

**EXPRESS TERMS
FOR
PROPOSED BUILDING STANDARDS
OF THE
OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT**

**REGARDING PROPOSED CHANGES TO
2010 CALIFORNIA ADMINISTRATIVE CODE
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 1, CHAPTER 6 & 7**

LEGEND FOR EXPRESS TERMS

1. New proposed text: All such language appears underlined.
2. Repealed text: All such language appears in ~~strikeout~~.

EXPRESS TERMS

**TITLE 24, PART 1
CHAPTER 6**

**SEISMIC EVALUATION PROCEDURES FOR HOSPITAL BUILDINGS
ADMINISTRATIVE REGULATIONS FOR THE
OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT (OSHDP)**

**ARTICLE 1
DEFINITIONS AND REQUIREMENTS**

1.0 Scope. The regulations in this article shall apply to the administrative procedures necessary to implement the seismic retrofit requirements of the Alfred E. Alquist Hospital Facilities Seismic Safety Act of 1983.

1.1 Application. The regulations shall apply to all general acute care hospital facilities as defined in Section 1.2 of these regulations.

1.2 Definitions. Unless otherwise stated, the words and phrases defined in this section shall have the meaning stated therein throughout Chapter 6, Part 1, Title 24.

...

COMPLETE STRUCTURAL DAMAGE means significant portion of the structural elements have exceeded their ultimate capacities or some critical structural elements or connections have failed, resulting in dangerous permanent lateral displacement, partial collapse or collapse of the entire building. A Complete Structural Damage would be a loss of 100% of the building's replacement cost.

...

PROBABILITY OF COLLAPSE means the fraction of building that is expected to collapse given that the ground motions defined in Section 1.4.5.1.2.1.4 occur at the building site.

SIGNIFICANT STRUCTURAL DEFICIENCY means an attribute of the structure considered to be significant with respect to Probability of Collapse.

...

1.4.5.1 Change in Seismic Performance Category. The SPC or NPC for a hospital building may be changed by the Office from the initial determination in Sections 1.3.3 or 1.3.4 provided the building has been modified to comply with the requirements of Chapter 34A, Part 2 of Title 24 for the specified SPC or NPC.

The SPC of a hospital building may also be changed by the Office on the basis of collapse probability assessments in accordance with Section 1.4.5.1.2.

1.4.5.1.1 The SPC or NPC for a hospital building may be changed by the Office from the initial determination made per Sections 2.0.1.2.3 or 11.0.1.2.1 upon the following:

1. A Seismic Evaluation Report shall be submitted and approved which shall include either or both of the

following:

- 1.1 A structural evaluation report in accordance with Section 1.3.3;
- 1.2 A nonstructural evaluation report in accordance with Section 1.3.4.

Exception: To change an NPC 1 hospital building to an NPC 2 under this section, the nonstructural evaluation may be limited in scope to the systems and equipment specified in Section 11.2.1.

2. The building has been modified to comply with the requirements of Chapter 34A, Part 2 of Title 24 for the specified SPC or NPC.

1.4.5.1.2 Hospital buildings with an SPC 1 rating, may be reclassified to SPC 2 by the Office, pursuant to Table 2.5.3, on the basis of a collapse probability assessment provided the hospital buildings received an extension to the January 1, 2008, compliance deadline in accordance with Section 1.5.2.

Exception: Hospital buildings with the following deficiencies are not eligible for reclassification:

- a) The potential for surface fault rupture and surface displacement at the building site is present (Section 9.3.3).
- b) Buildings with unreinforced masonry bearing wall construction (Section 5.4).

1.4.5.1.2.1 The collapse probability assessment by the Office shall be determined using the following:

1. Multi-Hazard Loss Estimation Methodology, Earthquake Module (HAZUS-MH MR 2) developed by the Federal Emergency Management Agency (FEMA) / National Institute of Building Sciences (NIBS).
2. Building specific input parameters required by the Advanced Engineering Building Module (AEBM) of the HAZUS methodology, shall be obtained from the Appendix H to Chapter 6.
3. Modifications by the Office to the AEBM input parameters are hereby adopted as shown in the Appendix H to Chapter 6, which are based on the following:
 - a) Building type
 - b) Building height and number of stories
 - c) Building age
 - d) Significant Structural Deficiencies listed in Section 1.4.5.1.2.2.2.2.
4. Site seismicity parameters adjusted for soil type, as determined by the Office, shall be based on the lesser of:
 - a) Deterministic ground motion due to the maximum magnitude earthquake event on the controlling fault system.
 - b) Probabilistic ground motion having 10% probability of being exceeded in 50 years.

1.4.5.1.2.2 Hospital buildings with SPC 1 rating may be reclassified as follows:

1. The Office shall issue a written notice to the hospital owners informing them that they may be eligible for reclassification of their SPC 1 buildings as permitted by Section 1.4.5.1.2.
2. For a building to be considered for reclassification, the hospital owner shall submit the following by ~~July 1, 2009~~ January 1, 2012:

2.1 A complete seismic evaluation of the building pursuant to Section 1.3.3.

Exception: Hospital owners who had submitted a complete structural evaluation report in compliance with Section 1.3.3, that is deemed to be complete by the Office, need not resubmit.

2.2 A supplemental evaluation report prepared by a California registered structural engineer that identifies the existence or absence of the building structural Lateral Force Resisting System (LFRS) properties and Significant Structural Deficiencies listed below:

a. Age: Year of the California Building Code (CBC) used for the original building design.

EXCEPTION: For pre-1933 buildings, the design year shall be reported.

b. Materials Tests: Office approved materials test results based on test plan pre-approved by the Office (Section 2.1.2).

c. Load path (Section 3.1)

~~e. d.~~ Mass irregularity (Section 3.3.4).

~~d. e.~~ Vertical discontinuity (Section 3.3.5),

~~e. f.~~ Short captive column (Section 3.6).

~~f. g.~~ Material deterioration (Section 3.7).

~~g. h.~~ Weak columns (Sections 4.2.8 & 4.3.6).

~~h. i.~~ Wall anchorage (Section 8.2).

~~i. j.~~ Redundancy (Section 3.2).

~~j. k.~~ Weak story irregularity (Section 3.3.1).

~~k. l.~~ Soft story irregularity (Section 3.3.2).

~~l. m.~~ Torsional irregularity (Section 3.3.6).

~~m. n.~~ Deflection incompatibility (Section 3.5).

~~n. o.~~ Cripple walls (Section 5.6.4).

p. Openings (in Diaphragm) at shear walls (Section 7.1.4).

~~o. q.~~ Topping slab missing (Sections 7.3 and 7.4) or the building type (structural system) is of lift slab construction.

This supplemental evaluation report shall include supporting documentation relating to the existence or absence of the Significant Structural Deficiencies listed above including calculations, where required, for review and acceptance by the Office, unless they are included in the complete structural evaluation.

2.3 Building systems shall be classified as to their Model Building Type per Table 1.4.5.1. For buildings with multiple building types, all types shall be listed. The building type resulting in the maximum collapse probability will be utilized by the Office to determine eligibility for reclassification.

TABLE 1.4.5.1: MODEL BUILDING TYPE

Model Building Type (MBT)	Description
W1	Wood, Light Frame (≤ 5,000 sq. ft.)
W2	Wood, Greater than 5,000 sq.ft.
S1	Steel Moment Frame
S2	Steel Braced Frame
S3	Steel Light Frame
S4	Steel Frame with Cast-In Place Concrete Shear Walls
S5	Steel Frame with Un-reinforced Masonry Infill Walls
C1	Concrete Moment Frame
C2	Concrete Shear Walls
C3	Concrete Frame with Un-reinforced Masonry Infill Walls
PC1	Pre-cast Concrete Tilt-Up Walls
PC2	Precast Concrete Frames with Concrete Shear Walls
RM1	Reinforced-masonry Bearing Walls with Wood or Metal Deck Diaphragms
RM2	Reinforced-masonry Bearing Walls with Concrete Diaphragms
URM	Unreinforced masonry Bearing Walls
MH	Manufactured Housing

2.4 Building height and number of stories above and below the seismic base shall be specified.

1.4.5.1.2.3 Upon assessment of the collapse probability of the SPC-1 building, the Office shall notify the hospital owner in writing the final SPC rating of the subject building.

Every building with collapse probability more than 0.75%, but less than or equal to 1.20%, shall be altered, repaired, or seismically retrofitted to mitigate any deficiencies identified in accordance with Article 10 Sections 10.1.1.1, 10.1.2.2, 10.1.6, and 10.1.7 of this Chapter (as part of the complete seismic evaluation in accordance with Section 1.3.3) by January 1, 2015. Hospitals not meeting the deadline set by this section shall not be issued a building permit for any noncompliant building except those required for seismic compliance in accordance with the California Administrative Code (Chapter 6), maintenance, and emergency repairs until the building permit required by this section is issued.

1.4.5.1.2.4 When the collapse probability assessment by the Office results in the building remaining in SPC 1, further evaluation may be provided by the hospital owner in accordance with Section 2.7 in order to substantiate a higher SPC rating.

1.4.5.1.3 Except as provided in Section 1.4.5.1.4, a nonconforming hospital building that does not meet the structural and nonstructural requirements of Table 2.5.3 and Table 11-1 shall not provide acute care services or beds after the compliance deadlines set forth in Section 1.5.1. After these deadlines, the following shall apply.

1. A nonconforming hospital building used as a hospital outpatient clinical services building shall not be classified as a hospital building. It shall comply with the provisions of Health and Safety Code Section 129725. It shall not be subject to the requirements of Title 24, Part 1, Chapter 6.
2. A nonconforming hospital building used as an acute psychiatric hospital or multi-story skilled nursing facility or intermediate care facility shall be classified as a hospital building. However, it shall not be subject to the requirements of Title 24, Part 1, Chapter 6.
3. A nonconforming hospital building used as a single-story wood frame or light steel frame skilled nursing facility or intermediate care facility shall not be classified as a hospital building, and shall not be subject to the requirements of Title 24, Part 1, Chapter 6.
4. A nonconforming hospital building used for purposes other than those listed above shall not be classified as a hospital building; shall not be licensed pursuant to Health and Safety Code Section 1250(a); shall not

be subject to the requirements of Title 24, Part 1, Chapter 6; and shall not be under the jurisdiction of the Office.

1.4.5.1.4 A hospital building from which acute care services and beds have been removed shall not provide such services unless it has been modified to comply with the requirements of SPC 5 and NPC 4 or 5. Prior to use for acute care service, the SPC and/or NPC of the hospital building shall be changed in accordance with Section 1.4.5.1.1.

1.5 Compliance Requirements. All general acute care hospital owners shall comply with the seismic performance categories, both SPCs and NPCs, established in the seismic evaluation procedures, Articles 2 and 11 and set forth in Tables 2.5.3 and 11.1 respectively.

1.5.1 Compliance Deadlines.

1. After January 1, 2002, any general acute care hospital building which continues acute care operation must, at a minimum, meet the nonstructural requirements of NPC 2 as defined in Article 11, Table 11.1 or shall no longer provide acute care services.

2. After January 1, 2008, any general acute care hospital building which continues acute care operation must, at a minimum, meet the structural requirements of SPC 2 as defined in Article 2, Table 2.5.3 or shall no longer provide acute care services.

Exception: A general acute care hospital may request a delay of SPC 2 requirements if the conditions of Section 1.5.2 are met.

3. After January 1, 2008, any general acute care hospital which continues acute care operation must, at a minimum, meet the nonstructural requirements of NPC 3 as defined in Article 11, Table 11.1 or shall no longer provide acute care services.

Exception: A general acute care hospital may request an exemption from the anchorage and bracing requirements of NPC 3 if all the conditions of Section 1.5.2, ~~Item 2~~ are met.

4. After January 1, 2030, any general acute care hospital building which continues acute care operation must, at a minimum, meet the structural requirements of SPC 3, 4, or 5 as in Article 2, Table 2.5.3 and the nonstructural requirements of NPC 5 as defined in Article 11, Table 11.1. or shall no longer provide acute care services.

...

1.5.2 Delay in Compliance.

1. The Office may grant the hospital owner an extension to the January 1, 2008 seismic compliance deadline for both structural and nonstructural requirements if compliance will result in diminished health care capacity which cannot be provided by other general acute care hospitals within a reasonable proximity.

1.1 Hospital owners requesting an extension in accordance with Section 1.5.2 must submit an application form to the Office by January 1, 2007. The application form shall be accompanied by a statement explaining why the hospital is seeking the extension to the January 1, 2008 seismic compliance deadline. The statement shall include, at a minimum, the following information:

- (a) The length/duration of the extension request;
- (b) The hospital buildings requiring an extension; and
- (c) The acute care services that will be completely or partially unavailable if the extension is denied.

1.2 The hospital owner shall request an extension for seismic compliance in one year increments, up to a maximum of five (5) years, beyond the mandated year of compliance. The hospital owner shall also submit an amended compliance plan and schedule in accordance with Section 1.4.5 indicating when compliance will be obtained.

2. Any general acute care hospital located in Seismic ~~Design Category D Zone 3~~, as defined by Section ~~1613A 4627B.2~~ of the ~~2010 4998~~ California Building Code may request an exemption from the anchorage and bracing requirements of NPC 3 for a hospital building if all the following conditions are met:

~~2.1 The hospital building shall must meet the anchorage and bracing requirements for NPC 2, by January 1, 2002;~~

~~2.2 Any future upgrade of building(s) to SPC 5 shall be accompanied by upgrade of nonstructural components to either NPC 4 or NPC 5. The hospital shall submit a site specific engineering geologic report, prepared in accordance with Section 1634B.1 of the 1998 California Building Code. The report shall include estimates of the effective peak ground acceleration (EPA) with a 10 percent probability of exceedance in 50 years;~~

~~2.3 The California Geological Survey (CGS) reviews and approves the findings of the site specific engineering geologic report;~~

~~2.4 The site specific engineering geologic report demonstrates that the estimated EPA with a 10% probability of exceedance in 50 years is less than 0.25 g.~~

~~2.5 The hospital owner requesting the exemption shall pay the actual costs of OSHPD and CGS for the review and approval of the site specific engineering geologic report.~~

2.3 By January 1, 2024, the hospital owner shall submit to the Office a complete nonstructural evaluation up to NPC 5, for each building.

2.4 By January 1, 2026, the hospital owner shall submit to the Office construction documents for NPC 5 compliance that are deemed ready for review by the Office, for each building.

2.5 By January 1, 2028, the hospital owner shall obtain a building permit to begin construction, for NPC 5 compliance of each building that the owner intends to use as a general acute care hospital building after January 1, 2030. Hospitals not meeting the January 1, 2028, deadline set by this section shall not be issued a building permit for any noncompliant building except those required for seismic compliance in accordance with the California Administrative Code (Chapter 6), maintenance, and emergency repairs until the building permit required by this section is issued.

3. Any SPC-1 building which is part of the functional contiguous grouping of a general acute care hospital may receive a five-year extension to the January 1, 2008 deadline for both structural and nonstructural requirements under the following conditions:

3.1 The owner must apply for an extension with the Office no later than January 1, 2004;

3.2 The owner must submit an amended compliance plan to the Office by July 1, 2004;

3.3 The buildings must have met the NPC-2 nonstructural requirements by January 1, 2002;

3.4 At least one building within the contiguous grouping shall have obtained a building permit prior to 1973 and shall have been evaluated and classified as SPC-1 in accordance with Section 1.3;

Exception: Hospital buildings that were classified as SPC-1 under Section 2.0.1.2.3 must submit a structural evaluation report in accordance with Sections 1.3.2 and 1.3.3 by January 1, 2004.

3.5 The basic service(s) from this building shall be:

(a) Relocated to an SPC-3, 4, or 5/NPC-4 or 5 building by January 1, 2013.

i. The building shall not be used for general acute care service after January 1, 2013 unless it has been retrofitted to an SPC-5/NPC 4 or 5 building; or

(b) Continued in building if it is retrofitted to an SPC-5/NPC-4 or 5 building by January 1, 2013;

3.6 Any other SPC-1 building in the contiguous grouping other than the building identified in subsection 1.5.2.3.4 must be retrofitted to at least an SPC-2/NPC-3 by January 1, 2013 or no longer used for acute care hospital inpatient services.

4. A post 1973 building classified as SPC-3 or 4 may receive an extension to the January 1, 2008 deadline for both the structural and nonstructural requirements provided it will be closed to general acute care inpatient service by January 1, 2013. The basic services in this building shall be relocated to an SPC-5/NPC-4 or 5 building by January 1, 2013;

4.1 Any SPC-1 building in a functional contiguous grouping must be retrofitted to at least an SPC-2/NPC-3 by January 1, 2013 or no longer used for acute care hospital inpatient services. The following conditions apply to these hospital buildings:

(a) The owner must apply for an extension with the Office no later than January 1, 2004;

(b) The owner must submit an amended compliance plan to the Office by July 1, 2004; and

(c) The buildings must have met the NPC-2 nonstructural requirements by January 1, 2002.

5. A single building containing all of the basic services may receive a five-year extension to the January 1, 2008 deadline for both structural and nonstructural requirements under the following conditions:

5.1 The owner must apply for an extension with the Office no later than January 1, 2004;

5.2 The owner must submit an amended compliance plan to the Office by July 1, 2004;

5.3 The building shall have obtained a building permit prior to 1973 and shall have been evaluated and classified as SPC-1 in accordance with Section 1.3;

Exception: Hospital buildings that were classified as SPC-1 under Section 2.0.1.2.3 must submit a structural evaluation report in accordance with Sections 1.3.2 and 1.3.3 by January 1, 2004.

5.4 The basic services from this building shall be:

(a) Relocated to an SPC-3, 4 or 5/NPC-4 or 5 building by January 1, 2013.

i. The building shall not be used for general acute care service after January 1, 2013 unless it has been retrofitted to an SPC-5/NPC-4 or 5 building; or

(b) Continued in building if it is retrofitted to an SPC-5/NPC-4 or 5 building by January 1, 2013.

6. Any general acute care hospital that received an approval by the Office to replace all the nonconforming buildings subject to the requirements of Health and Safety Code Section 130060(a) with new buildings by January 1, 2020, may request an exemption from the anchorage and bracing requirements of NPC 3 if all of the following conditions are met:

6.1 The hospital shall meet the anchorage and bracing requirements for NPC 2.

6.2 New building(s) replacing the existing noncompliant building(s) shall be either NPC 4 or NPC 5 building(s).

7. Any general acute care hospital (buildings located in Seismic Design Category D or F) subject to the requirements of Health and Safety Code Section 130060(a), may request an exemption from the anchorage and bracing requirements of NPC 3 up to January 1, 2020, if all of the following conditions are met:

7.1 The hospital shall meet the anchorage and bracing requirements for NPC 2.

7.2 All building(s) shall be upgraded to either NPC 4 or NPC 5 by January 1, 2020.

7.3 By January 1, 2014, the hospital owner shall submit to the Office a complete nonstructural evaluation up to NPC 5, for each building.

7.4 By January 1, 2016, the hospital owner shall submit to the Office construction documents for NPC 4 or NPC 5 compliance that are deemed ready for review by the Office, for each building.

7.5 By January 1, 2018, the hospital owner shall obtain a building permit to begin construction, for NPC 4 or NPC 5 compliance of each building that the owner intends to use as general acute care hospital building after January 1, 2020. Hospitals not meeting the January 1, 2018, deadline set by this section shall not be issued a building permit for any noncompliant building except those required for seismic compliance in accordance with the California Administrative Code (Chapter 6), maintenance, and emergency repairs until the building permit required by this section is issued.

...

ARTICLE 2 PROCEDURES FOR STRUCTURAL EVALUATION OF BUILDINGS

2.0 General

2.0.1 Structural Evaluation Procedure.

1. The structural evaluation process shall include the following steps:
 - 1.1 Site visit and data collection;
 - 1.2 Identification of building type;
 - 1.3 Completion of evaluation statements in appendix;
 - 1.4 Follow-up field work, if required;
 - 1.5 Follow-up analysis for "False" evaluation statements;
 - 1.6 Final evaluation for the building;
 - 1.7 Preparation of the evaluation report, and
 - 1.8 Submittal of evaluation report to OSHPD.

2. A general acute care hospital facility building may be exempted from a structural evaluation upon submittal of a written statement by the hospital owner to OSHPD certifying the following conditions:
 - 2.1 A conforming building as defined in Article 1, Section 1.2, may be placed into SPC 5 in accordance with Table 2.5.3 under of the following circumstances:
 - (a) The building was designed and constructed to the 1989 or later edition of Part 2, Title 24, and
 - (b) If any portion of the structure, except for the penthouse, is of steel moment resisting frame construction (Building Type 3, or Building Types 4 or 6 with dual lateral system, as defined in Section 2.2.3) and the building permit was issued after October 25, 1994.

 - 2.2 All other conforming buildings as defined in Article 1, Section 1.2, may be placed into SPC 4 in accordance with Table 2.5.3, except those required by Section 4.2.10 to be placed in SPC 3 in accordance with Table 2.5.3, without the need for any structural evaluation.

2.3 Nonconforming buildings as defined in Article 1, Section 1.2 may be placed into SPC 1 in accordance with Table 2.5.3 without any structural evaluation.

...

2.1.2 Data Collection. Building information pertinent to a structure's seismic performance, including condition, configuration, detailing, material strengths, and foundation type, shall be obtained in accordance with this section, and documented on drawings and/or sketches that shall be included with the structural calculations.

Exception: Materials testing is not required for reclassification by the collapse probability assessment option as permitted by Section 1.4.5.1.2, where non-availability of materials test is identified as a deficiency per Section 1.4.5.1.2.2.2.2 (b).

...

2.5 Final evaluation.

2.5.1 Review the statements and responses. Upon completion of the analysis and field work, the evaluator shall review the evaluation statements and the responses to the statements to ensure that all of the concerns have been addressed.

...

2.5.3 Final evaluation. The final evaluation will place the building in the appropriate the SPC (Table 2.5.3), based on a review of the qualitative and quantitative results of the procedures and the list of deficiencies. In general, an unmitigated "false" answer to an evaluation statement will lower the SPC of the Building. A "false" evaluation statement may be considered mitigated if the building, element or component s justified using the procedure outlined in the evaluation statement, or the effects of the condition are incorporated in the overall evaluation, as described in Section 2.5.2.2. Alternatively, the SPC rating of a building may be assigned by the Office on the basis of a collapse probability assessment performed in accordance with Section 1.4.5.1.2.

**TABLE 2.5.3
STRUCTURAL PERFORMANCE CATEGORIES (SPC)**

SPC	DESCRIPTION
SPC 1	Buildings posing a significant risk of collapse and a danger to the public. These buildings must be brought up to the SPC 2 level by January 1, 2008 or be removed from acute care service. Where the Office has performed a collapse probability assessment, buildings with Probability of Collapse greater than <u>1.20%</u> 0.75% shall be placed in this category.
SPC 2	Buildings in compliance with the pre-1973 California Building Standards Code or other applicable standards, but not in compliance with the structural provisions of the Alquist Hospital Facilities Seismic Safety Act. These buildings do not significantly jeopardize life, but may not be repairable or functional following strong ground motion. These buildings must be brought into compliance with the structural provisions of the Alquist Hospital Facilities Seismic Safety Act, its regulations, or its retrofit provisions by January 1, 2030 or be removed from acute care service. Where the Office has performed a collapse probability assessment, buildings with Probability of Collapse less than or equal to <u>1.20%</u> 0.75% shall be placed in this category.
SPC 3	Buildings in compliance with the structural provisions of the Alquist Hospital Facilities Seismic Safety Act, utilizing steel moment resisting frames in regions of high seismicity as defined in Section 4.2.10 and constructed under a permit issued prior to October 25, 1994. These buildings may experience structural damage which does not significantly jeopardize life, but may not be repairable or functional following strong ground motion. Buildings in this category will have been constructed or reconstructed under a building permit obtained through OSHPD. These buildings may be used to January 1, 2030 and beyond.
SPC 4	Buildings in compliance with the structural provisions of the Alquist Hospital Facilities Seismic Safety

	Act, but may experience structural damage which may inhibit ability to provide services to the public following strong ground motion. Buildings in this category will have been constructed or reconstructed under a building permit obtained through OSHPD. These buildings may be used to January 1, 2030 and beyond.
SPC 5	Buildings in compliance with the structural provisions of the Alquist Hospital Facilities Seismic Safety Act, and reasonably capable of providing services to the public following strong ground motion. Buildings in this category will have been constructed or reconstructed under a building permit obtained through OSHPD. These buildings may be used without restriction to January 1, 2030 and beyond.

...

ARTICLE 10 EVALUATION OF ELEMENTS THAT ARE PART OF THE LATERAL-FORCE-RESISTING SYSTEM

...

10.1.1.1 Masonry partitions. There are no unbraced unreinforced masonry or hollow clay tile partitions in critical care areas, clinical laboratory service spaces, pharmaceutical service spaces, radiological service spaces, central and sterile supply areas, exit corridors, elevator shafts or stairwells.

For conforming buildings, the evaluator may consider this condition as mitigated, and no calculations are necessary. Check for the presence of support angles at floor and roof, and for spaces at the sides and top of the wall to provide for interaction of the structural system.

...

10.1.2.2 Cladding panels in moment frame buildings. For moment frame buildings of steel or concrete, panels are isolated from the structural frame to absorb predicted interstory drift without collapse.

For conforming buildings, the evaluator may consider this condition as mitigated, and no calculations are necessary. Check the ability of the cladding panels and their connections to tolerate the story drift computed in Section 2.4.4 without an anchorage failure.

...

10.1.6 Parapets, cornices, ornamentation and appendages. There are no laterally unsupported unreinforced masonry parapets or cornices above the highest anchorage level with height/thickness ratios greater than 1.5. Concrete parapets with height/thickness ratios greater than 1.5 have vertical reinforcement. Cornices, parapets, signs and other appendages that extend above the highest anchorage level or cantilever from exterior wall faces and other exterior wall ornamentation are reinforced and well anchored to the structural system.

For conform buildings, the evaluator may consider this condition as mitigated, and no calculations are necessary. If any of these items are of insufficient strength and/or are not securely attached to the structural elements, they may break off and fall, becoming significant life-safety hazards. Check the adequacy of these items using the forces specified in Section 2.4.6.

10.1.7 Means of egress. Canopies are anchored and braced to prevent collapse and blockage of building exits.

For conforming buildings, the evaluator may consider this condition as mitigated, and no calculations are necessary. Check canopies for the forces specified in Section 2.4.6.

...

**ARTICLE 11
EVALUATION OF CRITICAL NONSTRUCTURAL
COMPONENTS AND SYSTEMS**

11.0 Introduction. This article covers nonstructural components and systems critical to patient care.

11.01 Nonstructural evaluation procedure.

1. The nonstructural performance evaluation shall examine the respective critical nonstructural systems and elements for the planned NPC as specified in Table 11.1, "Nonstructural Performance Categories." The nonstructural evaluation process shall include the following steps:

1. Site visit and data collection;
2. Identification of building SPC;
3. Identification of critical nonstructural systems for the planned NPC;
4. Identification of critical care services housed in the building;
5. Final evaluation for the critical nonstructural elements and systems for the planned NPC;
6. Preparation of evaluation report; and
7. Submittal of evaluation report to OSHPD.

2. A general acute care hospital facility may be exempted from a nonstructural evaluation upon submittal of a written statement by the hospital owner to OSHPD certifying the following conditions:

1. The building is designated "NPC 1" in conformance with Table 11.1 "Nonstructural Performance Categories," or
2. The building is designated "NPC 4" in conformance with Table 11.1 "Nonstructural Performance Categories" and provided:
 - a) The building was designed and constructed under a building permit issued by OSHPD;
 - b) All subsequent repairs, remodels, additions and alterations were performed under a permit issued by OSHPD, and
 - c) Fire sprinkler systems have been retrofitted in conformance with Table 11.1, "Nonstructural Performance Categories."

3. If a hospital owner elects to obtain a higher NPC at a future date, additional nonstructural evaluations as specified in Section 11.01.1 will be required.

Exception: An engineering report may be submitted to the Office in lieu of the NPC 2 evaluation report required by Section 1.4.5.1.1 for nonstructural upgrades from NPC 1 to NPC 2.

The engineering report shall comply with the following minimum requirements:

1. The report shall be stamped and signed by a California licensed structural engineer certifying, in a form acceptable to the Office, compliance with the requirements of NPC 2.

2. The report shall state that the systems and equipment listed in Table 11.1 for NPC 2 compliance either comply with or have been modified to comply with the requirements of Chapter 16A, 1995 California Building Code or equivalent provision in later version of the CBC.

3. The report shall state what specific deficiencies have been addressed in the NPC 2 upgrade projects, and provide OSHPD project numbers for these projects.

4. The report shall state that the corrective work required for NPC 2 compliance has been completed under permits issued by OSHPD.

If the hospital owner or governing body has already submitted a revised or new NPC 2 evaluation report, and the Office has reviewed and made comments on this report, the engineering report shall include a statement that all comments pertaining to NPC 2 compliance in the OSHPD review have been resolved.

4. If a hospital owner sells or leases the hospital to another party, a complete nonstructural evaluation and list of all nonstructural deficiencies to achieve NPC 5 shall be submitted to the Office prior to the completion of the sale or lease.

11.1 Nonstructural performance categories. Each building shall be assigned a Nonstructural Performance Category (NPC), based upon the degree of anchorage and bracing of selected nonstructural elements and systems. This includes architectural, mechanical, electrical, and hospital equipment in addition to associated conduit, ductwork, piping, and machinery. NPCs are defined in Table 11.1.

...

**TABLE 11.1
NONSTRUCTURAL PERFORMANCE CATEGORIES**

Time frames	Nonstructural Performance Category ¹	Description
	NPC 1	Buildings with equipment and systems not meeting the bracing and anchorage requirements of any other NPC.
January 1, 2002	NPC 2	<p>The following are braced or anchored in accordance with Part 2, Title 24¹:</p> <ul style="list-style-type: none"> • communications systems, • emergency power supply, • bulk medical gas systems, • fire alarm systems; and • emergency lighting equipment and signs in the means of egress.
January 1, 2008	NPC 3 / NPC-3R	<p>The building meets the criteria for NPC “2” and in critical care areas, clinical laboratory service spaces, pharmaceutical service spaces, radiological service spaces, and central and sterile supply areas, the following components meet the bracing and anchorage requirements of Part 2, Title 24² :</p> <ul style="list-style-type: none"> • Nonstructural components, listed in the 1995 CBC, Part 2, Title 24, Table 16A-O, Part 2 . <ul style="list-style-type: none"> Exception: For NPC-3R, lateral bracing of suspended ceiling systems may be omitted in rooms with a floor area less than 300 square feet, provided the room is not an intensive care or coronary care unit patient room, angiography laboratory, cardiac catheterization laboratory, delivery room, operating room, or post-operative recovery room. • Equipment, as listed in the 1995 CBC, Part 2, Title 24, Table 16A-O, “equipment” including equipment in the physical plant that service these areas. <ul style="list-style-type: none"> Exceptions: <ul style="list-style-type: none"> 1. Seismic restraints need not be provided for cable trays, conduit and HVAC ducting. Seismic restraints may be omitted from piping systems, provided that an approved method of preventing release of the contents of the piping system in the event of a break is provided.

		<p>2. Only elevator(s) selected to provide service to patient, surgical, obstetrical, and ground floors during interruption of normal power need meet the structural requirements of Part 2, Title 24.</p> <ul style="list-style-type: none"> • Fire sprinkler systems comply with the bracing and anchorage requirements of NFPA 13, 1994 edition or subsequent applicable standards. <p>Exception: Acute care hospital facilities in both a rural area as defined by Section 70059.1, Division 5 of Title 22 and Seismic Zone 3 shall comply with the bracing and anchorage requirements of NFPA 13, 1994 edition or subsequent applicable standards by January 1, 2013.</p>
	NPC 4	The building meets the criteria for NPC “3” and all architectural, mechanical, electrical systems, components and equipment, and hospital equipment meet the bracing and anchorage requirements of Part 2, Title 24 ² . This category is for classification purposes of the Office of Emergency Services.
January 1, 2030	NPC 5	The building meets the criteria for NPC “4” and on-site supplies of water and holding tanks for wastewater, sufficient for 72 hours emergency operations, are integrated into the building plumbing systems. As an alternative, hook-ups to allow for the use of transportable sources of water and sanitary waste water disposal have been provided. An on-site emergency system as defined within Part 3, Title 24 is incorporated into the building electrical system for critical care areas. Additionally, the system shall provide for radiological service and an onsite fuel supply for 72 hours of acute care operation.

¹ For the purposes of NPC 2 and NPC 5, all enumerated items within Table 11.1 shall meet the requirements of Section 1632A of 2001 *California Building Code* (CBC) or equivalent provision in later version of the CBC by the specified timeframe as indicated by their respective NPC.

² For the purposes of NPC 3 and NPC 4 in SPC 2, SPC 3 or SPC 4 buildings, all enumerated items within Table 11.1 shall meet the requirements of the 1998 CBC, Section 1630B or equivalent provision in later version of the CBC, by the specified timeframe. For the purposes of NPC 3R, all enumerated items within Table 11.1 shall meet the requirements of the 1995 CBC, Section 1630A, using $I_p=1.0$, or equivalent provision in later version of the CBC, by the specified timeframe.

...

APPENDIX H TO CHAPTER 6 HAZUS AEBM REGULATIONS

6-A1 HAZUS AEBM Technology. The Federal Emergency Management Agency (FEMA)/National Institute of Building Sciences (NIBS) Multi-Hazard Loss Estimation Technology (HAZUS-MH MR2) and, specifically, the HAZUS Advanced Engineering Building Module (AEBM) are used by the Office with building-specific parameters, described in this appendix, to evaluate the Probability of Collapse of SPC-1 buildings.

6-A2 Probability of Collapse. The Probability of Collapse, P[COL], is calculated by Equation (A6-1):

$$P[\text{COL}] = P[\text{COL}|\text{STR}_5] \times P[\text{STR}_5] \tag{A6-1}$$

Where:

- P[COL|STR₅] = collapse factor of the HAZUS AEBM, as modified herein, and
P[STR₅] = probability of Complete Structural Damage, based on HAZUS AEBM methods and parameters, as modified herein.

6-A3 Building-Specific Properties. Building-specific properties are based on the building type (structural system), or Model Building Type (MBT), building height (number of stories above seismic base), building age (pre-1933, 1933 – 1961 or post-1961 design vintage), availability of materials testing data, and Significant Structural Deficiencies.

Table A6-1 lists Significant Structural Deficiencies. Table A6-1 includes older buildings (pre-1933 buildings) and buildings that do not have available materials test data, and treats these conditions as Significant Structural Deficiencies.

SPC-1 buildings with no Significant Structural Deficiencies are evaluated using “Baseline” values of building-specific properties. SPC-1 buildings with one or more, Significant Structural Deficiencies are evaluated using sub-baseline (SubBase), or ultra-sub-baseline (USB) building-specific properties, as specified in Table A6-1.

Building-specific properties include parameters related to (1) building capacity, (2) building response, (3) Complete Structural Damage, and (4) building collapse. Appendix H Sections 6-A4 through 6-A7, define the parameters of interest related to building capacity, building response, Complete Structural Damage and building collapse, respectively, and specify appropriate values of these parameters.

6-A4. Building Capacity. Building-specific capacity properties of interest include the yield capacity control point (D_y , A_y) and the ultimate capacity control point (D_u , A_u), as calculated by Equations (A6-2 through A6-5, respectively):

$$A_y = C_s \cdot \gamma / \alpha_1 \quad (\text{A6-2})$$

$$D_y = 9.8 \cdot A_y \cdot T_e^2 \quad (\text{A6-3})$$

$$A_u = \lambda \cdot A_y \quad (\text{A6-4})$$

$$D_u = \lambda \cdot \mu \cdot D_y \quad (\text{A6-5})$$

Where:

- C_s = seismic design coefficient - values of C_s are given in Tables A6-2a and Table A6-2b, respectively,
- α_1 = modal weight factor, Alpha 1 - values of α_1 are given in Table A6-4,
- T_e = elastic period, in seconds - values of T_e are given in Table A6-3,
- γ = yield strength factor, Gamma - values of γ are given in Table A6-5,
- λ = “overstrength” factor, Lambda - values of λ are given in Table A6-5, and
- μ = “ductility” factor, Mu - values of μ are given in Table A6-6.

6-A5 Building Response. Building-specific response parameters of interest include the elastic damping factor, β_E , and the degradation factor, Kappa. Values of β_E are given in Table A6-7 and values of the Kappa factor are given in Table A6-8.

6-A-6 Complete Structural Damage. Building-specific damage parameters of interest include the median spectral displacement of the Complete Structural Damage state, $S_{d,C}$, and the associated lognormal standard deviation (Beta) factor, β_C . Values of β_C are given in Table A6-11. Median spectral displacement at the Complete Structural Damage state, $S_{d,C}$, is calculated using Equation (A6-6):

$$S_{d,C} = \Delta_C \cdot H_R \cdot \alpha_2 / \alpha_3 \quad (\text{A6-6})$$

Where:

- Δ_C = inter-story drift ratio (of the story with maximum drift) at the threshold of Complete Structural Damage - values of Δ_C are given in Table A6-9,
- H_R = height of building at the roof level, in inches - default values of H_R are given in Table A6-3 as a function of the number of stories above grade,
- α_2 = modal height factor, Alpha 2 - values of α_2 are given in Table A6-4, and
- α_3 = modal shape factor, Alpha 3, relating maximum-story drift and roof drift, values of α_3 are given in Table A6-10.

6-A-7 Building Collapse. Building-specific values of the collapse factor, P[COL|STR₅], that describe the fraction of the building likely to be collapsed given that the building has reached the Complete Structural Damage state, STR₅, are given in Table A6-12.

Table A6-1 Significant Structural Deficiency Matrix

Significant Deficiency/Condition ¹	Capacity		Response		Structural Damage - Complete Damage State						Collapse	
	Over-		Duratio		Fragility Curve Median ⁴				Fragility Curve Variability - Beta Factor (ρ)		Collapse Factor (P[COL STR ₅])	
	Gamma Lambda Factors		Degradation (Kappa) Factor		Maximum Drift Ratio (ρ)		Mode Shape (Alpha 3) Factor					
	SubBas	US	SubBas	US ⁵	SubBas	US	SubBas	US ⁶	SubBas	US ⁵	SubBas	US ⁶
Age (Pre-1933 buildings)	X	X ⁷										
Materials Testing (None)	X								X			
No Redundancy									X		X	X ⁶
Weak Story					X		X	X ⁶			X	X ⁶
Soft Story Irregularity					X		X	X ⁶			X	X ⁶
Mass					X							
Vertical Discontinuity	X				X							
Torsional Irregularity						X					X	X ⁶
Deflection Incompatibility ²					X				X		X	X ⁶
Short ³	X					X						
Wood Deterioration		X	X									
Steel Deterioration		X	X									
Concrete Deterioration		X	X									
Weak Column-	X				X							
Weak Column-	X		X		X							
No Cripple Wall Bracing					X		X	X ⁶			X	X ⁶
Topping Slab	X		X						X		X	X ⁶
Inadequate Wall		X							X			
Load Path/Diaphragm Openings									X		X	X ⁶

1. Sub-Baseline (SubBase) and Ultra-Sub-Baseline (USB) properties are based on one, or more, significant structural deficiencies.
2. The Deflection Incompatibility structural deficiency applies only to concrete systems (C1, C2 and C3).
3. The Short Column structural deficiency applies only to concrete and masonry systems (C1, C2, C3, RM1 and RM2).
4. Effects of deficiencies related to drift and mode shape limited to a combined factor of 5 reduction in Complete median (of HAZUS default value).
5. Grey shading indicates USB performance is not defined/used for deficiencies related to degradation (kappa) and fragility curve (beta) factors.
6. USB performance required for systems with multiple, SubBase deficiencies related to either the mode shape (Alpha 3) factor or the collapse rate.
7. USB performance required for pre-1933 buildings with other over-strength-related deficiencies (else use SubBase performance for pre-1933 buildings).

NOTATION

Authority: Health and Safety Code Section 130005(g) & 130022
 Reference: Health and Safety Code Section 1275, 129850, 130005(g) & 130022

**TITLE 24, PART 1
 CHAPTER 7**

...

7-133. Fees.

(a) Plan review and field observation. The fee for plan review and field observation ...

...

(k) SPC-1 Hospital Building Reassessment. The Office shall charge actual costs for the seismic collapse probability assessment of a hospital building, pursuant to Section 129835 of the Health and Safety Code. The total cost paid for these services shall be nonrefundable.

NOTATION

Authority: Health and Safety Code Section 129835, 130005(g) & 130022
Reference: Health and Safety Code Section 1275, 129850, 130005(g) & 130022