

# BRIGHT LINES

## Seismic Compliance: A Catalyst for Opportunity



Seismic construction requirements are nationwide phenomena. Different regions of the U.S. have adopted building codes to deal with various levels of seismic risk. It's not only construction materials and techniques, but also nonstructural building systems. In critical applications, such as health care facilities, these components must go beyond the structure surviving an earthquake. Hospitals must remain functional in the aftermath of the earthquake.

California leads the way, not surprisingly. California state laws mandate both new and existing hospitals meet seismic compliance. Hospitals must fix or replace buildings with structural problems and ensure that non-structural features are sturdy enough to allow hospitals to remain operational after a seismic event. Based on structural ratings, existing facilities must show intent to do one of the following:

- Retrofit the buildings for continued acute care operation beyond 2030
- Partially retrofit the building for initial compliance with closure or replacement by 2030
- Relocate acute care services and close or demolish the building

All options will result in a disruption in services, loss of staff, relocation of patients, questions of sterility, and potential closure of departments. The greatest challenge may be to identify project funding. Taking hospitals out of business for lack of seismic compliance is a severe move. However, from the state's perspective, the threat that a hospital itself may be so structurally fragile that it could cause harm to patients and staff is something the California Office of Statewide Health Planning and Development (OSHPD) is working to avoid.





Hospitals must remain operational during and after an earthquake for the safety of patients and staff and to provide medical assistance to earthquake victims. Without functioning hospitals, a community takes a much longer time to recover from an earthquake and a prolonged recovery hinders economic and social renewal.

In 2010, OSHPD reported that almost one-third, 825 of California's 2,627 acute care hospital buildings, were classified as nonconforming Structural Performance Category-1 facilities, or in the worst shape, structurally. Of those 825 hospitals, 321 have active compliance replacement projects in place, 74 received extensions to 2020, and 142 will be withdrawn from acute care by 2013.

Some facilities are approaching satisfying seismic requirements proactively not reactively, and viewing these mandates as an opportunity to take a close look at their structures from the standpoint of improving and enhancing care spaces for technology; patient-driven demands for updated hospital facilities to include more private rooms and meditation areas; bigger emergency departments; an aging and demanding population; change in hospitalization such as greater use of out-patient facilities and Intensive Care units; and pharmacology. The rapid advancement of this infrastructure over the past 50 years has resulted in older hospitals that are now seriously inefficient and unable to provide the latest in medical science. Hospitals taking a proactive approach can manage infrastructure and develop a realistic capital improvement program driven by meeting seismic requirements.

Hospitals cannot stand pat. Meeting seismic requirements for both old buildings and new buildings is a positive catalyst and opportunity that must be acknowledged and addressed.

#### **Resources for U.S. Seismic Codes & Provisions**

- Multidisciplinary Center for Earthquake Engineering Research (MCEER)
- International Code Council (ICC)
- American National Standards Institute (ANSI)
- Applied Technology Council (ATC)
- Federal Emergency Management Agency (FEMA)
- Structural Engineers Association of California (SEAOC)
- NEHRP Recommended Provisions for Seismic Regulations for New Buildings and Other Structures, Provisions & Commentary
- International Building Code, 2006, 2003, and 2000
- Uniform Building Code: Structural Engineering Design Provisions (UBC)
- Directory of Building Codes & Regulations: City & State Directory
- Building Seismic Safety Council (BSSC)
- National Earthquake Hazards Reduction Program (NEHRP)
- USGS National Earthquake Information Center (NEIC)

