

**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:

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:

The purpose of this proposed action is to amend the California Administrative Code (CAC) based on new information for incorporation into the 2013 CAC.

Additionally, the Office of Statewide Health Planning and Development (OSHPD) is mandated to adopt the most recent edition of model code pursuant to Health and Safety Code Section 18928. This proposed rulemaking represents OSHPD's proposal to adopt the 2012 International Building Code published by International Code Council and carry forward existing California amendments into the 2010 California Building Code (CBC). New amendments are also being proposed for the CBC based on new information.

UPDATES TO THE INITIAL STATEMENT OF REASONS:

There are no revisions to the Initial Statement of Reasons, as shown below.

Title 24, Part 1

Chapter 6 - Seismic Evaluation Procedures for Hospital Buildings

Section 2.7 – Editorial, for consistency with the 2013 CBC.

Table 11.1 – This section is revised to limit the scope to what need to done to achieve Nonstructural Performance Category 5. How the requirements shall be satisfied is addressed in the California Plumbing Code and California Electrical Code. Provisions that duplicate requirements in the California Plumbing Code are deleted.

Title 24, Part 1

Chapter 7 – Safety Standards for Healthcare Facilities

Section 7-117 – Editorial, for consistency with the 2013 CBC.

Title 24, Part 2, Volume 2

Chapter 1 – Scope and Administration

Sections 102.1.1 & 107.4 – Redundant pointers are deleted.

Section 104.11.4 – Alternative system requirements in ASCE 7 is incorporated by reference. Additional requirements are provided for the earthquake monitoring instrumentation so that consistent data is obtained and the instruments are not obstructed for the purposes of service or repair. This change is required for consistency with Appendix L.

Title 24, Part 2, Volume 2
Chapter 2 – Definition

Section 202 – Definitions that affect multiple chapters are relocated from other chapters to Chapter 2 for consistency with new format of the 2013 CBC. Definition of active equipment/component, rugged equipment, and significant loss of function which is currently in Code Application Notice (CAN) 2-1708A.5 and needed for special seismic certification requirements in Chapter 17A is codified.

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

Section 1603A.2 – This section will require the Registered Design Professional (RDP) to submit a description of project for which site data reports are submitted, so that relevance and adequacy of the report can be verified as required by the California Health and Safety Code Section 129770.

Section 1603A.3 – This section is added to comply with the California Health and Safety Code Section 129765.

Table 1604A.3 – Editorial, limit is shown explicitly instead of referring to another section.

Section 1604A.3.7 – Diaphragm span to width ratio requirement is added explicitly instead of referring to ICC-ES AC 43 for easy reference.

Section 1604A.8.2 – This section has been modified to retain the 280 plf minimum strength level force for concrete and masonry wall anchorage design to diaphragms as given in ASCE 7-05. A similar provision has been in the CBC since 1979, which was added based on post-earthquake observation.

Section 1609A.1.3 – Editorial to convert nominal design wind speed factors to factors based on ultimate design wind speed.

Section 1613A.4.1 – Editorial to update section reference to AISC 341-10.

Sections 1615A.1.7, 1615A.1.9, 1615A.1.13, 1615A.1.14, 1615A.1.15, 1615A.1.22, 1615A.1.25, 1615A.1.26, 1615A.1.35, & 1615A.1.39 (of CBC 2010) – These existing sections are deleted because the model building code had been revised to match with OSHPD amendments.

Section 1616A.1.1 – The requirements for a Structural Design Criteria has been revised to incorporate wind loading based upon wind tunnel testing and moved to Chapter 1 of ASCE 7 since it no longer is strictly seismic requirements.

Section 1616A.1.2 – This amendment will ensure ductile detailing for the central utility plants and other unoccupied buildings required for continuous operation of hospitals.

Section 1616A.1.4 – The Eccentric Braced Frame (EBF) and Buckling Restrained Braced Frame (BRBF) systems in AISC 341-10 and ASCE 7-10 are no longer specifically categorized as to the type of beam-to-column connections. Therefore, these ASCE 7-05 system names are removed. The Cold-formed steel-Bolted Moment Frame system is not permitted in buildings since it is not included in AISC 341-10, and it was developed and tested specifically for non-building structures, where the developed lateral strength at the more stringent building drift limit levels was not considered and, as a result, is overestimated. In addition, permitted configuration for moment frame goes beyond the test parameters to be considered applicable.

Section 1616A.1.5 – Requirements for the R , C_d and Ω_o values in vertical combinations provisions in ASCE 7-05 Section 12.2.3.1 are retained, since ASCE 7-10 Section 12.2.3.1 essentially permits a two stage analysis without the requirements of Section 12.2.3.2. ASCE 7-10 Section 12.2.3.1 will encourage

the use of different and possibly deformation incompatible seismic force resisting systems near the mid-height of the building.

Section 1616A.1.12 – Maximum mapped short period acceleration (S_s) in California is about 3.73 and site specific short period acceleration are sometimes even higher. Permitting an $S_s = 1.5$, will mean a reduction of more than 60% from the mapped value. Most of these regular structures are designed with a Redundancy Factor, $\rho = 1.0$, compared with 1.3 for most irregular structures. This mean irregular structure may potentially be designed for a force of about 3.2 times that of a regular structure at the same site. Historical records of building performance don't to justify such a large advantage for the regular structures. A 20% maximum reduction in short period acceleration seems to be more appropriate. Recent ATC – 58 project analysis suggested lower R values for low rise buildings, which also justify the proposed amendment.

Section 1616A.1.14 – This 2010 CBC section has been revised to incorporate ASCE 7-10 Section 12.10.2.1, which is similar to the previous amendment, but the upper bound limit is modified to remain the same as in the 2010 CBC amendment

Section 1616A.1.15 – Amendments retains building separation requirements identical to what is required by the CBC 2010, which ensures that buildings with same forces and stiffness will have equal building separation. This revision is intended to assure the Immediate Occupancy and Operational Performance Levels for hospital buildings.

Sections 1616A.1.16, 1616A.1.17– Editorial

Section 1616A.1.18 - The exemption for distributed systems have been modified, so that where these systems are subject differential displacements within structures or cross seismic separation joints between adjacent buildings, adequate flexibility to accommodate the movements without failure is provided.

Section 1616A.1.19 – Portions of this 2010 CBC amendment are removed since ASCE 7-10 Section 13.4.2 contains provisions similar to those removed. Use of screw anchors are limited to interior conditions based on installation problems observed in the field. Thread of screw anchors do not hold and keep spinning & do not permit a proper installation.

Section 1616A.1.23 – Portions of this 2010 CBC amendment are removed since ASCE 7-10 Section 13.6.5.6 contains provisions similar to those removed. The exemptions for small raceways and conduit have been modified, so that where these systems are subject differential displacements within structures or cross seismic separation joints between adjacent buildings, adequate flexibility to accommodate the movements without failure is provided.

Section 1616A.1.24 – Portions of this 2010 CBC amendment are removed since ASCE 7-10 Section 13.6.7 contains provisions similar to those removed. The exemptions for small ducts have been modified, so that where these systems are subject differential displacements within structures or cross seismic separation joints between adjacent buildings, adequate flexibility to accommodate the movements without failure is provided.

Section 1616A.1.26 – Portions of this 2010 CBC amendment are removed since ASCE 7-10 Section 13.6.8.2 contains provisions similar to those removed. The exemptions for small pipes have been modified, so that where these systems are subject differential displacements within structures or cross seismic separation joints between adjacent buildings, adequate flexibility to accommodate the movements without failure is provided.

Section 1616A.1.27 – Portions of this 2010 CBC amendment are removed since ASCE 7-10 Sections 13.6.8.3, 13.6.9 and 13.6.10 contain provisions similar to those removed.

Section 1616A.1.29 Portions of this 2010 CBC amendment are removed since ASCE 7-10 Section 16.1.4 is similar to the previous amendment and this section also modified to be consistent with that

amendment in ASCE 7 Section 12.9.4.

Section 1616A.1.40 – The criteria for when members can be modeled as linear in the nonlinear response history procedure is further clarified as the maximum response from any single ground motion. Otherwise, the average response of member deformations is underestimated when using multiple ground motions due to a lack of appropriate nonlinear member modeling.

Section 1616A.1.41 - Additional requirements are provided for the earthquake monitoring instrumentation so that consistent data is obtained and the instruments are not obstructed for the purposes of service or repair. This change is necessary for consistency with Appendix L.

Section 1616A.1.42 - This section is revised to require that new general acute care hospitals and new buildings required for general acute services are compliant with Nonstructural Performance Category 5 (NPC 5) as required by the California Health and Safety Code Sections 129680 and 13005.

Title 24, Part 2, Volume 2

Chapter 17A - Special Inspections and Tests

Section 1701A.4 – Editorial.

Section 1702A.1 – Definition of continuous and periodic special inspection from the 2010 CBC are retained for consistency the 2013 CAC.

Section 1702A.2 – Existing definition in the CBC 2010 is retained for consistency with the 2013 CAC.

Sections 1704A.3.2 & 1704A.4 – Editorial changes to make terminology consistent throughout the code.

Section 1704A.5 – This section replaces 2010 CBC Sections 1710A.2 and 1710A.3, which are equivalent.

Section 1705A.2.1 – Inspection requirements provided in the AISC 360 Chapter N, which is new to the code, is revised to maintain inspection requirements consistent with the 2010 CBC requirements.

Section 1705A.3 – The Exceptions to required Special Inspections in this section are removed since the minimum concrete compressive strength for new hospital buildings is 3000 psi and the referenced Tables in this section in Chapter 18A are deleted.

Table 1705A.3 – The proper installation of adhesive anchors in horizontal and overhead conditions have been known to be difficult. To preclude potential failures, as illustrated by a recent catastrophic failure associated with the use of these anchors in the overhead position, an ACI/CRSI Certified Adhesive Anchor Installer is required for the installation in accordance with ACI 318-11 Section D.9.2.2.

Sections 1705A.4 & 1705A.4.1 – Testing and inspection requirements for post-installed anchors in Masonry is clarified.

Sections 1705A.5, 1705A.6.1, 1705A.11, and 1705A.11.4 – Editorial.

Section 1705A.11.5 – Periodic Special Inspection of ceilings are added to the other non-structural components which require Special Inspection to assure proper installation of seismic bracing, grid runner continuity and perimeter edge detailing in order to maintain ceiling functionality under earthquake forces and deformations.

Section 1705A.12 – Editorial.

Section 1705A.12.3 – FM 1950 is adopted for seismic sway brace testing to codify current OSHPD practice, consistent with requirements of NFPA 13.

Section 1705A.12.4 – This section is separated from Section 1705A.12.3 for manufacturer's certification for clarity. Certain equipment which are considered to be critical for hospital operations have been added to the list of equipment requiring special seismic certification.

Title 24, Part 2, Volume 2

Chapter 18 – Soils and Foundations

Section 1803.7 – The geologic and earthquake engineering reports provisions have been consolidated into the provisions for one geohazard report in order to simplify geotechnical and ground motion related provisions.

Title 24, Part 2, Volume 2

Chapter 18A – Soils and Foundations

Section 1803A.2 – Editorial to clarify that existing geotechnical reports that satisfying the current code requirements are acceptable.

Section 1803A.6 - All requirements beyond the model code geotechnical report and basic geohazard reports are deleted. Revisions to model code Section 1803A.5.1 through 1803A.5.12 adequately address the deleted amendments.

Section 1803A.6.2 – This 2010 CBC provision's site specific probabilistic and deterministic site hazard requirements have been removed since similar provisions are now contained under ASCE 7-10 Section 21.2.

Section 1803A.7 – Editorial, for the purposes of renaming the engineering geologic reports.

Section 1807A.2.2 – The lateral soil pressures determined by the geotechnical investigation are revised to incorporate a minimum value of 80% of the presumptive lateral soil pressures determined by Section 1610A. This minimum value concept is similar to that used for other site-specific procedures, such as for ground motion. The site-specific value should not be significantly less than the code table based values for the typical condition.

Section 1810A.3.3.1.2 – This section is revised to add the Procedure G: Cyclic Loading in ASTM D 1143 to the pile compression testing. Procedure G will account for the cyclic loading that is inherent with piles under the Design Earthquake loading in Seismic Design Categories D through F.

Section 1810A.3.3.1.5 – This section is revised to add the Cyclic Loading procedure in ASTM D 3689 to the pile tension testing. The Cyclic Loading procedure will account for the cyclic loading that is inherent with piles under the Design Earthquake loading in Seismic Design Categories D through F.

Section 1810A.3.3.2 – This section is revised to add ASTM D 3966 - Standard Test Method for Piles Under Lateral Loads which has been omitted by the model building code. The Cyclic Loading procedure in ASTM D 3966 is also added to the pile lateral load testing. The Cyclic Loading procedure will account for the cyclic loading that is inherent with piles under the Design Earthquake loading in Seismic Design Categories D through F.

Section 1810A.3.9.4.2.1 – Editorial, the transverse confinement reinforcing for the pile is located at the bottom of the pile cap.

Section 1810A.3.9.4.2.2 – Editorial, the transverse confinement reinforcing for the pile is located at the bottom of the pile cap.

Title 24, Part 2, Volume 2

Chapter 19 - Concrete

Section 1908.1.1 – The use of power actuated fasteners is permitted for only non-structural components of minimal concern consistent with scope of ICC-ES AC 156, since acceptance criteria does not include dynamic testing.

Section 1909.1.1 and 1909.1.2 – Exceptions are deleted since requirements are now addressed in the model code.

Section 1909.2.5 – This section is modified to clarify when torque testing of post installed anchors is permitted versus tension testing of the anchors.

Title 24, Part 2, Volume 2

Chapter 19A - Concrete

Section 1903A.3 – Insulating Concrete Form Systems are typically used for residential and light commercial construction and should not be used for non-combustible (mostly Type 1) construction in OSHPD 1 and 4 hospital buildings. Also, there are concerns about using exposed form on air quality in a hospital environment.

The forms are interlocking modular units that are dry-stacked (without mortar) and filled with concrete. The forms lock together somewhat like Lego bricks and serve to create a form for the structural walls or floors of a building.

ICFs are currently manufactured from any of the following materials:

- Polystyrene foam (expanded or extruded — most common)
- Polyurethane foam (including soy-based)
- Cement-bonded wood fiber
- Cement-bonded polystyrene beads

Concrete is pumped into the cavity to form the structural element of the walls.

There is no systematic study to evaluate performance of ICFs when subjected to seismic forces.

Sections 1905.1.1, 1905.1.2, 1905.1.4, 1905.1.5, 1905.1.6, 1905.1.7, 1905.1.8 and 1905.1.10 (of IBC 2012) – These sections from 2012 IBC are deleted because ACI 318 requirements are almost identical to the deleted sections due to adoption of ACI 318-11 after the adoption of the 2012 IBC.

Section 1905A.1.15 – The existing amendment for span-to-depth ratios for pre-stressed concrete members is retained with editorial changes to account for the deleted 2010 CBC Section 1908A.1.21 reference.

Section 1905A.1.21 – The proposed change revises Chapter 19 of the 2012 IBC so that it is consistent with ACI 318-11. Although 2012 IBC Chapter 35 references ACI 318-11, the text in 2012 IBC Chapter 19 erroneously reflects modifications to ACI 318-08. This code change is necessary to keep the 2013 CBC consistent with ACI 318-11.

- a. Sections D.3.3.4, D.3.3.5, D.3.3.6 and D.3.3.7, as added by 2012 IBC Section 1905.1.9, are deleted because they are not consistent with ACI 318-11 Appendix D.
- b. In the exception to ACI 318-11 Section D.3.3.4.2, “need not satisfy” is changed to “shall be deemed to satisfy” to convey the message: it is not that the relevant provisions are not necessary, but that the design forces already incorporate the requirement.
- c. The second sentence of D.3.3.4.3 (d) is revised to make it consistent with the language used in D.3.3.4.3 (b) and D.3.3.4.3 (c). The sentence currently reads: “The anchor design tensile strength shall satisfy the tensile strength requirements of D.4.1.1.” This is changed to: “The anchor design tensile strength shall be calculated from D.3.3.4.4.”
- d. Exceptions for anchors in wood sill plates and cold-formed steel tracks are revised for better clarity. In addition to the concrete breakout in shear, anchor pryout in shear is also included in the exception now. For in-plane shear in a sill plate or a cold-formed steel track, anchor pryout is not a concern.

Section 1908A.1.20 (2010 CBC) – This 2010 CBC section is deleted since the content is similar to ACI 318 Sections 18.3, 18.4, and 21.5.2.5.

Section 1908A.1.21 (2010 CBC) – This 2010 CBC section is deleted since the content is similar to ACI 318 Sections 18.12 and 18.14.

1908A.1.1 – Editorial changes to remove reference to International Code Council – Evaluation Service Report (ICC-ESR).

Section 1913A.7 – This section is modified to remove reference to ICC-ESR and to clarify when torque testing of post installed anchors is permitted versus tension testing of the anchors.

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

Section 2101.1.3 – Direct design of Masonry is added to the list of prohibited design method list for consistency with Section 2101A.2.7.

Section 2101A.2 – Section revised for consistency with Section 2101A.1.3 and 2101A.2.7.

Section 2101A.2.6 - Current IBC language incorrectly suggests that veneer could be designed and installed bypassing Chapter 14. Deleting reference to TMS 402 Chapter 6 requires user to comply with the requirements of Chapter 14, then the user is required to go to TMS 402, Chapter 6 for any additional veneer requirements. This deletion is adopted for the 2015 IBC.

Section 2101.2.7 – TMS 403 is not permitted, since it is not consistent with the rest of CBC 2013 provisions. TMS 403 is based on ASCE 7-05 and TMS 402-08, which are superseded by newer standard in the CBC 2013.

Section 2103A.9 – Deleted amendment is picked-up by TMS 402-10 Section 1.18.4.4.2.2.

Section 2103A.13.2 – Deleted part of amendment is covered by ASTM C476, Table 1 and ASTM C476 is referenced by TMS 602, Article 2.2 A.

Section 2104A.1.7 (2010 CBC) – This section, which is a pointer to Section 2405A.5, is deleted because Section 2104.5 is included in the scope covered by Section 2104A.1.

Section 2104A.5 & 2104A.6 – Editorial. Sections are reorganized for ease of use in accordance with recommendation by Masonry Industry Association (MIA).

Section 2104A.5.1 - TMS 402 Section 1.17.1 and TMS 602 Section 3.4D.3 now permit bolts to be installed in tight fitting holes in the face shell. Installation of headed bolts would need to be done from inside the shell and for 8” and smaller block, this would be difficult to get any decent embedment. Also, there is no definition of “tight fitting”. Minimum grout requirement will ensure installation to meet the intent of the code.

Section 2105A.2.1 (Exception) – Requirement for mortar and grout tests during construction is deleted for consistency with Section 2105A.2.2.1.4. Constructed masonry is subject to both prism and core tests, hence additional mortar and grout tests are considered redundant.

Section 2107A.1.6 (2010 CBC) – This section is deleted because TMS 402 Sections 1.13.1.3 is more restrictive.

Section 2107A.2.1 - Amendment is necessary to bring consistency in lap splice length for allowable stress design in the CBC 2013 Section 2107A.2.1 and strength design in Section 2108A.2.

Section 2107A.6 (2010 CBC) – This section is deleted because TMS 402 addressed the edge distance and bolt spacing in a comprehensive way.

Section 2115A.1 – Section is revised for consistency with TMS Sections 7.2.2, 7.3.3, and 7.7.

Title 24, Part 2, Volume 2

Chapter 22A - Steel

Sections 2204A.1.1, 2204A.1.2, and 2204A.1.3 – These sections are deleted since they are picked-up by model code.

Sections 2205A.4.1.2, 2205A.4.1.3, 2205A.4.1.4, 2205A.4.1.7 – These existing amendments are deleted since the steel OMF, IMF, OCBF and STMF systems will be permitted in SDC D, E, and F as non-building structure systems in Chapter 15 of ASCE 7-10.

Section 2205A.4.2.2 - This existing amendment for steel moment resisting frame connection definition of “Rapid Strength Deterioration” is removed since the minimum strength of $0.80 M_p$ at the qualifying interstory drift angle as required by AISC 341-10 for the IMF and SMF is sufficient.

Section 2205A.4.3 - The existing amendment for buckling restrained brace provisions for similitude between the prototype and test specimen brace is removed due to similar provisions in AISC 341-10.

Section 2205A.3.4 – The square HSS brace section is clarified to be a subset of rectangular HSS sections and subject to the requirements in this provision. The inherent deficiency and poor performance of square or rectangular HSS brace sections under plastic hinging mechanisms due to axial seismic deformations has not been fully rectified by the provisions of AISC 341-10.

Section 2205A.3.7 - The steel moment resisting frame connection acceptance criteria for “Rapid Strength Deterioration” has been removed since the minimum strength of $0.80 M_p$ at the qualifying interstory drift angle as required by AISC 341-10 for the IMF and SMF is sufficient and more restrictive.

Section 2205A.4 – The ConXtech ConXL bolted moment connection contained in AISC 358-10 is added to the Exception. The ConXtech ConXL bolted moment connection has been successfully cyclic tested specifically for the purposes of meeting the acceptance criteria as set forth in Section 2205A.3.

Section 2206A.2 – Amendment is relocated from section 2205A.3.1. The Exception has been added to permit the use of the ConXtech ConXL bolted moment connection as given in Chapter 10 of AISC 358-10 Supplement No. 1 with the amendments shown. The amendments are based upon the cyclic test specimens used to meet the acceptance criteria as set forth in Section 2205A.3.

Section 2208A.2 – Deleted for consistency with ASCE 7-10 Supplement # 1 and ASCE 19-10.

Section 2210A.1.1.3 (CBC 2010 Section 2209.3) – ANSI/SDI C-2012 is adopted for consistency with IBC 2015. SDI C will replace ICC-ES AC 43, which is not an ANSI approved standard, in the CBC 2010 Section 2209A.3

Sections 2213A.1 & 2213A.2 – Editorial changes to clarify amendments and make them more specific. This will limit the scope of field tests, consistent with current practice.

Title 24, Part 2, Volume 2

Chapter 23 - Wood

Section 2302.1 - IBC errata.

Section 2305.1.3 – Section is relocated to item # 6 in Section 2305A.1.2.

Section 2305.1.4, 2306.4, and 2306.7 – Deleted amendments are picked-up by model code.

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

Section 2410 – Provisions for use of Structural Sealant Glazing (SSG), which is currently not addressed in the model building code, is added so that they will not be considered as an alternative system requiring structural design criteria.

Title 24, Part 2, Volume 2
Chapter 25 – Gypsum Board and Plaster

Section 2510.7.1 – Section is deleted, since requirement is picked-up in model code Table 2507.2.

Title 24, Part 2, Volume 2
Chapter 33 – Safeguard During Construction

Sections 3307.2 and 3307.3 – These amendments are deleted since requirements in Sections 3307 and J106.2 adequately addresses this subject.

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

Section 3401.7 – Editorial.

Section 3401.7.2 – Ground motion requirements are revised to incorporate risk targeted ground motion consistent with ASCE 7.

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

Section 3404A.5, 3412A.1, & 3412A.2 – Editorial.

Sections 3405A.1 & 3405A.3.1 – Redundant exceptions, which apply to buildings outside the scope of Chapter 34A, are deleted.

Section 3412A.2 – Editorial.

Section 3413A .1.2 – Ground motion requirements are revised to incorporate risk targeted ground motion consistent with ASCE 7-10.

Section 3413A.1.3 – The referenced ASTM requires tension testing of the full size of the rebar. Testing of a reduced section of the rebar with an associated 2” gage length does not account for the effect of the rebar deformations in the rebar strength nor does the 2” gage length of the reduced section meet the 8” gage length required under ASTM A615 and A706.

Repair of the sampled structural member, slab or wall will restore the structural member, slab or wall to its pre-tested condition and, therefore, will not result in weak point in the member where a failure may initiate.

Section 3413A .1.30 – This section is revised for consistency with the California Administrative Code, Chapter 6.

Sections 3416A & 3417A – These sections are revised extensively, so that building that receive extension of NPC-3 deadlines under SB 499 will not have to upgrade some of the existing services/systems, utilities, and egress. This section is supposed to maintain or increase the current degree of public safety, health, and general welfare in existing buildings while permitting repair, alteration, addition, and change of occupancy without requiring full compliance with new building provisions of the code.

Sections 3418A – This section codifies the OSHPD Code Application Notice (CAN) 2-3406A for removal of acute care services buildings from OSHPD jurisdiction.

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

Section J112 – This section is added to permit vibro stone column for ground improvement.

Title 24, Part 2, Volume 2
Appendix L – Earthquake Recording Instrumentation

Section L101 – This section is adopted with modification to make it consistent with instrumentation requirements in other parts of this code.

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

2012 IBC: International Building Code.
ASCE 7-10: Minimum Design Loads for Buildings and Other structures.
ACI 318-11: Building Code Requirements for Structural Concrete and Commentary.
AISC 360-10: Specification for Structural Steel Buildings
AISC 341-10: Seismic Provisions for Structural Steel Buildings
AISC 358-10/358S1-11: Prequalified Connections for Special and Intermediate Steel Moment Frames for Seismic Applications including Supplement No. 1
TMS 402-11: Building Code Requirements for Masonry Structures.
TMS 602-11: Specification for Masonry Structures.
AWC NDS-11: National Design Specification (NDS) for Wood Construction.
AWC SDPWS-2008: Special Design Provisions for Wind and Seismic.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

Health and Safety Code Section 18941 requires consistency with state and nationally recognized standards for building construction in view of the use and occupancy of each structure to preserve and protect the public health and safety.

MANDATE ON LOCAL AGENCIES OR SCHOOL DISTRICTS

The Office of Statewide Health Planning and Development (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).

Public comments received during the 45-Day Public Comment Period from August 31, 2012 to October 23, 2012.

COMMENTS RECEIVED BY OSHPD:

Comment #1 – OSHPD 03/12 Brenden – Section 2410.1.1

Commenter: Ken Brenden, The American Architectural Manufacturers Association.

Mr. Brenden presented the following proposed modification:

2410.1.1 Design. *Design of Structural Sealant Glazing (SSG) shall satisfy the following requirements:*

1. *SSG shall be waterproof and serviceable as defined in AAMA 501.4 under design story drifts associated with the Design Earthquake and no glass fallout shall occur at the drifts determined by ASCE 7 Section 13.5.9.1 and tested in accordance with AAMA 501.4 Section 11.3.*

Reason: Clarifies the definition of serviceability comes from AAMA 501.4 and that the testing criteria of AAMA 501.4 Section 11.3 is to be used for determining glass fallout.

OSHPD Response: The suggested modification in the first line will be added to define the criteria for waterproof and serviceable. The text referring to testing in the second modification is not incorporated since the original section pertains to design and all testing provisions are contained in Section 2410.1.2.

Comment #2 – OSHPD 03/12 Brenden – Section 2410.1.2

Commenter: Ken Brenden, The American Architectural Manufacturers Association.

Mr. Brenden presented the following proposed modification:

2410.1.2 Testing and Inspection. *Testing and inspection of Structural Sealant Glazing (SSG) shall satisfy the following requirements:*

a. The seismic drift ~~limits~~ capability of structural sealant glazing shall be determined by tests in accordance with AAMA 501.6, AAMA 501.4 ~~and~~ or engineering analysis in accordance with ASCE 7 Section 13.5.9.2.

...

f. The window wall system using structural sealant by different manufacturer/product category shall be qualified in accordance with AAMA 501.6 ~~and~~ or AAMA 501.4 testing for the seismic drift required. Analysis as an alternative to testing is ~~not~~ acceptable for the purposes of satisfying the seismic drift requirements of the SSG system when approved by a registered design professional.

Reason: Cites a potential violation of Health and Safety Code § 18930 a (1), (3), (4), (5) and (7). The reasons included a building standard conflict with ASCE 7-10, which does permit engineering analysis for the determination of the seismic drift capacity of glazed curtain walls, that SSG walls can be analyzed and need not be tested for seismic movement and the published standards have not been appropriately incorporated into the building standard.

OSHPD Response: The suggested first modification in the first line of item a. will be incorporated into the provision.

Connections with adhesive, such as Structural Sealant Glazing (SSG), are not permitted by the California Building Code (CBC), International Building Code (IBC), or ASCE 7-10. To the best of our knowledge, SSG had never been permitted by any building code in the US. Currently SSG are permitted by OSHPD as an alternative system, which require:

2. Significant review time to ensure equivalency with code approved systems and
3. Project specific testing.

Proposed provisions will shorten the plan review and construction schedule by eliminating alternative system requirement and may eliminate the project specific testing, since proposed provision permit use of prior tests using AAMA 501.6 & AAMA 501.4. OSHPD didn't take any exception to AAMA 501.6 or AAMA 501.4 standards & require that they be used to qualify SSG.

The use of engineering analysis to determine seismic movement acceptability of Structural Sealant Glazing (SSG) is not appropriate and is not in conflict with ASCE 7-10 since: 1) The SSG detailing and design provisions are not contained nor referenced in the model building code and SSG does not comply with the provisions in CBC Section 2403.2.1. The present provisions in ASCE 7-10 Section 13.5.9 to permit the use of analysis for seismic movement of glazed walls in lieu of AAMA 501.6 testing were developed without consideration of SSG. The simplified provisions in ASCE 7-10 Section 13.5.9.1 for calculating the capability of window wall systems to accommodate seismic movements are for captured or dry glazed systems where the glass has sufficient clearances from its frame so that physical contact between the glass and frame will not occur at the design story drift. In SSG, the stiff and strong structural sealant adheres the glass lite to the window wall frame as the primary means of lateral support and retention such that the glass lite resists seismic forces and movements; and 2) There is no national standard which contains a detailed design and analysis methodology addressing the capacity of SSG to accommodate seismic movements under the Design Earthquake or 1.5 times the Design Earthquake. As a result, the only prudent and safe means to determine the SSG seismic movement capacity and associated serviceability and functionality of SSG in hospital buildings after the Design Earthquake is by testing. Both AAMA 501.6 and AAMA 501.4 testing are specified, since the quasi-dynamic fully reversed cyclic testing (appropriate for earthquakes) for seismic movement to glass fallout is done in AAMA 501.6 and then AAMA 501.4 tests for serviceability of the SSG after fully reversed cycles of seismic movement. Not all repetitive SSG systems will require testing, where applicable AAMA 501.4 and 501.6 testing already exists, as determined by the building official, those existing tests may be used for substantiation. AAMA 501.4 Section 6.2 requires the same materials used in the test specimen be used in the production unit.

Comment #3 – OSHPD 03/12 Huxley – Section 1616.10

Commenter: Ryan Huxley, individual.

Mr. Huxley proposed amendments to ASCE 7-10 Section 12.8.6 which eliminates the necessity of a horizontal irregularity in Table 12.3-1 in order to consider the effects of diaphragm rotation in the design story drift.

Reason: Cites Health and Safety Code § 18930 a (1) and (3). The design story drift at the center of mass of the floor or roof could be exceeded at the extremities of the floor or roof due to diaphragm flexibility as well as a torsional irregularity.

OSHPD Response: This public comment does not address the portion of any provision being changed. At this time, OSHPD cannot propose substantive modifications to the existing code as requested, as Government Code §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.

Comment #4 – OSHPD 03/12 Huxley – Section 1616.10.14

Commenter: Ryan Huxley, individual.

Mr. Huxley proposed additional amendments to ASCE 7-10 Section 12.13.1.1 (CBC Section 1616.10.9) which would require amplification of the design force for the purposes of determining overturning stability of the building foundation elements, except where the ratio between the largest to smallest overturning factor of safety of the foundation elements is less than 1.2.

Reason: Cites Health and Safety Code § 18930 a (1) and (3). The additional amendment will account for inconsistent foundation element overturning factors of safety that will lead to rocking of a few foundation elements and, therefore, more demand on the diaphragms and collector members due to a redistribution of forces as a result.

OSHPD Response: This public comment does not address the portion of any provision being changed. At this time, OSHPD cannot propose substantive modifications to the existing amendment as requested, as Government Code §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.

Comment #5 – OSHPD 03/12 Huxley – Section 1616A.1

Commenter: Ryan Huxley, individual.

Mr. Huxley proposed amendments to ASCE 7-10 Section 12.8.6 which eliminates the necessity of a horizontal irregularity in Table 12.3-1 in order to consider the effects of diaphragm rotation in the design story drift.

Reason: Cites Health and Safety Code § 18930 a (1) and (3). The design story drift at the center of mass of the floor or roof could be exceeded at the extremities of the floor or roof due to diaphragm flexibility as well as a torsional irregularity.

OSHPD Response: This public comment does not address the portion of any provision being changed. At this time, OSHPD cannot propose substantive modifications to the existing amendment as requested, as Government Code §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.

Comment #6 – OSHPD 03/12 Huxley – Section 1616A.1.16

Commenter: Ryan Huxley, individual.

Mr. Huxley proposed additional amendments to ASCE 7-10 Section 12.13.1.1 (CBC Section 1616A.1.16) which would require amplification of the design force for the purposes of determining overturning stability of the building foundation elements, except where the ratio between the largest to smallest overturning factor of safety of the foundation elements is less than 1.2.

Reason: Cites Health and Safety Code § 18930 a (1) and (3). The additional amendment will account for inconsistent foundation element overturning factors of safety that will lead to rocking of a few foundation elements and, therefore, more demand on the diaphragms and collector members due to a redistribution of forces.

OSHPD Response: This public comment does not address the portion of any provision being changed. At this time, OSHPD cannot propose substantive modifications to the existing amendment as requested, as Government Code §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.

Comment #7 – OSHPD 03/12 OSHPD – Section 3418A

Commenter: M.R. Karim, OSHPD.

M.R. Karim proposes revisions to Section 3418A that further clarifies the requirements for removal of hospital buildings providing acute care services.

Reason: This section has been revised to incorporate the latest provisions of OSHPD CAN 1-6-1.4.5.1.4 (formerly CAN 2-3406A). Health & Safety Code § 18930 item a.6 requires that the proposed building standard not be un-necessarily ambiguous or vague, in whole or in part.

OSHPD Response: All of the revisions proposed will be incorporated into the new Section 3418A provisions.

Comment #8 – OSHPD 03/12 Mlakar – Section 1705A.1

Commenter: Matthew Mlakar, SEAOC Code Committee.

Mr. Mlakar proposed additional amendments to CBC Section 1705A which would re-define “structural steel” to “structural steel elements and portions thereof” and make provision changes which would require special inspections and explicitly include non-destructive testing for all steel construction as is being proposed for the 2015 IBC.

Reason: The Health and Safety Code § 18930 a (7) was cited. The additional amendments are intended to include special inspection of most steel elements rather than just those considered as “structural steel” by the AISC Code of Standard Practice. These amendments will keep the prior level of inspection of steel stairs and other steel elements, such as steel chords and collector members in steel buildings.

OSHPD Response: In the current Express Terms, Section 1705A.2.1 for Structural Steel and 1705A.2.2 for Steel Construction both reference Table 1705A.2.1 for quality insurance, which retains continuous and periodic inspection terminology. The Structural Steel and Steel Construction provisions reference the same inspection requirements and will, therefore, include all steel components that would require inspection in buildings. The general requirement for tests of structural steel has already been explicitly added to the text in Section 1705A.2.1. As a result, re-definition for structural steel elements and portions thereof as proposed by Mr. Mlakar is not necessary.

Comment #9 – OSHPD 03/12 Fillmore & Lueder– Section 2410.1.1

Commenter: Ron Fillmore and Timothy Lueder, Dow Corning Corporation.

Mr. Fillmore and Mr. Lueder presented the following proposed modifications:

2410.1.1 Design. *Design of Structural Sealant Glazing (SSG) shall satisfy the following requirements:*

1. *SSG shall be ~~waterproof~~ weathertight and serviceable as defined in AAMA 501.4 under design story drifts associated with the Design Earthquake and no glass fallout shall occur at the drifts determined by ASCE 7 Section 13.5.9.4 and tested in accordance with AAMA 501.4 Section 11.3.*

Reason: The Health and Safety Code § 18930 a (1), (3) & (4) was cited. Contends that the word waterproof is unreasonable to apply to curtain wall systems and proposes substitution with the word weathertight. Clarifies the definition of serviceability from AAMA 501.4 and that the testing criteria of AAMA 501.4 Section 11.3 is to be used for determining glass fallout.

OSHPD Response: The suggested modifications in the first line will be added by revising the word “waterproof” to the word “weather tight” and to define the criteria for serviceable. The text referring to testing in the third line is not incorporated since the original section pertains to design and all testing provisions are contained in and already covered by Section 2410.1.2.

Comment #10 – OSHPD 03/12 Fillmore & Lueder– Section 2410.1.1

Commenters: Ron Fillmore and Timothy Lueder, Dow Corning Corporation.

Mr. Fillmore and Mr. Lueder presented the following proposed modifications:

2410.1.1 Design. *Design of Structural Sealant Glazing (SSG) shall satisfy the following requirements:*

...

2. *The sealant utilized in the insulated glass units used in SSG shall be designed in accordance with ASTM C 1249. The insulated glass unit design shall ~~include compliance~~ be designed in accordance with the guidelines in ~~with~~ ASTM C 1249 Section 6.7.2.*

...

1. *Design methodology shall address seismic movement as ~~required by~~ as discussed in ASTM C 1401 Section 30.3.4.*

Reason: The Health and Safety Code § 18930 a (1) was cited. The reasons include that ASTM C1401 and C1249 are guidelines and not requirements.

OSHPD Response: ASTM C1401 and C 1249 are Standards. The design can be in accordance with the Standard. The wording will be changed in item 4 to be “in accordance with” the referenced Standard.

Comment #11 – OSHPD 03/12 Fillmore & Lueder– Section 2410.1.2

Commenters: Ron Fillmore and Timothy Lueder, Dow Corning Corporation.

Mr. Fillmore and Mr. Lueder presented the following proposed modifications:

2410.1.2 Testing and Inspection. *Testing and inspection of Structural Sealant Glazing (SSG) shall satisfy the following requirements:*

a. The seismic drift ~~limits~~ capability of structural sealant glazing shall be determined by tests in accordance with AAMA 501.6, AAMA 501.4 ~~and~~ or engineering analysis in accordance with ASCE 7 Section 13.5.9.2.

b. The applicability of the specific AAMA 501.6 and 501.4 testing shall be subject to approval by ~~the building official~~ a registered design professional.

...

f. The window wall system using structural sealant by different manufacturer/product category shall be qualified in accordance with AAMA 501.4 and AAMA 501.6 ~~AAMA 501.6 and AAMA 501.4~~ testing for the seismic drift required. Analysis as an alternative to testing is ~~not~~ acceptable for the purposes of satisfying the seismic drift requirements of the SSG system when approved by a registered design professional.

Reason: The Health and Safety Code § 18930 a (1), (3), (4), (5) and (7) was cited. The reasons included a building standard conflict with ASCE 7-10, which does permit engineering analysis for the determination of the seismic drift capacity of glazed curtain walls; the opinion that SSG walls can be analyzed and need not be tested for seismic movement; CBC Section 2403.2 permits the design professional to calculate conditions where one or more sides of a glass lite are not supported so Section 2410 should be similar; the opinion that without the option of engineering analysis to substantiate the seismic movement capability smaller building projects will use dry glazed or captured systems that are not as air and water tight; and the published standards have not been appropriately incorporated into the building standard.

OSHPD Response: The suggested first modification in the first line of item a. will be incorporated into the provision. The AAMA references are not placed in sequence since ASCE 7 only refers to AAMA 501.6, which refer to AAM 501.4.

Connections with adhesive, such as Structural Sealant Glazing (SSG), are not permitted by the California Building Code (CBC), International Building Code (IBC), or ASCE 7-10. To the best of our knowledge, SSG had never been permitted by any building code in the US. Currently SSG are permitted by OSHPD as an alternative system, which require:

1. Significant review time to ensure equivalency with code approved systems and
2. Project specific testing.

Proposed provisions will shorten the plan review and construction schedule by eliminating alternative system requirement and may eliminate the project specific testing, since proposed provision permit use of prior tests using AAMA 501.6 & AAMA 501.4.

The use of engineering analysis to determine seismic movement acceptability of Structural Sealant Glazing (SSG) is not appropriate and is not in conflict with ASCE 7-10 since: 1) The SSG detailing and design provisions are not contained nor referenced in the model building code and SSG does not comply with the provisions in CBC Section 2403.2.1. The present provisions in ASCE 7-10 Section 13.5.9 to permit the use of analysis for seismic movement of glazed walls in lieu of AAMA 501.6 testing were developed without consideration of SSG. The simplified provisions in ASCE 7-10 Section 13.5.9.1 for calculating the capability of window wall systems to accommodate seismic movements are for captured or dry glazed systems where the glass has sufficient clearances from its frame so that physical contact between the glass and frame will not occur at the design story drift. In SSG, the stiff and strong structural sealant adheres the glass lite to the window wall frame as the primary means of lateral support and retention such that the glass lite resists seismic forces and movements; and 2) There is no national standard which contains a detailed design and analysis methodology addressing the capacity of SSG to accommodate seismic movements under the Design Earthquake or 1.5 times the Design Earthquake. As a result, the only prudent and safe means to determine the SSG seismic movement capacity and associated serviceability and functionality of SSG in hospital buildings after the Design Earthquake is by testing. Both AAMA 501.6 and AAMA 501.4 testing are specified, since the quasi-dynamic fully reversed cyclic testing (appropriate for earthquakes) for seismic movement to glass fallout is done in AAMA 501.6 and then AAMA 501.4 tests for serviceability of the SSG after fully reversed cycles of seismic movement. Not all typically used SSG systems will require testing, where applicable AAMA 501.4 and 501.6 testing already exists, as determined by the building official, those existing tests may be used for substantiation for compliance. AAMA 501.4 Section 6.2 requires the same materials used in the test specimen be used in the production unit, so where different mullion components and structural sealants are used testing is needed.

Comment #12 – OSHPD 03/12 Mlakar – Section 1603A.3

Commenter: Matthew Mlakar, SEAOC Code Committee.

Mr. Mlakar proposed removing subsections 1 through 3 of the Structural Calculation provisions.

Reason: The Health and Safety Code §18930 a (4) and (6) was cited. The reasons include that the requirements cannot be consistently and properly enforced as written and the code should not be requiring how the structural calculations are presented to the state agencies.

OSHPD Response: Section 1603A.3 and subsections 1 through 3 clarify the Hospital Facilities Seismic Safety Act 1983 (HSSA 83) §129765 requirement for a submittal of full, accurate and complete structural design computations. This requirement was formerly in Chapter 7 of the California Administrative Code, (Title 24, Part 1) and is moved to the California Building Code.

No public comments were received during the 15-Day Public Comment Period from October 29, 2012 to November 13, 2012.

DETERMINATION OF ALTERNATIVES CONSIDERED AND EFFECT ON PRIVATE PERSONS

Regulations will have no overall impact to hospitals, skilled nursing facilities, clinics and correctional treatment centers. This proposal is for the mandatory adoption of the 2012 International Building Code with existing California amendments being carried forward and technical modifications for clarity and consistency in the code.

The Office of Statewide Health Planning and Development has determined that no alternative considered would be more effective in carrying out the purpose for which the regulation is proposed or would be as effective and less burdensome to affected private persons than the adopted regulation.

Supporting information:

This triennial adoption is mandated by statute.

Health and Safety Code (H&SC) Section 18941 requires consistency with state and nationally recognized standards for building construction in view of the use and occupancy of each structure to preserve and protect the public health and safety.

The alternative to these proposed regulations would be to leave regulations as they are which will be inconsistent with H&SC §18941 requirements.

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

There are no rejected proposed alternatives to identify. This proposal will not have an adverse economic impact on small businesses, since they are equivalent to current requirements in the Code. Technical updates to the national standards for structural design are incorporated, mostly by reference.

These regulations are intended to ensure that health care facilities that serves patients who have less than the capacity of normally healthy persons to protect themselves, and that must be reasonably capable of providing services to the public after a disaster, shall be designed and constructed to resist, insofar as practical, the forces generated by earthquake, floods, wind, and gravity.