing the financial health of California's hospitals, more than half of the State's hospitals are currently operating at a negative operating margin, or barely breaking even. The cost of seismic retrofitting is significant. However, the fiscal burdens directly attributable to earthquake safety are minor compared to other capital and operating costs faced by hospitals. Hospital closures have and will occur, notwithstanding the costs of complying with SB 1953, but the impact of SB 1953 will be significant.

³ Shattuck Hammond Partners, "Financial Health of California's Hospitals", submitted June 8, 2001 to the California HealthCare Foundation.

- L) When SB 1953 was enacted in 1994, the legislation was silent on the source of funding for the improvements. This silence was founded on the prevailing view, at that time, that the affected hospitals, relying on their own resources and cognizant of the expected attrition of aging facilities, would replace or modernize the facilities and finance the improvements using internal funding sources only. Accordingly, no public funds were provided in either the original or the 1994 legislation.
- M) The hospital industry reports that the economics of health care and hospital facilities have deteriorated dramatically since 1994 and consequently, the improvements necessary to comply with the Act are not financially feasible for the vast majority of California's hospitals. According to the Shattuck-Hammond Report commissioned by the California HealthCare Foundation⁴, over half of the State's hospitals were losing money in 1999, and future trends are not encouraging. The bleak fiscal forecast impacts not only the hospitals' immediate ability to undertake the expenses of complying with legislative directives, but also their access to the capital needed to finance the improvements or modernization.
- N) For retrofits of existing hospitals, the costs associated with disruption and losses in productivity can often be greater than the direct construction costs for the seismic improvements.

⁴ Shattuck Hammond Partners, "Financial Health of California's Hospitals", submitted June 8, 2001 to the California HealthCare Foundation.

SEISMIC SAFETY COMMISSION RECOMMENDATIONS

Commitment to Hospital Safety

1. **Reaffirm State’s Commitment to Hospital Seismic Safety:** Federal, State and local governments have all committed to hospital seismic safety as a high-priority objective. They should reaffirm that commitment and devote the needed resources to help implement and strictly enforce the Alquist Hospital Seismic Safety Act.
2. **Disclose Hospital Risk to the Public:** Appropriate disclosure measures should be displayed at primary public entrances of SPC-1⁵ buildings to inform the public and hospital staff about the earthquake risks posed by each building, and the steps that hospital administration is taking to manage the risk.

Extensions of Time to Comply with SB 1953

3. **Adjust Compliance Deadlines Based on Overall Reduction of Risk to the Public:** Many hospital owners are finding that new construction is a more desirable long-term option than retrofitting. However, the time it takes to finance, plan and design new hospitals may not allow owners to complete the project prior to the State’s 2008 deadline. If OSHPD, in consultation with its Hospital Building Safety Board, finds that the benefit of building new hospitals earlier than 2030 exceeds the added risk to life by extending the 2008 deadline, then the State should require all of the following:
 - Accelerate, on a case-by-case basis, the 2030 standards deadline in exchange for extending the 2008 standards deadline;
 - Require hospital administration to commit to the earliest possible date that they can substantially comply with the Act’s full SPC-5 and NPC-5⁶ requirements;
 - Extend the SPC-5/NPC-5 compliance date no later than 2013.
4. **Do not Extend Deadlines without Evidence of Interim Progress Toward Goal:** The Commission does not support granting unconditional extensions of time to comply, because they increase the level of risk to which the public will be exposed. There is no technical rationale justifying unconditional delays. In addition to demonstrating that the public safety will benefit from any extension, the hospital owner should be required to meet interim progress milestones as a part of any extension process. The milestones should include dates for completion of: conceptual plans, financing arrangements, construction documents and final construction, with penalties for unexcused delays.

⁵ Under regulations developed by the Office of Statewide Health Planning and Development, SPC-1 is a classification (“Structural Performance Category-1”) that designates hospital buildings that are most vulnerable to collapse after an earthquake.

⁶ Pursuant to OSHPD regulations, SPC-5 (“Structural Performance Category 5”) and NPC-5 (“Nonstructural Performance Category 5”) designate buildings that are least likely to collapse after an earthquake.

5. **Refine SPC-1 Building Priorities to be Consistent with Risk Levels:** OSHPD, in consultation with its Hospital Building Safety Board, should be charged with refining earthquake performance sub-categories for hospitals posing risks to life in earthquakes (SPC-1 buildings). The Legislature should direct OSHPD to develop and apply the sub-categories by January 1, 2003. These refinements should be based wholly on the level of earthquake hazard and vulnerability of the building, not on the financial conditions of the hospital or the regional need for the facility. The risk represented by the subcategories should be considered in any decision to extend the 2008 deadline.
6. **Incorporate Current and Future Technical Developments:** The Commission encourages OSHPD, in consultation with the Hospital Building Safety Board, to invest in applied earthquake research. OSHPD should incorporate into its regulations the latest scientific and engineering developments including monitoring which have achieved broad consensus for improving seismic safety. The Commission encourages OSHPD, in consultation with the Hospital Building Safety Board, to invest in and oversee applied earthquake research that could make hospital retrofits safer. OSHPD's authority to develop and adopt emergency regulations should be re-established, to minimize delays in the hospital industry's use of the latest consensus developments.
7. **Encourage New Construction over Retrofitting:** Replacement, rather than retrofitting, of older hospitals is in the State's best interest when it is economically feasible. New hospital buildings provide 2030-level earthquake performance and reliability, rather than the 2008-level performance for retrofitted existing hospital buildings. Hospital owners should be encouraged to construct new buildings rather than retrofit older buildings.

Financing the Necessary Retrofits

8. **Recognize the Importance of Regional Hospital Coverage:** The concentration of medical services, in addition to the building vulnerability and seismic hazard level, varies greatly throughout the State. OSHPD, in consultation with its Hospital Building Safety Board, should consider the regional availability of medical coverage when assessing eligibility for State financial support. The isolated nature of many rural counties and the lack of redundancy in availability of emergency medical health care facilities may create unique regional needs that should be recognized in State funding decisions.
9. **Provide Public Financing for Public Hospitals Based on Need:** Hospitals, by their very nature, provide a critical public service. Consequently, the use of public funds to facilitate, support or expedite the safe public use of these facilities is indisputably a proper public purpose. To the extent that a hospital can demonstrate financial hardship to comply with SB 1953 requirements, the allocation of public funds, direct assistance or financial inducements is warranted. The form of financial assistance may include: direct or matching grants, low-interest loans, credit support, tax credits or adjustments to reimbursement policies for services to special populations.

Public financing of projects for retrofitting hospitals should be considered only after hospital buildings have been evaluated and prioritized based on their levels of risk. The primary factor in determining which hospital projects are deemed eligible for public funding should be the level of risk its buildings pose; the financial needs of the hospital should be a secondary factor. Financial support should be made available to public, non-profit hospitals and district-based hospitals, particularly those providing indigent care in high-risk seismic areas and in buildings that are least resistant to earthquake damage. As a condition for receipt of State funds, applicants should be required to meet cost-benefit and financial viability tests established by OSHPD.

10. Consider Other Incentives for Hospitals Ineligible for Public Financing:

Additional assistance should be granted in the form of incentives in order to expedite the retrofit or reconstruction of high-risk hospitals. Positive incentives in the form of grants and loans might include the following:

- Nonprofit hospitals should be eligible for grants or government-backed loans;
- For-profit hospitals should be eligible for accelerated depreciation;
- Funding priority for FEMA and State post-earthquake Hazard Mitigation Grant Program funds should be given to those hospitals undergoing retrofit or reconstruction;
- The State should consider providing the hospital's shares of the match requirement for any Federal funds used to comply with SB 1953.

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