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CODE APPLICATION NOTICE (CAN)
H&S Code §129851

SUBJECT

Change in Seismic Performance Category (SPC)
by Voluntary Seismic Improvements

CAN: **1-6-1.4.5.1**

Effective: **2/13/2010**

CODE SECTIONS

Sections 1.4.5.1 and 2.0.1, Chapter 6
2010 California Administrative Code (CAC)

Sections 104.11, 104.11.4, 3404A.5 and 1603A.1.5
2010 California Building Code (CBC)
(see Appendix A)

2010 California Administrative Code

CHAPTER 6 SEISMIC EVALUATION PROCEDURES FOR HOSPITAL BUILDINGS

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).

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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 Type 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.

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PURPOSE

The purpose of this Code Application Notice (CAN) is to summarize available options when changing the Structural (Seismic) Performance Category (SPC) of hospital buildings in accordance with the 2010 CAC. Provisions in the 2010 CBC allow for voluntary seismic improvements which may be useful in achieving an SPC 2 rating for some buildings. An acceptable method for compliance with the 2010 CBC prior to its anticipated effective date of January 1, 2011 is described in Appendix B of this CAN.

INTERPRETATION

CAC Chapter 6, Section 1.4.5.1 provides three options for the hospital governing authority to request a change in Structural (Seismic) Performance Category (SPC) for buildings:

1) For hospital buildings that are assigned to SPC 1 in accordance with CAC Section 2.0.1.2.3 (self-declared buildings), the hospital governing authority may submit to the Office a structural evaluation report in accordance with CAC Section 1.3.3, as permitted by CAC Section 1.4.5.1.1.1.1.

2) For hospital buildings that are assigned to SPC 1 and received an extension to the January 1, 2008 compliance deadline, the hospital governing authority may request the Office for collapse probability reassessment using HAZUS to achieve an SPC 2 rating with submittals, in accordance with CAC Section 1.4.5.1.2.2.

3) For all hospital buildings subject to the requirements of CAC Chapter 6 (SB 1953 regulations), the hospital governing authority may submit to the Office verification of modifications (or an alternative analysis in accordance with CAC Section 2.7) to hospital buildings, in accordance with CAC Section 1.4.5.1.1.2 (seismic retrofit of existing building).

For a significant number of buildings, the primary reason for SPC 1 classification is the presence of one or more structural irregularities and/or significant structural deficiencies. For some buildings, removing structural irregularities and/or significant structural deficiencies by using voluntary seismic improvements in accordance with CBC Section 3404A.5 prior to evaluation in accordance with items 1 or 2 above, may improve the probability for upgrade to the Structural Performance Category (SPC) rating. The altered structure shall be deemed SPC 2 when the requirements of CAC Chapter 6, Section 1.4.5.1.2 are satisfied.

CBC Section 1603A.1.5, Items 11 and 12, require that applicable structural irregularities be listed on the construction documents for the project. Supporting calculations for the structural irregularities not listed, shall be part of the construction document submittals for voluntary upgrade to avoid a separate review for structural irregularities in accordance with CAC Chapter 6. Structural irregularities shall be determined in accordance with ASCE 7-05, Tables 12.3-1 and 12.3-2.

The anticipated effective date for the 2010 CBC is January 1, 2011. Projects submitted prior to this date shall be permitted to use the structural provisions of the 2010 CBC under an Alternate Means of Compliance (AMC), provided Structural Design Criteria requirements in Appendix B of this CAN are followed in their entirety for design, construction, testing, inspection, and geotechnical/geohazard reports. All projects submitted to the Office using the 2010 CBC provisions prior to the anticipated effective date of January 1, 2011, shall install earthquake monitoring instruments in accordance with 2010 CBC Section 104.11.4.

Original Signed	2/13/2010
Paul Coleman	Date

APPENDIX A

CODE SECTIONS

2010 California Building Code

(The anticipated effective date for the 2010 CBC is January 1, 2011)

104.11 Alternative materials, design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been *approved*. An alternative material, design or method of construction shall be *approved* where the *building official* finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code in quality, strength, effectiveness, *fire resistance*, durability and safety.

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104.11.4 Earthquake monitoring instruments. [OSHPD 1 & 4] *The enforcement agency may require earthquake monitoring instruments for any building that receives approval of an alternative system for the Lateral Force Resisting System (LFRS). There shall be a sufficient number of instruments to characterize the response of the building during an earthquake and shall include at least one tri-axial free field instrument or equivalent. A proposal for instrumentation and equipment specifications shall be forwarded to the enforcement agency for review and approval. The Owner of the building shall be responsible for the implementation of the instrumentation program. Maintenance of the instrumentation and removal/processing of the records shall be the responsibility of the enforcement agency or its designated agent.*

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1603*A*.1.5 Earthquake design data. The following information related to seismic loads shall be shown, regardless of whether seismic loads govern the design of the lateral-force-resisting system of the building:

1. Seismic importance factor, *I*, and *occupancy category*.
2. Mapped spectral response accelerations, S_S and S_1.
3. *Site class*.
4. Spectral response coefficients, S_{DS} and S_{D1}.
5. *Seismic design category*.

6. Basic seismic-force-resisting system(s).

7. Design base shear.

8. Seismic response coefficient(s), C_S.

9. Response modification factor(s), *R*.

10. Analysis procedure used.

11. Applicable horizontal structural irregularities.

12. Applicable vertical structural irregularities.

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3404*A*.5 Voluntary seismic improvements. Alterations to existing structural elements or additions of new structural elements that are not otherwise required by this chapter and are initiated for the purpose of improving the performance of the seismic force-resisting system of an *existing structure* or the performance of seismic bracing or anchorage of existing nonstructural elements shall be permitted, provided that an engineering analysis is submitted demonstrating the following:

1. The altered structure, and the altered *structural and* non structural elements are no less conforming with the provisions of this code with respect to earthquake design than they were prior to the *alteration*.

2. New structural elements are *designed,* detailed and connected to the existing structural elements as required by Chapter 16*A*. *Alterations of existing structural elements shall be based on design demand required by Chapter 16A but need not exceed the maximum load effect that can be transferred to the elements by the system.*

   Exception: Seismic design in accordance with Sections 3411A and 3412A shall be permitted.

3. New or relocated nonstructural elements are *designed,* detailed and connected to existing or new structural elements as required by Chapter 16*A*.

4. The alterations do not create a structural irregularity as defined in ASCE 7 or make an existing structural irregularity more severe.

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APPENDIX B

Guidelines for Structural Design Criteria prior to January 1, 2011

When submitting a project prior to the 2010 California Building Code anticipated effective date, and requesting structural provisions under this edition, an Alternate Method of Compliance form (OSH-FD-126) must be completed. Section D of this form shall include information as suggested below:

Description of Proposal:

1. Design, Construction, Quality Control / Quality Assurance shall be in accordance with the 2007 California Building Standards Code (Title 24, CCR).

2. The 2010 CAC and structural provisions of the 2010 CBC shall be used as permitted by CAN 1-6-1.4.5.1.

3. The Owner shall install earthquake monitoring instruments as part of this project. There shall be a sufficient number of instruments to characterize the response of the building during an earthquake and shall include at least one tri-axial free field instrument or equivalent. A proposal for instrumentation and equipment specifications shall be forwarded to the enforcement agency for review and approval.

   The instruments shall be interconnected for common start and common timing. Each instrument shall be located so that access is maintained at all times and is unobstructed by room contents. A sign stating “MAINTAIN CLEAR ACCESS TO THIS INSTRUMENT” shall be posted in a conspicuous location.

   The Owner of the building shall be responsible for the implementation of the instrumentation program. Maintenance of the instrumentation and removal/processing of the records shall be the responsibility of the enforcement agency.

Applicable Code Section:

2007 California Building Code, Appendix Chapter 1, Section 104.11.

Reason:

The Owner would like to use the latest building code provisions as permitted by CAN 1-6-1.4.5.1.

The Alternate Method of Compliance form (OSH-FD-126) can be found at the following address: http://www.oshpd.ca.gov/FDD/Forms/AltMethodCompliance.pdf.