

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

REGARDING THE PROPOSED CHANGES TO THE
CALIFORNIA ADMINISTRATIVE CODE
AND
CALIFORNIA BUILDING CODE
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PARTS 1 & 2**

The Administrative Procedure Act requires that every agency shall maintain a file of each rulemaking that shall be deemed to be the record for that rulemaking proceeding. The rulemaking file shall include a final statement of reasons. The Final Statement of Reasons shall be available to the public upon request when rulemaking action is being undertaken. The following are the reasons for proposing this particular rulemaking action:

INITIAL STATEMENT OF REASONS

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS

The purpose of this proposed action is to adopt the 2016 California Administrative Code (2016 CAC) and 2016 California Building Code (2016 CBC) based on new information since the adoption of the 2013 CAC and 2013 CBC.

Title 24, Part 1

Chapter 6 - Seismic Evaluation Procedures for Hospital Buildings

Section 1.2 – Definitions of damage control structural performance category and structural performance category (SPC-4D) are added for consistency with Table 2.5.3.

Section 1.3 – Exception is added to clarify that the structural performance category (SPC-4D) can only be achieved through analysis or retrofit in accordance with the California Building Code and not by seismic evaluation.

Table 2.5.3 – A new Structural Performance Category (SPC-4D) is added to provide hospitals additional compliance options in meeting required seismic safety standards by 2030.

After January 1, 2020, there will be approximately 700 Structural Performance Category (SPC) - 2 hospital buildings in California. While these building are not collapse hazards, they may not be repairable or functional after a major earthquake. Current regulations require that these buildings be retrofitted to SPC-5 or replaced with new buildings by January 1, 2030. OSHPD proposes to create an alternative damage control structural performance category (SPC-4D), whereby many of the SPC-2 buildings can be retrofitted to a standard that are deemed to be safer and can provide services beyond 2030. This will reduce the cost for many hospitals while making the buildings safer.

These buildings are expected to perform comparably to buildings constructed using the 1980 edition of the California Building Code. Buildings built in compliance with the 1980 or later editions of the California Building Code are currently classified as SPC-3 or SPC-4, and are permitted to provide acute care services beyond 2030.

The recent edition of the national model code, American Society of Civil Engineers (ASCE) publication 41-13 (ASCE 41-13) as adopted in the 2015 International Existing Building Code

(2015 IEBC 2015), recognizing high cost of upgrading existing buildings, adopted damage control as an accepted standard of care for existing buildings. California Health and Safety Code (H&SC) Section 130005(b) gives the Office explicit authority to define earthquake performance categories as it deems necessary to meet the intent of SB 1953. H&SC Section 18941 requires the Office to write the building standards on performance basis, consistent with state and nationally recognized standards for building construction. OSHPD is proposing to establish an alternative structural performance level for SPC-4D, which will be based on the ASCE 41-13 approach to damage control.

Under Senate Bill (SB) 1953 and subsequent bills amending it, buildings were classified into SPC-2 category using regulations based on Federal Emergency Management Agency (FEMA) 178, which relied on quick calculations and checklists, and Hazards US (HAZUS) which calculated probability of collapse in comparison to similar buildings with known structural deficiencies. A more detailed analysis could show that SPC-4D buildings are comparable or can become comparable to the 1980 California Building Code.

Section 2.1.2.2 – To assess the condition of SPC-4D buildings and other hospital buildings as needed, a complete material testing program for data collection is submitted and reviewed by OSHPD before actual testing to help assure all aspects of the material testing program will result in sufficient information to verify the condition of and to analyze the hospital building.

Section 2.7 – Mapped ground motion in lieu of site specific ground motions are permitted for certain projects by the California Building Code (CBC), this section is revised for consistency with the CBC. Reference to specific section of the CBC is removed to provide flexibility in design. Redundant structural design criteria requirement is removed, since it is explicitly required by the California Building Code.

Title 24, Part 2, Volume 2

Chapter 1 – Scope and Administration

Section 1.10.2.2 – California Existing Building Code (CEBC), Title 24, Part 10 is replacing Chapter 34 for OSHPD 2 existing buildings, since Chapter 34 in International Building Code, 2012 (CBC 2012) is replaced by International Existing Building Code, 2015 (IEBC 2015).

Section 101.4.7 – Existing requirements in 34A (which is equivalent to IEBC 2015 Chapter 4) of the CBC 2010 are retained instead of adopting the International Existing Building Code, 2015 (IEBC) for OSHPD 1 buildings, since IEBC provisions does not account for the statutory mandate contained in the Hospital Facilities Seismic Safety Act, 1983 (HFSSA 1983). Also enforcement of IEBC will add an undue burden to the healthcare facilities by requiring compliance with a completely new code.

Approximately 17 pages of code requirements in International Building Code, 2012 Chapter 34 are replaced by about 293 pages of requirements in International Existing Building Code, 2015.

OSHPD 2 and 4 buildings shall be permitted use Chapter 4 of the California existing building code.

Section 106.1.2 – Section is deleted since revision in model code Section 106.1 addresses the requirements.

Title 24, Part 2, Volume 2

Chapter 2 – Definition

Section 202 – Definition of rigid diaphragm is deleted, since it is picked up by model code. Definitions of incidental and minor are clarified for consistency and intent of the code.

Definition of a surface mounted component and torque-controlled post-installed anchors are added so that they will be distinguished for further design/testing provisions in the code.

Title 24, Part 2, Volume 2
Chapter 16A – Structural Design

Section 1602A.1 – Definition of hospital building is deleted, since it is shown in the California Administrative Code Section 7-111.

Table 1604A.3 – Live load notation amended on table columns to clarify that deflection limits shall be checked with live load, L, or roof live load, L_r, as applicable. Model code revised definition of L and L_r, such that roof live load can be classified as L or L_r.

Section 1604A.3.7 – Redundant pointer to wood design standard is deleted. The wood diaphragm span-to-width requirements in the AWC SDPWS still apply.

Section 1604A.4 – Requirements for including diaphragm stiffness in structural analysis is added. Deleted section would have required all non-flexible diaphragm to be considered as rigid, which is inconsistent with ASCE 7.

Section 1607A.14 – Clarification that “working load” is “working stress design load” when using load combination in Section 1605A.

Section 1613A.2 – Definition of base is deleted, since it is shown in ASCE 7 Section 11.2. Definition of hospital building and structural elements are deleted, since they are shown in the California Administrative Code Section 7-111.

Section 1613A.6 – This section requires nonlinear response history analysis or shake-table testing as acceptance criteria without any reference standards that address these requirements, hence will be considered an alternative system. ASCE 7 does not address nonlinear response history analysis for nonstructural components and shake table test is not a defined term in this code or ASCE 7.

Section 1616A.1.1 – Wind tunnel provisions in accordance with ASCE 49-12 is added to the building code, hence design criteria for wind tunnel testing is no longer required.

Section 1616A.1.12 – Amendment in this section is revised to be consistent with ASCE 7-16.

Section 1616A.1.15 – OSHPD amendment for building separation is deleted.

Section 1616A.1.18 – The amendment in Exception 2.b is now consistent with the provision in item 3.b.i.

Section 1616A.1.19 – This section is revised to adopt ACI 355.4 for qualification of post-installed adhesive anchors and ICC-ES AC 232 & AC 446 for qualification of cast-in-place specialty inserts in concrete for consistency with requirements in the ACI 318-14. The screw anchor provision is editorially clarified with no change in intent.

Section 1616A.1.20 – Power actuated fasteners are not permitted to attach seismic braces to the structure and non-structural components, which is consistent with past and current code enforcement. However, power actuated fasteners in steel to steel connections when qualified are permitted.

Section 1616A.1.21 – Amendments in previous code, which are now covered by ASTM E 580, are deleted. Horizontal restraint point spacing of 12'x12' will not work in high seismic regions by calculation, hence requirements for justification by analysis or test is added. Minimum clearance requirement for ceiling and bracing wires from unbraced pipes, ducts, and conduits are added consistent with ASTM E580 Section 5.2.8.3 requirement for bracing wire. In exit ways, the use of the ceiling grid is now permitted to brace the ceiling in the short or transverse direction to the wall where the components and connections have the capacity to do so. For lateral force bracing of the ceiling grid, the load path is further clarified.

Section 1616A.1.23 – Concrete anchor design overstrength factor for certain components are reduced from 2.5 to 2.0, for consistency with ASCE 7-16.

Section 1616A.1.25 (CBC 2013) – The prior section is deleted since demand and capacity in NFPA 13 is now consistent with ASCE 7-10.

Section 1616A.1.34 – This section is revised for consistency with ASCE 41-13 and the strike-out text no longer applies.

Sections 1616A.1.35 - The importance factor for parts and portions in base isolated buildings is covered by ASCE 7-10, so the prior provision is deleted. In the current provision, ASCE 7-10 addresses uplift in the analysis so this part of the provision is deleted, but the uplift displacement testing of the isolator bearing is retained since it is not contained in Section 17.8.

1616A.1.36 – Limitations on the use of linear procedures in high ground motions areas are now designated by Seismic Design Categories.

1616A.1.37 (CBC 2013) – This prior section is deleted, since requirements are covered in ASCE 7.

Section 1616A.1.39 – Unique seismic instrumentation requirements for base isolated buildings and buildings with dampers are removed, so that they will be treated equally with fixed base buildings for instrumentation. Most buildings with base isolation and/or damping devices will still require instrumentation in accordance with the CBC 2016 Section 104.11.4. Requirements for verification of pre-northridge steel moment frame connection after earthquake is clarified.

Section 1616A.1.40 – Flood elevation requirements have been revised for consistency with revised requirements in ASCE 24-14 Table 7.1, which is the adopted standard for flood resistant design and construction.

Title 24, Part 2, Volume 2

Chapter 17 - Special Inspections and Tests

Section 1703.4 – Requirements for approved testing laboratories for OSHPD 2 facilities are given to acknowledge broader acceptance of International Standards Organization (ISO) Standard 17025 accredited laboratories, consistent with OSHPD Policy Intent Notice (PIN) 58.

Section 1704.2 - International Standards Organization (ISO) Standard 17020 is adopted for accreditation of inspection agencies for OSHPD 2 facilities.

Section 1705.13.3.1 – This section codifies requirements contained in CAN 3-517.40(B).

Title 24, Part 2, Volume 2

Chapter 17A - Special Inspections and Tests

Section 1702A.1 – Definitions added to clarify distinction between quality assurance provide by the owner and quality control provided by the contractor. The term “special inspector” replaced by “approved agency” throughout Chapter 17A to be consistent with revisions in model code.

Section 1703A.4 – Requirements for approved testing lab is relocated to Section 1703A.4 from Section 1705A.12.3, to acknowledge broader acceptance of International Standards Organization (ISO) Standard 17025 accredited laboratories, consistent with OSHPD Policy Intent Notice (PIN) 58.

Section 1704A.2 – International Standards Organization (ISO) Standard 17020 is adopted for accreditation of inspection agencies. Exception # 4 is deleted, since the owner has to employ the special inspector in accordance with the California Administrative Code Section 7-144.

Requirement for inspectors to work under the direction of architects or engineers as required by the California Health and Safety Code Section 129825 is added.

Section 1704A.4.1 – Section is revised for consistency with the California Administrative Code Section 7-149.

Section 1704A.2.5 – California has severe restriction on state employees travelling to out-of-state fabrication facilities for observation, hence the requirements for special inspection by the owner provided special inspection in the CBC 2016 for work in fabricator’s shop is retained.

Section 1704A.5 – This section is revised for consistency in terminology with other sections of the code.

Section 1704A.6 – Existing requirements for retention of structural observer by the owner is retained, so that independence of the structural observer is not compromised.

Section 1705A.2.1 – Additional provisions of AISC 360 Chapter N are adopted in order to cover those items in the inspections of steel fabrication.

Table 1705A.2.1 – Clarification that deck weld inspections shall be in accordance with AWS D1.3 by AWS QC1 qualified inspector.

Section 1705A.2.2 – A pointer to periodic deck special inspection requirements in Table 1705A.2.1 is added for easy reference. Table 1705A.2.1 clarifies that deck weld inspections shall be in accordance with AWS D1.3 by AWS QC1 qualified inspector.

Table 1705A.3 – Deleted adhesive anchor inspection item 13, since it is now addressed by model code. Added exception in footnote c to not require certified installer for less significant anchor installations and is consistent with reduced testing frequency in 1910A.5.3.

Section 1705A.4 – Editorial.

Section 1705A.12.9 – This section is deleted for consistency with Section 1616A.1.4, which does not permit Cold-formed steel special bolted moment frame.

Section 1705A.13.2 – Provisions for manufacturer’s certification by experience data is deleted, since OSHPD exempt those components from building permit in Chapter 16A. There is no assembly tests required for bracing systems in FM 1950. Provisions are added where this may be necessary.

*** See “Updates to the Initial Statement of Reasons” for revisions to Section 1705A.13.3.**

Section 1705A.13.3 – The radiographic equipment in radiography room is added to offer an increase in basic services after an earthquake event. Many hospitals have just one Fluoroscopy

room but often also have several Radiographic rooms. Radiographic rooms can add value to the diagnoses of trauma victims following an event when attempting to locate broken bones, etc. In some cases, the addition of Radiographic rooms could more than double the effective patient volume rate for diagnoses depending on the number of Radiographic rooms in the facility. Radiographic equipment is required by statute to be part of the basic services for the general acute care hospitals and by regulation to be functional for at least 72-hours after a design earthquake.

Internal communications systems, which are considered essential for the operation of hospitals (and is classified as NPC-2 equipment) and are required for functionality of all equipment that require special seismic certification, is added to the list. Medical air and vacuum system that are critical to survival of patients are also added to the list.

Equipment less than 50 lbs., motors, pumps and compressor less than 20 hp., some electrical sub-components had rarely been found to fail during shake table tests, hence they are exempt. Special seismic certification by experience data is deleted, since OSHPD does not include any equipment/components that can be certified by experience data in the list of components that require special seismic certification in Section 1705A.13.3.1.

Title 24, Part 2, Volume 2

Chapter 18A – Soils and Foundations

Section 1801A.1 – Reference to Appendix J, is deleted since all the requirements in the appendix are transferred to chapter 18A and Appendix J is no longer adopted.

Section 1807A.2.2 – Requirements for classification of design lateral soil loads as gravity or seismic loads for load combination purposes are clarified, each category has different load factor.

Section 1810A.3.3.1.2 – Section is revised to permit piles driven by means other than hammer. All the model code provisions are based on piles driven by hammer. A number of proprietary piles are drilled, which does not provide any indication of their capacity. This will eliminate significant number of alternative system approval, thereby expediting the construction documents review.

Section 1810A.3.5.3.3 – A pointer is added to the installation and monitoring requirements for existing buildings when shoring are installed adjacent to them, to ensure continued safety for occupying existing buildings during construction.

Sections 1812A and 1813A – These sections are relocated from Appendix J to Chapter 18A based on their successful use in construction projects.

Title 24, Part 2, Volume 2

Chapter 19A - Concrete

Section 1903A.4 (CBC 2013) - Amendment is deleted, since ACI 318-14 Chapter 26 adequately addresses these items.

Section 1903A.5 - The prior provisions for testing alkali silica reactivity in aggregates are replaced with equivalent requirements in Appendix X1 of ASTM C33.

Section 1903A.6 – Limits on the use of cementitious materials are made consistent with ACI 318 and are additionally made applicable to all exposure classes for consistency.

Since pozzolans inhibit the short term strength gain of concrete, the concrete mix design needs to account for that fact in the required 28 day compressive strength. Longer periods to obtain the concrete design strength are problematic in today's accelerated building construction schedule

and the concrete compressive overstrength assumed in seismic design under longer return period earthquakes may never be realized.

Section 1903A.7 – Existing prohibition on use of discontinuous steel fibers as shear reinforcement is retained, since there is minimal cyclic test data for their use in seismic design category D, E, or F and ACI 318 provisions which permit its use result in a very limited application.

Sections 1903A.8 – Welding limitations in this section is deleted since AWS D1.4 addresses these requirements and verification requirements in Table 1705A.3 Item # 2 and certificate of compliance requirements in Section 1704A.5 Items # 6 & # 7 now adequately address the issue. Condition under which shop fusion welded stirrups/ties are permitted to facilitate construction is added.

Section 1904A.1 – Exception is deleted, since structures covered by the exception are outside OSHPD jurisdiction.

Section 1905A.1.5 – Editorial changes and deleted portions of the amendment that are covered adequately by ACI 318.

Section 1905A.1.7 – Minimum reinforcement for diaphragm openings, equivalent to those required in ACI 318 Chapter 11 for walls is added.

Sections 1905A.1.3 & 1905A.1.4 (CBC 2013) – These amendments are deleted since materials addressed by these amendments are not in common use anymore and are considered means and methods.

Section 1905A.1.5 (CBC 2013) – This amendment is deleted, since the concrete joist system, which forms the basis for the provisions, is infrequently used and content covered by this sections is covered by ACI 318 and can be addressed as interpretation of ACI 318 by the office.

Section 1905A.1.7 (CBC 2013) – This section is deleted, since definition of specified concrete cover in Section 2.3 of ACI 318 adequately addresses the cover requirements.

Section 1905A.1.9 (CBC 2013) – This amendment is deleted since it is a conservative simplification of the code provisions in other sections and not a relaxation of the requirements in other sections of the code. Previous amendments was based on the unacceptability of title of “empirical design” (empirical design is not permitted by OSHPD for any materials, ACI specifically changed the title to address the concern raised by OSHPD about the title) only and not due to unacceptability of content.

Sections 1905A.1.12 (CBC 2013) – This amendment is deleted, since content covered by this section is more thoroughly covered by ACI 318 and can be addressed as interpretation of ACI 318 by the office.

Section 1905A.1.18 (2013 CBC) – Amendment deleted as changes made to ACI 318 Section 18.10.6.4 deemed adequate.

Section 1905A.1.14 – Modification to interaction equation is based on paper in the Concrete International journal (September 2014) titled, “Proposed Revisions to the Strength-Reduction Factor Axially loaded members,” by R. D. Lequesne and J. A. Pinchenia that addresses a quark in the interaction equation for non-prismatic members. For reinforcement strain greater than yield strain, design for non-prismatic (C, T or I shaped walls) members with flanges in compression may become unsafe without the amendment.

Sections 1908A.1 and 1909A.1 (CBC 2013) – These sections along with the CBC 2013 amendments are deleted since requirements are now covered in Chapter 16A.

Section 1910A.5.5 – The torque wrench method is limited to torque controlled post-installed anchors for consistency with Section 1905A.5.2.

Section 1913A.5 (CBC 2013) – Redundant pointer to other sections is deleted.

Section 1913A.6 (CBC 2013) – Gypsum field test requirement is deleted, since it is no longer in the scope of Chapter 19A and is considered an alternative system.

Title 24, Part 2, Volume 2
Chapter 21A - Masonry

Section 2101A.2 (CBC 2013) – Amendments in sections deleted in the model code are deleted.

Section 2101A.2 – Reference to TMS 403, which covers direct design method, is deleted for consistency with Section 2101A.1.3. TMS 403 is based on TMS 402-08/ASCE 7-05, hence is not consistent with provisions of TMS 402-13/ASCE 7-10, which is the basis of design in this code.

Section 2102A.1 – Definition is revised to remove reference to Section 2114A, since that section is removed from the code.

Section 2103A.1 – Reference to AAC masonry is deleted for consistency with Sections 2101A.1.3 & 1616A.3.5.

Section 2103A.3.1 – Amended to clarify that grout space width shall be calculated in accordance with TMS 602 for consistent application.

Section 2103A.13.1 (CBC 2013) – This section is deleted because TMS 602, Article 3.5 A and ASTM C476, Section 5.2.2.1 adequately address the requirement.

Section 2103A.13.2 (CBC 2013) – This section is deleted since ASTM C476 now adequately address the requirement.

Section 2103A.15.1 (CBC 2013) – This section is deleted because TMS 602, Article 2.2 C and ASTM C476, Section 3.1.5 adequately address the requirement.

Section 2103A.15.2 (CBC 2013) – This section is deleted because the use of antifreeze compounds is now restricted by ASTM C270 Section 4.1.4 for mortar and ASTM C476 Section 3.1.7 for grout.

Section 2103A.5 – Deleted requirements for mortar is covered by ASTM C270 Sections 4.1.4.

Section 2104A.1.3.1.2.1 – Relocated provisions that permit partially grouted construction from deleted 2013 CBC Section 2114A.1. Item 2 is amended to clarify that grout space width shall be calculated in accordance with TMS 602 for consistent application.

Section 2105A.2 – Permitted masonry compressive strength (f'_m) for routine design without special consideration is increased from 1500 psi to 2000 psi for consistency with changes in TMS 602-13 Table 2 and ASTM C 90-14.

Section 2105A.3 – This section is revised with the intent of reducing field test, consistent with trend in TMS 402/602. Mortar test for non-bearing non-shear masonry walls up to 12' is limited to one set of test at the beginning of the project because of relatively minor effect of mortar in overall masonry wall strength.

Section 2105A.4 – Core testing frequency revised to be based solely on wall area and not floor area, since it better correlates to quantity of masonry wall for the building. Various editorial changes made. Restriction placed on when samples may be cored to allow grout to attain strength. Clarification made as to which set of consecutive cores are required to comply with minimum shear strength requirements. Core testing exemption for non-bearing non-shear single Wythe concrete masonry walls up to $f'_m = 2000$ psi and not exceeding total height of 12' is added on the basis of tests conducted by Masonry Institute of America (MIA) and presented by John Chrysler & Kurtis Siggard (2013) at the 12th Canadian Masonry Symposium, Vancouver, British Columbia. Exception does not cover higher strength masonry or bearing/shear walls, since MIA tests didn't include such walls. Core testing for quality assurance of the multi-Wythe in-situ post-grouted assembly is needed to verify that the inspection procedures were adequate for such walls. Exception added to permit a nondestructive alternative test procedure to coring.

Section 2110A.1 – This amendment has been modified to require that glass block walls or panels be designed for seismic forces. The glass unit masonry provisions in TMS 402 Chapter 13 are prescriptive and address only wind forces.

Sections 2114A & 2115A – Amendments in these sections are deleted, since requirements are now addressed in the reference standard TMS 402/TMS 602. Requirements equivalent to sections deleted in the reference standard is more detailed and consistent with general design requirements for all masonry structures.

Title 24, Part 2, Volume 2

Chapter 22A – Steel

Section 2205A.1 – Limits of slenderness ratio for tension and compression members, which are shown as recommendations in AISC 360-10, are made mandatory, consistent with current practice.

Sections 2205A.4.2 & 2205A.5.2 – Side plate steel Special Moment Frame (SMF) and Intermediate Moment Frame (IMF) connections in accordance with AISC 358 Chapter 11, which are new in the standard, are limited to the interpolation and extrapolation permitted by this code in Section 2205A.4.

Section 2206A.2.1 – Item # 2 is deleted since it is redundant with AISC 358-10 Chapter 10 Item # 2(6) and some of the AISC qualification tests had 3,000 psi concrete. Item # 4 is deleted since only the pretension of the high strength bolts is used as the tension design capacity. Item #3 is amended to specify the minimum wall thickness for built-up box column sections based on range of tested column thicknesses.

Section 2213A.1 – The applicable ASTM for testing the bolt tension properties is ASTM F606 for clarity. This provision is not intended to address high strength bolt installation torque or pre-tension requirements.

Title 24, Part 2, Volume 2

Chapter 23 - Wood

Section 2301.1.4 – Prohibition on various design methods, systems, and materials for wood design located at various parts of the code are consolidated into one section for easy reference. This consolidation is not a change in code requirements. Most of the items covered by this section is relocated from the CBC 2013 Section 2305.1.2 with editorial changes. Cross-laminated timber is included in the NDS, but not in the AWC SDPWS. There are no provisions for the purposes of designing or establishing cross-laminated timber capacities as part of the seismic force resisting system, hence will be considered as an alternative system.

Section 2303.1.4 – Requirements for glued cross-laminated timber are made equivalent to glued laminated timber.

Section 2304.6.1 – Exception is not needed since model code reference to importance factor of 1.0 is removed.

Sections 2305.2, 2305.3, 2306.2, & 2306.3 – Redundant amendments in Sections 2305.2 & 2306.2 are deleted, since staples are not permitted in lateral force resisting system. Amendment in Section 2305.3 is deleted, since section does not exist in model code.

Section 2309.1.1 – Editorial change for consistency with Section 2308.2.7. Scope of AWC WFCM is limited to Risk Category I and II structures, hence not permitted for hospitals.

Title 24, Part 2, Volume 2
Chapter 24 – Glass and Glazing

Section 2410 – Follow-up test requirements and post-earthquake inspection requirements are removed based on satisfactory performance of Structural Silicone Glazing (SSG) in the field and cyclic tests.

Title 24, Part 2, Volume 2
Chapter 34A - Existing Structures

Sections 3401A.1 – Scope of the chapter is limited to hospital buildings only. OSHPD 2, OSHPD 3 and OSHPD 4 buildings shall follow the California Existing building Code (CEBC).

Sections 3401A.1.1– Pointers to available design options for additions, alterations and repairs are added for easy navigation of the chapter. Combining or mixing the provisions of the various procedures is not permitted, which now codifies prior and current OSHPD code enforcement practice.

Section 3402A.1 – Definitions which are no longer used in the chapter are deleted.

Section 3402A.2 – New definitions for the terms used in the chapter are added. Definition of change of function is added for to clarify current office practice.

Sections 3403A.4 & 3404A.4 – Exception # 1 is limited to incidental and minor additions and alterations, so that for major addition and alteration to structures shall provide performance equivalent to new structure with limited exceptions provided in this chapter.

Section 3404A.5 – Exception to item # 2, which is pointer to other sections is deleted, since it is redundant.

Sections 3405A.2, 3405A.3 & 3405A.4 – These editorial changes were approved for model code Chapter 34, before the decision was made to delete that chapter, and are adopted in the International Existing Building Code, 2015 (IEBC 2015). These amendments are proposed for consistency with national standards.

Sections 3404A.4, 3405A.2.2, 3405A.3, 3405A.4, 3408A.1, 3408A.1.1 & 3408A.4 – Revised for consistency with IEBC 2015, Chapter 4.

Sections 3406A (CBC 2013) – Fire escapes requirements in the CBC 2013 are not carried forward by OSHPD, since they are within exclusive jurisdiction of State Fire Marshall (SFM).

Section 3409A – Requirements for change of function is clarified.

Section 3409A (CBC 2013) – Historical buildings amendments are not carried forward by OSHPD, since they are outside OSHPD jurisdiction.

Section 3412A.1.1 – Changes in this section are necessary for consistency with ASCE 41-13 Table 2.2/IEBC 2015 Table 301.1.4.1 for Basic Performance Objective Equivalent to New Standards (BPON). ASCE 41-13 substantially removed most primary components non-linear acceptance criteria (and replaced them by the secondary components acceptance criteria for non-linear analysis) for life safety and collapse prevention performance level, hence the life safety performance level in ASCE 41-13 (for non-linear analysis) is equivalent to the collapse prevention level in ASCE 41-06. ASCE 41-13 eliminated immediate occupancy level that was there in the ASCE 41-06 by operational performance level for non-structural components. Position retention performance level (N-B) in ASCE 41-13 is equivalent to life safety performance level (N-C) in ASCE 41-06. To maintain equivalent requirements between the CBC 2013 & CBC 2016, Section 3412.1.1.c is required to use nonstructural performance level N-A.

Also, amendment to use primary component acceptance criteria for life safety and collapse prevention levels (using non-linear analysis) is deleted, thereby permitting secondary components acceptance criteria, which reduced the acceptance criteria by about one-third (1/3). In addition, simplified Soil Structure Interaction (SSI) procedure will permit a reduction of mapped ground motion by 30% when site specific ground motion are not used and up to 36% when they are used.

Section 3412A.2 – Requirements are revised to be consistent with ASCE 41-13.

Section 3412A.2.3 – This section provide the requirements for new structural performance category (SPC-4D) for consistency with the California Administrative Code, Chapter 6, Table 2.5.3. Non-conforming buildings satisfying the requirements of the CBC 1980 or performance standard similar to ASCE 41 or the current code, by analysis or retrofit, are permitted to be upgraded to SPC-4D with sufficient building characterization and material property information.

Nonconforming buildings, covered by this section, were not subject to OSHPD or OSA's (OSA stands for Office of State Architect, currently called Division of State Architect or DSA) comprehensive construction documents review, rigorous on site testing and thorough field inspections under the CBC 1980. Hence the requirements for building characterization, materials testing, and plan approval are added.

Section 3412A.2.3.1 – This section provides the requirements for SPC-4D using the CBC 1980. The CBC 1980 code is approximately halfway between pre-CBC 1973 code, which form the basis for nonconforming buildings design and the CBC 1989, which form the basis for first immediate occupancy (SPC-5) building design. The CBC 1980 was the first building code used for design and construction under the Alfred E. Alquist Hospital Facilities Seismic Safety Act of 1983 (HSSA 1983). This prescriptive provision is intended to assure availability of health facilities and services to rural and medically underserved areas.

There was no organized single volume California Building Code in 1980, hence what constitutes the CBC 1980 is defined.

The basis of demand and capacity for the CBC 1980 was the detailing requirements therein. Uniform Building Code, 1979 (UBC 1979) Section 2312(h) requires that all portion of the building between seismic separation joints be designed and constructed to act as an integral unit. California Code of Regulations, Title 22 (1980) Section 94041 requires evaluation of site seismic load effects. These requirements are subject to interpretation by the building official, hence clarifications are added to ensure uniformity in enforcement.

Traditionally total differential settlements (total of seismic, immediate, and long term differential settlements) for most buildings are limited to 1/2" in 30', but this requirement was never codified.

ASCE 7-16 will increase threshold for seismically induced differential settlements to about 1" in 40', in addition to immediate and long term differential settlements. Building analysis using prescriptive provisions shall be permitted to use the higher differential settlements consistent with ASCE 7-16.

California Code of Regulations (CCR), Title 22 (1980) Section 94215(a)(2) require that all buildings with unusual configuration of structure or parts of structure, to provide same safeguard as regular buildings. This requirement is made specific by requiring buildings taller than 5 stories or 65' height with certain structural irregularity and shorter buildings with prohibited structural irregularities to prove that their performance will be equivalent to the CBC 1980 by using performance based provision in Section 3412A.2.3.2. In addition, the CBC 1980 requires all moment frame buildings taller than 2-stories to have ductile detailing, which were not in the code prior to UBC 1976. Hence moment frame buildings taller than 5-stories will not qualify for analysis using the CBC 1980 and will require analysis in accordance with Section 3412A.2.3.2.

Section 3412A.2.3.2 – This section provide the requirements for new damage control structural performance category (SPC-4D) similar to ASCE 41.

Section 3412A.2.3.3 – Use of the current code to achieve SPC-4D is permitted through this section.

Section 3412A.2.5.2 – Exceptions are revised for consistency with the California Administrative Code, Chapter 6, Table 11.2, foot note # 1.

Section 3413A.1.1 – Seismic evaluation requirements using ASCE 41-13 that are permitted for hospital buildings and correctional facilities are explicitly defined, consistent with ASCE 41-13 Section 2.2.4. ASCE 41-13 combines evaluation requirements in ASCE 31-03 and evaluation/retrofit requirements in ASCE 41-06, thereby providing multiple-options. This section specifies the evaluation requirements consistent with Basic Performance objective equivalent to New building Standards (BPON) in ASCE 41-13 Table 2.2 and IEBC Table 301.1.4.1. Seismic evaluation of nonstructural components are permitted to use procedure in ASCE 41-13 Chapter 13, since ASCE 7 only specify design provisions but not the seismic evaluation requirements.

Sections 3413A.1.4, 3413A.1.7, 3413A.1.9, 3413A.1.11, 3413A.1.13, 3413A.1.15, 3413A.1.17, 3413A.1.29, 3413A.1.30, 3413A.1.31, and 3413A.1.32 (CBC 2013) – These sections are deleted since model codes, national standards, and OSHPD amendments in other sections of this code now adequately cover these requirements, or ASCE 41-13 makes these amendments no longer applicable.

Section 3413A.1.9 – Maximum reduction due to base slab averaging and embedment effects in base shear is limited to be consistent with ASCE 7-16, which fixes an error in ASCE 41-13 with respect to limits on maximum reduction in ground motion spectra.

Section 3413A.1.12 – Sections 3413A.1.8, 3413A.1.19, 3413A.1.20, & 3413A.1.21 of the CBC 2013 are consolidated into this section.

Section 3413A.1.13 – Sections 3413A.1.22, 3413A.1.23, 3413A.1.26, & 3413A.1.27 of the CBC 2013 are consolidated into this one section and requires Nonlinear Dynamic Analysis to determine specific performance parameters for buildings with base isolation and damping systems that are located near fault.

Section 3413A.1.14 – Alternative empirical procedures for unreinforced masonry, which is not consistent with performance objective for Risk Category IV buildings, is not adopted.

Section 3416A.1.1.2 (CBC 2013) – Requirements in this section is now covered by Section 3416A.1.1.1.

Section 3417A.1.1.2 (CBC 2013) – Requirements in this section is now covered by Section 3416A.1.1.1.

Section 3418A.1.1 – SPC 1 buildings are not allowed to provide general acute care services by statute beyond January 1, 2008 unless delays in compliance deadline have been granted by the Office. Where delays in compliance deadline have been granted, the conditions of extensions are considered met by statute when a certificate of occupancy is granted by the Office for a replacement building or a construction final is issued for retrofit of an existing building. This results in SPC 1 buildings still remaining in the acute care inventory of hospital buildings that may not provide general acute care services. Inclusion of such buildings in the general acute care inventory can result in misallocation of resources during a natural disaster or emergency operations. To ensure a timely removal of such buildings from the acute care inventory, a permit will not be granted unless it is for removal of acute care services. Permits for seismic compliance, maintenance or repairs will be granted to ensure public safety.

Section 3418A.3 – SPC-4D buildings are included in with conforming hospital buildings.
Section 3418A.3, item 7 – An exception is made for utilities running across a seismic separation between an SPC building removed from acute care service and SPC-1 or SPC-2 non-conforming buildings similar to item 11.

Title 24, Part 2, Volume 2 **Chapter 35 - Referenced Standards**

References in this chapter are revised for consistency with amendments in all other chapters.

Title 24, Part 2, Volume 2 **Appendix J – Grading**

All OSHPD amendments in this appendix are moved to Chapter 18A. This appendix is not adopted by OSHPD.

UPDATES TO THE INITIAL STATEMENT OF REASONS

The Office of Statewide Health Planning and Development (OSHPD) finds the following update has been made to the Initial Statement of Reasons regarding Title 24, Part 2, California Building Code, Section 1705A.13.3:

***Section 1705A.13.3** – Fluoroscopy and x-ray (Medical radiography used to generate and record an x-ray pattern for the purpose of providing the user with a static image(s) after termination of exposure) equipment required for diagnostic only shall require special seismic certification. Fluoroscopy and x-ray equipment used for treatment or in hybrid operating rooms, including those used for interventional radiology shall not require special seismic certification, unless used for diagnostic assessment of trauma injuries.

Radiographic equipment is required by statute to be part of the basic services for the general acute care hospitals and by regulation to be functional for at least 72-hours after a design earthquake.

Internal communications systems, which are considered essential for the operation of hospitals (and is classified as NPC-2 equipment) and are required for functionality of all equipment that require special seismic certification, is added to the list. Medical air and vacuum system that are critical to survival of patients are also added to the list.

Equipment less than 50 lbs., motors, pumps and compressor less than 20 hp., some electrical sub-components had rarely been found to fail during shake table tests, hence they are exempt.

Special seismic certification by experience data is deleted, since OSHPD does not include any equipment/components that can be certified by experience data in the list of components that require special seismic certification in Section 1705A.13.3.1.

MANDATE ON LOCAL AGENCIES OR SCHOOL DISTRICTS

OSHPD has determined that the proposed regulatory action would not impose a mandate on local agencies or school districts

OBJECTIONS OR RECOMMENDATIONS MADE REGARDING THE PROPOSED REGULATION(S)

➤ **45-DAY PUBLIC COMMENT PERIOD FROM SEPTEMBER 11, 2015, THROUGH OCTOBER 26, 2015**

During this 45-day comment period, OSHPD received the following comments regarding the proposed code changes of OSHPD 04/15:

Comment # 1 Mr. Glenn Gall, Office of Statewide Health Planning and Development – Section 1705A.13.3.1

Mr. Gall requested the following modifications to the CBC 2013 Sections 1705A.13.3.1 Items # 7, # 8 and # 24:

1705A.13.3.1 [OSHPD 1 & 4] 1705A.12.4.1 *Special seismic certification shall be required for the following systems, equipment, and components:*

...

7. ~~Radiography and/or fluoroscopy systems for trauma and/or diagnostic use in fluoroscopy rooms and radiographic rooms (Rad rooms).~~
Fluoroscopy and x-ray equipment required for radiological/diagnostic imaging service (a minimum of one, see CBC Section 1224.18.1) and any fluoroscopy and/or radiographic system provided in support of diagnostic assessment of trauma injuries.

8. CT (Computerized Tomography) systems for trauma and/or diagnostic use used for diagnostic assessment of trauma injuries.
Exception: CT equipment used for treatment or in hybrid operating rooms, including those used for interventional CT, unless used for diagnostic assessment of trauma injuries.

...

24. ~~Components powered by life safety or critical branches in accordance with the California Electrical Code (CEC) Articles 517.32 and 517.33. Fixed equipment powered by these circuits shall require special seismic certification only when identified in items # 1 through # 23 in this section.~~
Electrical control panels powered by the life safety branch in accordance with the California Electrical Code (CEC) Article 517.32, or the critical branch in accordance with CEC Article 517.33.

OSHPD Response to Comment #1: The express terms have been revised consistent with recommendations by Mr. Gall for clarity. The amended express terms were publicly noticed during a 15-day comment period from October 28, 2015, through November 12, 2015.

Comment # 2 – Mr. Patrick Hope, Medical Imaging & Technology Alliance (MTA) – Section 1705A.13.3.1

Mr. Hope requested the following modifications/interpretations to the CBC 2013 Sections 1704A.2.5, 1705A.13.2 and 1705A.13.3.

Radiography and Fluoroscopy

MITA appreciates OSHPD response, received on September 14, 2015, to our April comments. The response clarified that “radiographic equipment used for Interventional Radiology and Treatment, such as those used in Hybrid Operating Room (OR), will not require special seismic certification. MITA would like further clarification as to whether operating tables which are part of radiographic equipment used for Interventional Radiology and Treatment, but exclusively sold as part of the interventional system (and never stand-alone), are excluded from special seismic certification as well. We also ask for the same clarification regarding motorized operating table systems. If not, industry would request such exclusion.

Certificate of Compliance

MITA recognizes that Sections 1705A.13.2 and 1705A.13.3 of the Express Terms require a certificate of compliance to be submitted to building officials “for the manufacturer’s certification of non-structural components, supports and attachments”. We appreciate OSHPD response to our comments, but seek further clarification on the logistical acquisition of this certificate. MITA would like to know if OSHPD will issue certificates of compliance or if manufacturers need to provide a written document declaring compliance to the aforementioned sections. Further clarification of the new “manufacturer’s certification” language is also needed as the requirements of such a certification are not mentioned.

Special Inspection of Fabricator’s Shop

MITA asks for further clarification of Section 1704A.2.5 as it is unclear if OSHPD considers the manufactured equipment to be “fabricated items” subject to this special inspection.

OSHPD Response to Comment #2: This public comment does not address any provision being changed in the express terms (or only address sections where revision is limited to editorial changes). At this time, OSHPD cannot propose substantive modifications to the existing code or model code language as requested, since Government Code Section 11346.45 requires the proposing state agency to include all parties affected by a proposed code change during the code change development process. OSHPD will take this comment under consideration during a subsequent rulemaking cycle.

Code interpretations (for code sections where OSHPD proposed no changes in express terms or only proposed editorial changes) are outside the scope of rulemaking and can be addressed by OSHPD once code is approved by the California Building Standards Commission.

➤ **15-DAY PUBLIC COMMENT PERIOD FROM OCTOBER 28, 2015, THROUGH NOVEMBER 12, 2015**

OSHPD did not receive any comments regarding the amended express terms that were noticed during the subsequent 15-day public comment period beginning October 28, 2015, through November 12, 2015.

DETERMINATION OF ALTERNATIVES CONSIDERED AND EFFECT ON PRIVATE PERSONS

The Office of Statewide Health Planning and Development has determined that the proposed regulatory action would be more cost-effective to affected private persons than existing regulations.

The regulations proposed will keep the California Building Standards Code consistent with most recent editions of the national standards pursuant to the Health and Safety Code Section 18928. Since designers are more familiar with national standards than California specific amendments, this will make design and construction of healthcare facilities in California more efficient.

Addition of Structural Performance Category (SPC)-4D in the California Administrative Code Chapter 6 will make it cost effective for hospitals to seismically retrofit pre-1973 code buildings (to comply with Health and Safety Code Sections 13005 through 130070) so that they will be safer for the occupant. This will increase availability of Hospitals in rural and medically underserved areas.

REJECTED PROPOSED ALTERNATIVE THAT WOULD LESSEN THE ADVERSE ECONOMIC IMPACT ON SMALL BUSINESSES

The alternative to these proposed regulations would be to leave regulations as they are which will be inconsistent with Health and Safety Code Section 18941 requirements. The proposed regulations will make compliance with regulations and statutory mandate more cost effective. The proposed regulations will increase the availability of hospitals in rural and medically underserved areas.