

**INITIAL STATEMENT OF REASONS  
FOR PROPOSED BUILDING STANDARDS  
OF THE  
OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT**

**REGARDING PROPOSED CHANGES TO THE  
CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE  
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 1**

The Administrative Procedure Act (APA) requires that an Initial Statement of Reasons be available to the public upon request when rulemaking action is being undertaken. The following information required by the APA pertains to this particular rulemaking action:

Pursuant to SB 1953 (Chapter 740, Statute 1994), all general acute care hospitals in service prior to January 1, 2000, were required to evaluate each hospital building to determine the structural and nonstructural performance categories based on their expected seismic performance. Hospital buildings were evaluated to specific structural performance categories (SPC) and these categories are described in Table 2.5.3 of Title 24, Part 1, Chapter 6. Hospital buildings rated SPC-1 were constructed pre-1973, prior to the Alfred E. Alquist Hospital Facilities Seismic Safety Act, and are at risk of collapse in an earthquake. These hospital buildings must be retrofitted, replaced or removed from acute care service by January 1, 2008, or 2013, if an extension has been granted. The SPC-2 hospital buildings were also constructed pre-1973, and may not be operational or repairable following an earthquake but do not significantly pose a risk to life. These buildings must be retrofitted or replaced by January 1, 2030. The SPC-3 and SPC-4 buildings were built to the HSSA requirements, but because of certain features, may not be operational or repairable after an earthquake. Hospital buildings rated as SPC-3, SPC-4, or highest rated SPC-5 can be used through January 1, 2030 and beyond.

Based on the seismic evaluations, a significant number of hospital buildings are rated SPC -1. The prescriptive procedure used for these evaluations was based on Federal Emergency Management Agency's (FEMA) "FEMA 178: NEHRP Handbook for the Seismic Evaluation of Existing Buildings (1992)". Since the publication of FEMA 178, significant progress has been made in understanding the seismic performance of buildings, especially in performance based design.

The Office of Statewide Health Planning and Development (OSHPD) is proposing to use Advanced Engineering Building Module (AEBM) of Hazards U.S. Multi-Hazard (HAZUS-MH), a new state-of-the-art methodology, to reassess the SPC-1 buildings and reprioritize them based on their level of seismic risk. Those SPC-1 buildings that exceed the maximum allowable risk would have to comply with the 2008/2013 deadline. Buildings that are determined to be at a lower seismic risk will be reclassified to SPC-2 and would have until 2030 to comply with seismic safety requirements.

Adoption of HAZUS/AEBM, which is based on performance-based pushover analysis, will provide a state-of the art methodology to the hospital owners to assess the collapse probability of the SPC -1 buildings for potential reclassification to SPC 2. Hospital owners have the option of requesting a collapse probability assessment, it is not mandatory.

**STATEMENT OF SPECIFIC PURPOSE AND RATIONALE:**

The proposed regulations will amend Title 24, Part 1, Chapter 6 by adopting the HAZUS-MH/AEBM standardized methodology and software program that estimates potential losses from earthquake. HAZUS-MH was developed by FEMA under contract with the National Institute of Building Sciences. This program uses mathematical formulas and information about building stock, local geology and the location and size of potential earthquakes, and other information to estimate losses from a potential earthquake. It also uses state-of-the-art geographic information system (GIS) to map and display ground shaking and the pattern of building damage and economic loss estimates for buildings.

Building specific performance parameters in the HAZUS/ AEBM methodology and software are based on:

1. Building type,

2. Seismic design level,
3. Quality of construction, and
4. Site seismicity and soil type.

Amendments to Chapter 6 address changes to AEBM parameters for building specific evaluation along with regulatory framework for using the procedure for collapse probability assessment and possible reclassification.

The proposed regulations will:

Adopt HAZUS-MH methodology, as modified by OSHPD, to analyze and evaluate all or a portion of the approximately 1,100 SPC-1 rated hospital buildings to determine their relative risk of collapse following an earthquake. OSHPD will notify the hospital of the opportunity to receive a collapse probability assessment using the HAZUS / AEBM methodology. The hospital owner may:

1. Do nothing and the building will remain at the SPC-1 level, or
2. Submit an evaluation report based on the existing regulations in Title 24, Part 1, Chapter 6, if it had not already been submitted, and a supplemental report prepared by a structural engineer certifying the existence or absence of the building deficiencies delineated in the proposed regulations, as applicable, and information identifying the building type (structural system) and height of the building.

Upon receipt of this information, OSHPD will perform a collapse probability assessment of the building using the modified HAZUS process and notify the hospital owner of the final SPC rating of either SPC-1 or SPC-2.

### **California Building Standards Administration Code Title 24, Part 1, Chapter 6**

**Section 1.2 Definitions** – Definition of “Complete Structural Damage”, “Probability of Collapse”, and “Significant Structural Deficiencies” are added consistent with HAZUS/AEBM Manual and their use throughout Chapter 6.

**Section 1.3.1** – Editorial: refers to alternative provisions for submittal of the seismic evaluation report.

**Section 1.4.5.1** – Editorial: refers to alternative provisions for changing Structural Performance Category by collapse probability assessments.

**Section 1.4.5.1.2** – This section describes eligibility of hospital buildings for a collapse probability assessment by using HAZUS/AEBM procedure.

**Section 1.4.5.1.2.1** – Basis of collapse probability assessments and OSHPD modifications to AEBM parameters and selection of site seismicity are addressed in this section.

**Section 1.4.5.1.2.2** – This section describes the administrative procedure for reclassification of hospital buildings for which SPC -1 rating was approved by OSHPD. This section also lists significant deficiencies that need to be identified in a supplemental evaluation report. Requirements for submitting information on building type and building height, which are crucial for defining AEBM parameters, are defined.

**Section 1.4.5.1.2.3** – This section addresses the administrative procedure for notification by the Office to hospital Owners of collapse probability assessment results.

**Section 1.4.5.1.2.4** – This section provides an alternative to substantiate a higher SPC rating when collapse probability assessments by the Office place the building in SPC-1 category.

**Section 2.1.2** – An exception to the materials test requirement in this section is added so that non-availability of materials test can be treated as a deficiency in HAZUS/AEBM analysis. Time and effort needed for materials testing may not be justified for certain buildings with very low seismicity, since their collapse probability is inherently low.

**Section 2.5.3** – This section is revised to clarify that collapse probability assessments may be used in assigning structural performance rating for the hospital buildings.

**Table 2.5.3** – Acceptable collapse probability, as obtained by HAZUS/AEBM analysis, is defined in this table. A collapse probability of 0.75% or less will reclassify the building from SPC 1 to SPC 2 based on recommendation from the Hospital Building Safety Board (HBSB) on the basis of analysis of bench mark study of existing SPC-2 hospital buildings.

**Appendix H to Chapter 6** – HAZUS/AEBM parameters, response/fragility factor and capacity factors, as modified by OSHPD, are shown in this appendix. HAZUS/AEBM parameters are modified by OSHPD to make them appropriate for building specific analysis. The HAZUS/AEBM loss estimation procedure, with unmodified (default) parameters, is best used as a regional loss model and results are interpreted best in an aggregate form.

#### **TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:**

HAZARDS U.S. (HAZUS) Multi-Hazard (MH) Loss Estimation Methodology, Earthquake Model is described in the following manuals:

- 1) HAZUS- MH Technical Manual, Developed by Department of Homeland Security, Emergency Preparedness and Response Directorate, FEMA Mitigation Division, Washington D. C.
- 2) HAZUS-MH Advanced Engineering Building Module (AEBM) Technical and User's Manual, Developed by Department of Homeland Security, Emergency Preparedness and Response Directorate, FEMA Mitigation Division, Washington D. C.

#### **CONSIDERATION OF REASONABLE ALTERNATIVES**

The alternative to these proposed regulations would be to leave the regulations unamended. The alternative was rejected since it would maintain a prescriptive methodology as the only option for evaluation of existing building performance instead of providing a probabilistic collapse assessment.

#### **REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.**

There will be no adverse impact on small business.

#### **FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.**

The regulations proposed will have no significant adverse impact on business, since they are less restrictive than current regulations.

#### **DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS**

These regulations do not duplicate or conflict with Federal regulations.