

BUILDING STANDARDS COMMISSION

2525 Natomas Park Drive, Suite 130
Sacramento, California 95833-2936
(916) 263-0916 FAX (916) 263-0959



April 6, 2011

Lupe Gaeta Estrella, CMC, Deputy City Clerk
City of La Verne
3660 D Street
La Verne, CA 91750-3599

Dear Lupe Gaeta Estrella:

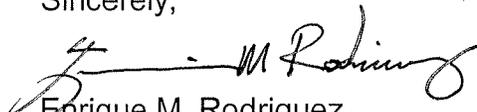
This letter is to acknowledge receipt on December 29, 2010, of the City of La Verne submittal pertaining to Ordinance No. 1020 with findings and is acceptable for filing. Your filing attests to your understanding that according to Health and Safety Code Section 17958.7 no modification or change to the California Building Standards Code shall become effective or operative for any purpose until the finding and the modification or change have been filed with the California Building Standards Commission (the Commission).

This letter attests only to the filing of these local modifications with the Commission, which is not authorized by law to determine the merit of the filing.

As a reminder, local modifications are specific to a particular edition of the Code. They must be readopted and filed with the Commission in order to remain in effect when the next triennial edition of the Code is published. In addition, should you receive Fire Protection District ordinances for ratification, it is required to submit the ratified ordinances to the Department of Housing and Community Development [H&SC Section 13869.7(c)], attention State Housing Law Program Manager, rather than the Commission.

If you have any questions or need any further information, you may contact me at (916) 263-0916.

Sincerely,


Enrique M. Rodriguez
Associate Construction Analyst

cc: Chron
Local Filings



CITY OF LA VERNE CITY HALL

3660 "D" Street, La Verne, California 91750-3599
www.ci.la-verne.ca.us

DATE: December 27, 2010

Certified Mail
Return Receipt Requested

MEMORANDUM OF TRANSMITTAL

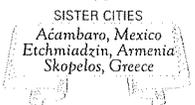
TO: California Building Standards Commission
2525 Natomas Park Drive, Suite 130
Sacramento, CA 95833-2936

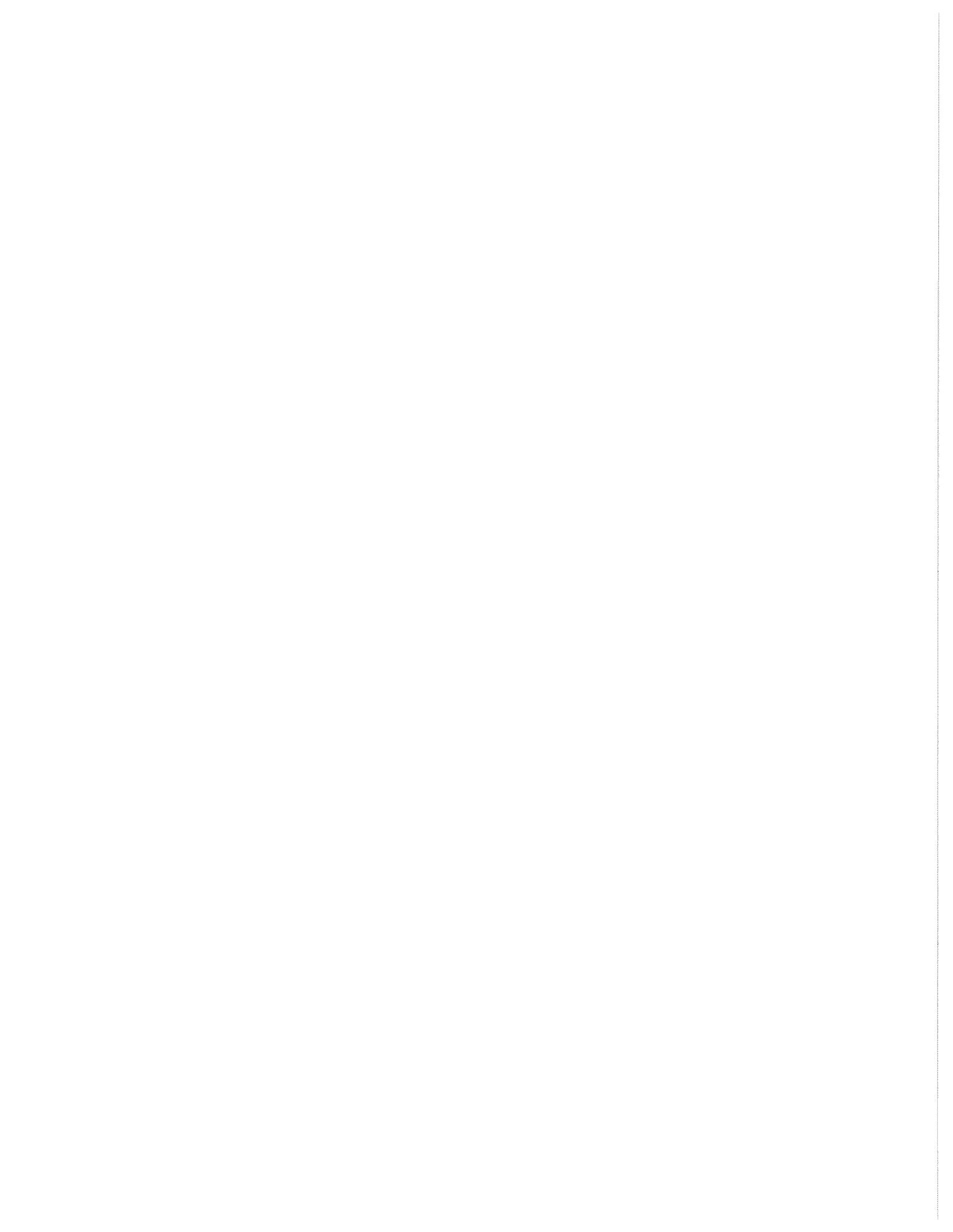
DOCUMENT: Certified copy of Urgency Ordinance No. 1020,
adopting by reference the California Building Code,
the California Electrical Code, the California Plumbing
Code, the California Mechanical Code, the California
Residential Code, the California Green Building
Standards and adopting local amendments thereto

FROM: Lupe Gaeta Estrella, CMC
Deputy City Clerk

cc: Dominic Milano, City Engineer

2010 DEC 29 A 11:13
CALIFORNIA BUILDING
STANDARDS COMMISSION





Agenda Report

CITY OF LA VERNE

City Engineer

DATE: December 20, 2010

TO: Honorable Mayor & City Council

FROM: Dominic C. Milano, City Engineer

SUBJECT: ADOPTION OF LOS ANGELES COUNTY BUILDING CODE AND
THE CALIFORNIA GREEN BUILDING CODE BY REFERENCE

AGENDA SUMMARY:

The adoption of the Los Angeles County Building Code and the 2010 California Green Buildings Standards Code are necessary under the California Health and Safety Code. These codes are established to provide the City of La Verne with the minimum construction and property maintenance standards that promote the health and welfare of the general public to make buildings more efficient in the use of materials and energy, and to reduce environmental impact during and after construction. Since the County recently amended these codes, it is necessary for the City to adopt these changes. Due to the State's deadline of January 1, 2011, these standards must be adopted by urgency ordinance.

RECOMMENDATION:

It is recommended that the City Council adopt the attached urgency ordinance amending Title 26 – Building Code of the Los Angeles County Code, Title 27 – Electrical Code of the Los Angeles County Code, Title 28 – Plumbing Code of the Los Angeles County Code, Title 29 – Mechanical Code of the Los Angeles County Code Title 30 – Residential Code of the Los Angeles County Code, Title 24 Part 11 – California Green Building Code, and the City of La Verne amendments to portions of these codes also known as the 2010 California Building Standards Code, by reference, with certain changes and modifications, and making revisions thereto.

BACKGROUND:

Section 17958 of the California Health and Safety Code requires that the latest California Building Standards Codes apply to local construction 180 days after they become effective at the State level. The California Building Standards Commission has adopted the 2010 Edition of the California Building Codes. State Law requires that these Codes become effective at the local level on January 1, 2011. State Law requires that local amendments to the California

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Building Standards Codes be enacted only when an express finding is made that such modifications or changes are reasonably necessary because of local climatic, geological, or topographic conditions.

The City of La Verne has previously adopted the Los Angeles County Building Codes by reference. These codes contain essential amendments and additions to the International Building Codes and the State of California Building Code. Included in these amendments are the administrative portions of the laws as well as such important chapters for grading and substandard properties. The State of California now has adopted the 2010 Edition of the California Building Code and has made specific findings based on local climatic, topographical, and/or geological conditions. As in past code adoptions, the City of La Verne has used the County code adoption process to make those findings for its local amendments and has adopted the County codes by reference. The County codes were not approved by the County Board of Supervisors until November 23, 2010. Once again, the County adoption schedule did not allow sufficient time for the City to follow its standard process of first and second reading of the ordinance and a 30-day effective period. Therefore, in order for the City to adopt the County codes by reference and meet the January 1, 2011 effective date, the City must adopt its new codes by urgency ordinance.

New to this year's cycle of adoption of building related codes is the California Green Building Standards Codes. While these standards and codes do not relate to the safety of buildings, the development of the code was intended to (1) cause a reduction in greenhouse gas emissions from buildings; (2) promote environmentally responsible, cost-effective, healthier places to live and work; (3) reduce energy and water consumption; and (4) respond to the directives by the Governor.

The 2010 California Green Buildings Standards Code is a code with mandatory requirements for new residential and non-residential buildings (including buildings for retail, office, public school and hospitals) throughout California beginning on January 1, 2011. The code is Part 11 of the California Building Standards Code in Title 24 of the California Code of Regulations and is also known as the CALGreen Code. In short, the code was established to reduce construction waste, make buildings more efficient in the use of materials and energy, and reduce environmental impact during and after construction.

While staff is proposing the adoption of the California Building Standards as amended by Los Angeles County, staff is not recommending adopting the California Green Building Standards Code as amended by Los Angeles County (Title 31 of the Los Angeles County Code).

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Los Angeles County has amended the California Code by including the County's Water Efficient Landscape Ordinance. The City is in the process of adopting its own Water Efficient Landscape Ordinance based on the California Department of Water Resources model. The County is also applying the Green Standards to Group R occupancy building six stories or less where the California Code is three stories or less and requiring that the construction of buildings greater than 25,000 square feet comply with optional "Tier 1" voluntary requirement of the California Code. These requirements include measures to achieve greater efficiencies.

The additional significant change in the County amended version of the California Code is the requirement that 65 percent of the non-hazardous construction and demolition debris be recycled and/or salvaged. The County increased this percentage from the State's requirement of 50 percent. Currently, the City with their contract with Waste Management requires 95 percent, far exceeding the State's or County's requirement.

The proposed ordinance will adopt by reference portions of the 2010 California Building Code Series. In an effort to provide consistency within the Los Angeles Basin and provide the public locally applicable and efficient codes, the Los Angeles County Department of Public Works joined efforts with a number of cities in Los Angeles County to undergo thorough examinations of previous and proposed amendments. Many of the local amendments to the Codes are based on the model language generated by the Los Angeles Regional Uniform Code Program (LARUCP).

The ordinance will amend Titles 26 (Building Code), 27 (Electrical Code), 28 (Plumbing Code), 29 (Mechanical Code), and 30 (Residential Code) to reflect the most critical and necessary County amendments required because of local climatic, geological, or topographical conditions, as well as the California Green Building Code. The amendments have been prepared by the Los Angeles County Department of Public Works in accordance with Sections 17958 and 18941.5 of the California Health and Safety Code with the findings clearly delineated for each of the proposed amendments in a chart which is set forth in Section 31 of the Los Angeles County ordinance (attached for reference). The ordinance does not adopt Title 31 (Green Building Standards Code) of the Los Angeles Code but adopts the 2010 California Green Building Standards Code without amendments. The last City update to the State Building Standards Code was approved by the City Council in 2007.

Attachment: Section 31 of Los Angeles County Ordinance

EXCERPTS FROM SECTION 31

Pursuant to California Health and Safety Code sections 17958.5, 17958.7, and 18941.5, the Board of Supervisors hereby expressly finds that all of the changes and modifications to requirements contained in the building standards published in the California Building Standards Code, contained in this ordinance, which are not administrative in nature, are reasonably necessary because of local climatic, geological, or topographical conditions in the County of Los Angeles as more particularly described in the table set forth below.

BUILDING CODE AMENDMENTS

Code Section	Condition	Explanation of Amendment
701A.1	Climatic	Clarifies the application of Chapter 7A to include additions, alterations, and/or relocated buildings. Many areas of the County have been designated as Fire Hazard Severity Zones due to low humidity, strong winds, and dry vegetation. Additions, alterations, and/or relocated buildings have the same fire risk as new buildings.
701A.3	Climatic	Clarifies the application of Chapter 7 A to include additions, alterations, and/or relocated buildings. Many areas of the County have been designated as Fire Hazard Severity Zones due to the increased risk of fire caused by low humidity, strong winds, and dry vegetation. Additions, alterations, and/or relocated buildings have the same fire risk as new buildings.
701A.3.1	Climatic	Clarifies the application of Chapter 7 A to include additions, alterations, and/or relocated buildings. Many areas of the County have been designated as Fire Hazard Severity Zones due to the increased risk of fire caused by low humidity, strong winds, and dry vegetation. Additions, alterations, and/or relocated buildings have the same fire risk as new buildings.
703A.5.2 & 703A.5.2.2	Climatic	Disallows the use of wood-shingle/wood-shake roofs due to the increased risk of fire in the County caused by low humidity, strong winds, and dry vegetation.
704A.3	Climatic	Disallows the use of wood-shingle/wood-shake roofs due to the increased risk of fire in the County caused by low humidity, strong winds, and dry vegetation in high fire severity zones.
705A.2	Climatic	Disallows the use of wood-shingle/wood-shake roofs and requires the use of Class A roof covering due to the increased risk of fire in the County caused by low humidity, strong winds, and dry vegetation in high fire severity zones.
1029.4	Geological	The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of earthquake fault systems capable of producing major earthquakes, including but not limited to the recent

Code Section	Condition	Explanation of Amendment
		1994 Northridge Earthquake. The proposed amendment is intended to prevent occupants from being trapped in a building and to allow rescue workers to easily enter after an earthquake.
1207.1, 1207.11, 1207.12	Climatic and Topographic	Sound Transmission – "Soundproofing" buildings adjacent to Airport (LAX). The purpose of this section is to establish uniform minimum noise insulation performance standards to protect persons from the effects of excessive noise (sound), hearing loss or impairment, and interference with speech and sleep. The amendment requires other types of buildings, such as, long-term care facilities, single-family dwellings, private schools, and places of worship to be "soundproofed." Based on the local topographic conditions in the Los Angeles Basin, which includes the surrounding hills and mountains, such as the Santa Monica Mountains, and the climatic conditions of local wind blowing off shore, such as the Santa Ana winds, many planes are required to land and take off near the airports (LAX) to fly over areas where there are buildings including single family home, long-term care facilities, private schools and places of worship and other residential buildings, apartment houses, hotels, etc. The noise from these planes creates a hardship for the citizens, therefore, requiring the buildings to be "soundproofed."
1403.3	Climatic Geological	Section amended to limit the deflection of lateral support of veneer and prohibit its usage as part of the structural design strength of walls, due to the increased risk of significant earthquakes in the County. The Structural Engineers Association of Southern California (SEAOSC) and LA City Post Northridge Earthquake committee discovered significant loss of veneer from buildings due to inadequate design and construction. As deflection limitation in out-of-plane directions is not covered in this Code, this amendment will prevent loosening and spalling of veneer in a significant earthquake.
1405.7 through 1405.7.2	Geological	Section amended to require proper anchorage of masonry or stone veneer, due to the increased risk of significant earthquakes in the County. Investigations following the Northridge earthquake discovered numerous cases where veneer pulled away from wood stud framing. Most of it was due to corrosion and weakness in the anchor ties and mesh connections to the framing. Where sheathing was beneath the veneer, nail attachments were often not attached to the wall framing below. SEAOSC/LA City Post Northridge Earthquake committee findings indicated significant loss of veneer from buildings due to inadequate design and construction. Therefore, additional reinforcement for heavy veneer, stone and masonry veneer is needed to minimize such occurrences in the event of future significant earthquakes.
1507.3.1	Geological	Section amended to require concrete and clay tiles to be installed over solid structural sheathing boards only, due to the increased risk of significant earthquakes in the County. The changes in Section 1507.3.1 are needed because there were numerous observations of tile roofs pulling away from wood framed buildings following the 1994 Northridge Earthquake. Where sheathing beneath the tile roofs was not nailed adequately or the nails were not attached on each side of each tile or the nail just pulled out over a period of time because the shank of the nails were smooth. Northridge SEAOSC/LA City Post Northridge Earthquake committee findings indicated significant problems with tile roof due to inadequate design and/or construction. Therefore, the amendment is needed to minimize such occurrences in the event of future significant earthquakes.
Table 1507.3.7	Geological	Table amended to require proper anchorage for clay or concrete tiles from sliding or rotating due to the increased risk of significant earthquakes in the County. Design provisions developed based on detailed study of the 1994 Northridge and the 1971

Code Section	Condition	Explanation of Amendment
		Syomar earthquakes need to be incorporated into the local building code.
1613.6.7	Geological	The inclusion of the importance factor in this equation has the unintended consequence of reducing the minimum seismic separation distance for important facilities such as hospital, school, police, and fire station, etc., from adjoining structures. The deletion of the importance factor from Equation 16-44 will ensure that a safe seismic separation distance is provided. This amendment is a continuation of an amendment adopted during previous code adoption cycles, and is necessary due to the increased risk of significant earthquakes in the County.
1613.8 through 1613.8.1	Geological	The steel Buckling Restrained Braced Frame (BRBF) system was first approved for use in the 2003 NEHRP Provisions. The values for the approximate period perimeters C_1 and x were also approved as part of that original BSSC Proposal 6-6R (2003). It was an oversight that these parameters were not carried forward into the 2005 Edition of the ASCE 7. Currently, these two factors can be found in Appendix R of AISC 341-05. There, they function only as a placeholder that will be removed in the next version upon approval by ASCE 7 Task Committee on Seismic. This amendment is a continuation of an amendment adopted during previous code adoption cycles, and is necessary due to the increased risk of significant earthquakes in the County.
1613.8.2	Geological	Observed damages to one- and two-family dwellings of light frame construction after the Northridge Earthquake may have been partially attributed to vertical irregularities common to this type of occupancy and construction. In an effort to improve quality of construction and incorporate lessons learned from studies after the Northridge Earthquake, the modification to ASCE 7-05 Section 12.2.3.1 by limiting the number of stories and height of the structure to two stories will significantly minimize the impact of vertical irregularities and concentration of inelastic behavior from mixed structural systems. This amendment is a continuation of an amendment adopted during previous code adoption cycles, and is necessary due to the increased risk of significant earthquakes in the County.
1613.8.3	Geological	The importance factor, I , was dropped from equation 12.8-16 by mistake while transcribing it from NEHRP Recommended Provisions (2003) equation 5.2-16. For buildings with importance factor, I , higher than 1.0, stability coefficient should include the importance factor. The modification is consistent with the provisions adopted by OSPHD and DSA-SS as reflected in Section 1615.10.7 of the 2010 California Building Code. SEAOSC Steel Committee had supported the proposed modification during the 2007 code adoption process. This amendment is a continuation of an amendment adopted during previous code adoption cycles, and is necessary due to the increased risk of significant earthquakes in the County.

Code Section	Condition	Explanation of Amendment
1613.8.4	Geological	A joint Structural Engineers Association of Southern California (SEAOSC), Los Angeles County, and Los Angeles City Task Force investigated the performance of concrete and masonry construction with flexible wood diaphragm failures after the Northridge earthquake. It was concluded at that time that continuous ties are needed at specified spacing to control cross grain tension in the interior of the diaphragm. Additionally, subdiaphragm shears need to be limited to control combined orthogonal stresses within the diaphragm. Recognizing the importance and need to continue the recommendation made by the task force, but also taking into consideration the improved performance and standards for diaphragm construction today, a proposal to increase the continuous tie spacing limit to 40 ft in lieu of 25 ft and to use 75 percent of the allowable code diaphragm shear to determine the depth of the sub-diaphragm in lieu of the 300 pif is deemed appropriate and acceptable. The Los Angeles region is within a very active geological location. The various jurisdictions within this region have taken additional steps to prevent roof or floor diaphragms from pulling away from concrete or masonry walls. This decision was made due to the frequency of this type of failure during the past significant earthquakes. This amendment is a continuation of an amendment adopted during previous code adoption cycles.
1613.9 through 1613.9.10.5	Geological Topographical	Section is added to improve seismic safety of buildings constructed on or into hillsides. Due to the local topographical and geological conditions of the sites within the Los Angeles region and their probabilities for earthquakes, this technical amendment is required to address and clarify special needs for buildings constructed on hillside locations. A Joint Structural Engineers Association of Southern California (SEAOSC) and both the Los Angeles County and Los Angeles City Task Force investigated the performance of hillside building failures after the Northridge earthquake. Numerous hillside failures resulted in loss of life and millions of dollars in damage. These criteria were developed to minimize the damage to these structures and have been in use by both the City and County of Los Angeles for several years with much success. This amendment is a continuation of an amendment adopted during previous code adoption cycles.
1704.1	Geological Topographical	Section amended to remove the exemption of Group U from special inspection requirements. One of the significant problems discovered from the studies after the Northridge Earthquake was the extent of poor quality in construction, especially for residential wood frame accessory structures. The provisions to require that special inspectors be provided for work listed under Section 1704 to observe the actual construction will ensure that acceptable standards of workmanship are provided.
1704.4	Geological	Results from studies after the 1994 Northridge Earthquake indicated that a significant portion of the damages were attributable to lack of quality control during construction resulting in poor performance of the building or structure. Therefore, the amendment restricts the exceptions to the requirement for special inspection. This amendment is a continuation of an amendment adopted during previous code adoption cycles, and is necessary due to the increased risk of significant earthquakes in the County.

Code Section	Condition	Explanation of Amendment
1704.8	Geological	Studies after the Northridge Earthquake revealed that great confusion exists in the field over what is required by the Code in the way of special inspection beyond just piles and caissons. Connecting grade beams used in driven deep foundations will generally act like concrete beams and should not be treated like typical footings. Section 1704.4 requires concrete beams to have special inspection, but exempts the footings of buildings three stories or less in height. This amendment clarifies that the grade beams that connect driven deep foundations are not exempt from special inspection even if they are used as part of the foundation system. They are an essential part of the driven deep foundation system and should receive the same level of inspection, particularly since this type of system must resist the higher demand of seismic loads in this region. The amendment is necessary due to the increased risk of significant earthquakes in the County.
1704.9	Geological	Studies after the Northridge Earthquake revealed that great confusion exists in the field over what is required by the Code in the way of special inspection beyond just piles and caissons. Connecting grade beams used in cast-in-place deep foundations will generally act like concrete beams and should not be treated like typical footings. Section 1704.4 requires concrete beams to have special inspection, but exempts the footings of buildings three stories or less in height. This amendment clarifies that the grade beams that connect cast-in-place deep foundations are not exempt from special inspection even if they are used as part of the foundation system. They are an essential part of the cast-in-place deep foundation system and should receive the same level of inspection, particularly since this type of system must resist the higher demand of seismic loads in this region. The amendment is necessary due to the increased risk of significant earthquakes in the County.
1705.3	Geological	In Southern California, very few detached one- or two-family dwellings not exceeding two stories above grade plane are built as "box-type" structures, specially for those in hillside areas and near the oceanfront. Many with steel moment frames or braced frames, and or cantilevered columns can still be shown as "regular" structures by calculations. With the higher seismic demand placed on buildings and structures in this region, the language in Sections 1705.3 Item 3 of the California Building Code would permit many detached one- or two-family dwellings not exceeding two stories above grade plane with complex structural elements to be constructed without the benefit of special inspections. By requiring special inspections, the quality of major structural elements and connections that affect the vertical and lateral load resisting systems of the structure will greatly be increased. The exception should only be allowed for detached one- or two-family dwellings not exceeding two stories above grade plane assigned to Seismic Design category A, B, and C.
1710.1	Geological	The language in Sections 1710.1 of the California Building Code permits the owner to employ any registered design professional to perform structural observations with minimum guidelines. However, it is important to recognize that the registered design professional responsible for the structural design has thorough knowledge of the building he/she designed. By requiring the registered design professional responsible for the structural design or their designee who were involved with the design to observe the construction, the quality of the observation for major structural elements and connections that affect the vertical and lateral load resisting systems of the structure will greatly be increased. Additional requirements are provided to help clarify the role and duties of the structural observer and the method of reporting and correcting observed deficiencies to the building official. This

Code Section	Condition	Explanation of Amendment
		amendment is a continuation of an amendment adopted during previous code adoption cycles, and is necessary due to the increased risk of significant earthquakes in the County.
1710.2	Geological	With the higher seismic demand placed on buildings and structures in this region, the language in Sections 1710.2 Item 3 of the California Building Code would permit many low-rise buildings and structures with complex structural elements to be constructed without the benefit of a structural observation. By requiring a registered design professional to observe the construction, the quality of the observation for major structural elements and connections that affect the vertical and lateral load resisting systems of the structure will greatly be increased. An exception is provided to permit simple structures and buildings to be excluded. This amendment is a continuation of an amendment adopted during previous Code adoption cycles, and is necessary due to the increased risk of significant earthquakes in the County.
1807.1.4	Climatic Geological	No substantiating data has been provided to show that a wood foundation is effective in supporting buildings and structures during a seismic event while being subject to deterioration caused by the combined detrimental effect of constant moisture in the soil and wood-destroying organisms. Wood retaining walls, when they are not properly treated and protected against deterioration, have performed very poorly and have led to slope failures. Most contractors are typically accustomed to construction in dry and temperate weather in the Southern California region and are not generally familiar with the necessary precautions and treatment of wood that makes it suitable for both seismic events and wet applications. The proposed amendment takes the necessary precautionary steps to reduce or eliminate potential problems that may result by using wood foundations that experience relatively rapid decay due to the fact that the region does not experience temperatures cold enough to destroy or retard the growth and proliferation of wood-destroying organisms. This amendment is a continuation of an amendment adopted during previous Code adoption cycles, and is necessary due to the increased risk of significant earthquakes in the County.
1807.1.6	Geological	With the higher seismic demand placed on buildings and structures in this region, it is deemed necessary to take precautionary steps to reduce or eliminate potential problems that may result by following prescriptive design provisions that do not take into consideration the surrounding environment. Plain concrete performs poorly in withstanding the cyclic forces resulting from seismic events. In addition, no substantiating data has been provided to show that under-reinforced foundation walls are effective in resisting seismic loads and may potentially lead to a higher risk of failure. It is important that the benefit and expertise of a registered design professional be obtained to properly analyze the structure and take these issues into consideration. This amendment is a continuation of an amendment adopted during previous Code adoption cycles.
1809.3	Geological	With the higher seismic demand placed on buildings and structures in this region, it is deemed necessary to take precautionary steps to reduce or eliminate potential problems that may result for under-reinforced footings located on sloped surfaces. Requiring minimum reinforcement for stepped footings is intended to address the problem of poor performance of plain or under-reinforced footings during a seismic event. This amendment is a continuation of an amendment adopted during previous Code adoption cycles.

Code Section	Condition	Explanation of Amendment
1809.7 and Table 1809.7	Geological	No substantiating data has been provided to show that under-reinforced footings are effective in resisting seismic loads and may potentially lead to a higher risk of failure. Therefore, this amendment requires minimum reinforcement in continuous footings to address the problem of poor performance of plain or under-reinforced footings during a seismic event. With the higher seismic demand placed on buildings and structures in this region, it is deemed necessary to take precautionary steps to reduce or eliminate potential problems that may result by following prescriptive design provisions for footings that do not take into consideration the surrounding environment. It was important that the benefit and expertise of a registered design professional be obtained to properly analyze the structure and take these factors into consideration. This amendment reflects the recommendations by the Structural Engineers Association of Southern California (SEAOSC) and the Los Angeles City Task Force that investigated the poor performance observed in the 1994 Northridge Earthquake. This amendment is a continuation of an amendment adopted during previous code adoption cycles.
1809.12	Climatic Geological	No substantiating data has been provided to show that timber footings are effective in supporting buildings and structures during a seismic event while being subject to deterioration caused by the combined detrimental effects of constant moisture in the soil and wood-destroying organisms. Timber footings, when they are not properly treated and protected against deterioration, have performed very poorly. Most contractors are typically accustomed to construction in dry and temperate weather in the Southern California region and are not generally familiar with the necessary precautions and treatment of wood that makes it suitable for both seismic events and wet applications. The proposed amendment takes the necessary precautionary steps to reduce or eliminate potential problems that may result by using timber footings that experience relatively rapid decay due to the fact that the region does not experience temperatures cold enough to destroy or retard the growth and proliferation of wood-destroying organisms. This amendment is a continuation of an amendment adopted during previous Code adoption cycles, and is necessary due to the increased risk of significant earthquakes in the County.
1908.1 and 1908.1.11 through 1908.1.14	Geological	This amendment is intended to carry over critical provisions for the design of concrete columns in moment frames from the UBC. Increased confinement is critical to the integrity of such columns and these modifications ensure that it is provided when certain thresholds are exceeded. In addition, this amendment carries over from the UBC a critical provision for the design of concrete shear walls. It essentially limits the use of very highly gravity-loaded walls from being included in the seismic load resisting system, since their failure could have catastrophic effect on the building. Furthermore, this amendment was incorporated in the code based on observations from the 1994 Northridge Earthquake. Rebar placed in very thin concrete topping slabs has been observed in some instances to have popped out of the slab due to insufficient concrete coverage. This modification ensures that critical boundary and collector rebars are placed in sufficiently thick slabs to prevent buckling of such reinforcements. This amendment is a continuation of an amendment adopted during previous Code adoption cycles, and is necessary due to the increased risk of significant earthquakes in the County.

Code Section	Condition	Explanation of Amendment
1908.1.2	Geological	<p>By virtue of ACI 318 Section 21.1.1.7(d), intermediate precast structural walls designed under Section 21.4, material requirements intended under provisions 21.1.4, 21.1.5, 21.1.6, and 21.1.7 would be excluded for structures assigned to Seismic Design Category D, E, or F. The amendments to ACI 318 Chapter 21 are needed to ensure that structural walls designed under ASCE 7 Table 12.2-1 using the intermediate wall panel category would conform to ductility requirements comparable to special structural walls; and conformance to the long standing practice of ACI 318 to impose special requirements for high seismic design regions. This amendment gives explicit requirements under which design and detailing need to conform to special structural wall system provisions in ACI-318 Section 21.9, which covers both cast-in-place as well as precast. This amendment further gives building officials the tools to enforce minimum life safety building performance under earthquake forces in Seismic Design Category D, E, or F. This amendment is a continuation of an amendment adopted during previous code adoption cycles, and is necessary due to the increased risk of significant earthquakes in the County.</p>
1908.1.3	Geological	<p>The design provision for wall pier detailing was originally introduced by SEAOC in 1987 to legacy Uniform Building Code (UBC) and was included in the 1988 UBC through the 1997 UBC (2002 CBC). The wall pier detailing provision prescribed under Section 1908.1.4 was intended for high seismic zones equivalent to current Seismic Design Category D, E, or F. Section 1908.1.3 was added as a complement of wall pier detailing in Seismic Design Category C (formerly seismic zones 2A and 2B under the legacy model code). ACI 318 Commentary R 21.1.1 emphasized "it is essential that structures assigned to higher Seismic Design Categories possess a higher degree of toughness," and further encourages practitioners to use special structural wall systems in regions of high seismic risk. ASCE 7 Table 12.2-1 permits intermediate precast structural wall system in Seismic Design Category D, E, or F. Current Section 1908.1.3 is not limited to just structures assigned to Seismic Design Category C. The required shear strength under 21.3.3, referenced in current Section 21.4.5, is based on V_u under either nominal moment strength or two times the code prescribed earthquake force. The required shear strength in 21.6.5.1, referenced in Section 21.9.10.2 (IBC 1908.1.4), is based on the probable shear strength, V_p under the probable moment strength, M_p. In addition, the spacing of required shear reinforcement is 8 inches on center under current Section 21.4.5 instead of 6 inches on center with seismic hooks at both ends under Section 21.9.10.2. Requirement of wall pier under Section 21.9.10.2 would enhance better ductility. The current practice in commercial buildings constructed using precast panel wall systems is to have large window and door openings and/or narrow wall piers. Wall panels varying up to three stories high with openings resembles a wall frame which is not currently recognized under any of the defined seismic-force resisting systems other than consideration of structural wall systems. Conformance to special structural wall system design and detailing of wall piers ensures minimum life safety performance in resisting earthquake forces for structures in Seismic Design Category D, E, or F. The modification separates wall piers designed for structures assigned to Seismic Design Category C from those assigned to Seismic Design Category D, E, or F. This modification is consistent with the amendment adopted by DSA-SS as reflected in Section 1916.4.4 of the 2010 Edition of the California Building Code. This amendment is a continuation of an amendment adopted during previous code adoption cycles, and is necessary due to the increased risk of significant earthquakes in the County.</p>

Code Section	Condition	Explanation of Amendment
1908.1.8	Geological	This amendment requires minimum reinforcement in continuous footings to address the problem of poor performance of plain or under-reinforced footings during a seismic event. This amendment reflects the recommendations by the Structural Engineers Association of Southern California (SEAOSC) and the Los Angeles City Joint Task Force that investigated the poor performance observed in 1994 Northridge Earthquake. This amendment is a continuation of an amendment adopted during previous code adoption cycles, and is necessary due to the increased risk of significant earthquakes in the County.
1909.4	Geological	With the higher seismic demand placed on buildings and structures in this region, it is deemed necessary to take precautionary steps to reduce or eliminate potential problems that may result by permitting a reduced edge thickness of the footing that support walls without taking into consideration the surrounding environment. In addition, no substantiating data has been provided to show that the reduced edge thickness is effective in resisting seismic loads and may potentially lead to a higher risk of failure. It is important that the benefit and expertise of a registered design professional be obtained to properly analyze the structure and take these issues into consideration. This amendment is a continuation of an amendment adopted during previous code adoption cycles.

Code Section	Condition	Explanation of Amendment																																														
204.1.1	Geological	<p>A number of significant technical modifications have been made since the adoption of AISC 341-05. One such change incorporates AWS D1.8/D1.8M by reference for welding related issues. This change will be included in AISC 341-10 which is to be incorporated by reference into the 2012 Edition of the International Building Code. This proposed amendment is consistent with actions taken by both DSA-SS and OSHPD to incorporate such language in the 2010 Edition of the California Building Code. AWS D1.8/D1.8M requires that all seismic force resisting system welds are to be made with filler metals classified using AWS A5 standards that achieve the following mechanical properties:</p> <table border="1" data-bbox="570 699 1352 1171"> <thead> <tr> <th colspan="3" data-bbox="570 699 1352 730">Mechanical Properties for Demand Critical Welds</th> </tr> <tr> <th data-bbox="570 730 841 806" rowspan="2">Property</th> <th colspan="2" data-bbox="841 730 1352 751">Classification</th> </tr> <tr> <th data-bbox="841 751 1105 806">70 ksi (480 MPa)</th> <th data-bbox="1105 751 1352 806">80 ksi (550 MPa)</th> </tr> </thead> <tbody> <tr> <td data-bbox="570 806 841 858">Yield Strength, ksi (MPa)</td> <td data-bbox="841 806 1105 858">58 (400) min.</td> <td data-bbox="1105 806 1352 858">68 (470) min.</td> </tr> <tr> <td data-bbox="570 858 841 934">Tensile Strength, ksi (MPa)</td> <td data-bbox="841 858 1105 934">70 (480) min.</td> <td data-bbox="1105 858 1352 934">80 (550) min.</td> </tr> <tr> <td data-bbox="570 934 841 966">Elongation (%)</td> <td data-bbox="841 934 1105 966">22 min.</td> <td data-bbox="1105 934 1352 966">19 min.</td> </tr> <tr> <td data-bbox="570 966 841 1041">CVN Toughness, ft-lbf (J)</td> <td colspan="2" data-bbox="841 966 1352 1041">40 (54) min. @ 70 °F (20 °C)^{a, c}</td> </tr> <tr> <td colspan="3" data-bbox="570 1041 1352 1171"> <p>^a For LAST of +50 °F (+10 °C). For LAST less than +50 °F (+10 °C), see AWS D1.8/D1.8M Clause 6.3.6. ^c Tests conducted in accordance to AWS D1.8/D1.8M Annex A meeting 40 ft-lbf (54 J) min. at a temperature lower than +70 °F (20 °C) also meet this requirement.</p> </td> </tr> </tbody> </table> <p>In addition to the above requirements, AWS D1.8/D1.8M requires, unless otherwise exempted from testing, that all demand critical welds are to be made with filler metals receiving Heat Input Envelope Testing that achieve the following mechanical properties in the weld metal:</p> <table border="1" data-bbox="553 1304 1365 1770"> <thead> <tr> <th colspan="3" data-bbox="553 1304 1365 1360">Filler Metal Classification Properties for Seismic Force Resisting System Welds</th> </tr> <tr> <th data-bbox="553 1360 841 1436" rowspan="2">Property</th> <th colspan="2" data-bbox="841 1360 1365 1381">Classification</th> </tr> <tr> <th data-bbox="841 1381 1105 1436">70 ksi (480 MPa)</th> <th data-bbox="1105 1381 1365 1436">80 ksi (550 MPa)</th> </tr> </thead> <tbody> <tr> <td data-bbox="553 1436 841 1491">Yield Strength, ksi (MPa)</td> <td data-bbox="841 1436 1105 1491">58 (400) min.</td> <td data-bbox="1105 1436 1365 1491">68 (470) min.</td> </tr> <tr> <td data-bbox="553 1491 841 1566">Tensile Strength, ksi (MPa)</td> <td data-bbox="841 1491 1105 1566">70 (480) min.</td> <td data-bbox="1105 1491 1365 1566">80 (550) min.</td> </tr> <tr> <td data-bbox="553 1566 841 1598">Elongation, %</td> <td data-bbox="841 1566 1105 1598">22 min.</td> <td data-bbox="1105 1566 1365 1598">19 min.</td> </tr> <tr> <td data-bbox="553 1598 841 1673">CVN Toughness, ft-lbf (J)</td> <td colspan="2" data-bbox="841 1598 1365 1673">20 (27) min. @ 0 °F (-18 °C)^a</td> </tr> <tr> <td colspan="3" data-bbox="553 1673 1365 1770"> <p>^a Filler metals classified as meeting 20 ft-lbf (27 J) min. at a temperature lower than 0 °F (-18 °C) also meet this requirement.</p> </td> </tr> </tbody> </table> <p>The amendment is necessary due to the increased risk of significant earthquakes in the County.</p>	Mechanical Properties for Demand Critical Welds			Property	Classification		70 ksi (480 MPa)	80 ksi (550 MPa)	Yield Strength, ksi (MPa)	58 (400) min.	68 (470) min.	Tensile Strength, ksi (MPa)	70 (480) min.	80 (550) min.	Elongation (%)	22 min.	19 min.	CVN Toughness, ft-lbf (J)	40 (54) min. @ 70 °F (20 °C) ^{a, c}		<p>^a For LAST of +50 °F (+10 °C). For LAST less than +50 °F (+10 °C), see AWS D1.8/D1.8M Clause 6.3.6. ^c Tests conducted in accordance to AWS D1.8/D1.8M Annex A meeting 40 ft-lbf (54 J) min. at a temperature lower than +70 °F (20 °C) also meet this requirement.</p>			Filler Metal Classification Properties for Seismic Force Resisting System Welds			Property	Classification		70 ksi (480 MPa)	80 ksi (550 MPa)	Yield Strength, ksi (MPa)	58 (400) min.	68 (470) min.	Tensile Strength, ksi (MPa)	70 (480) min.	80 (550) min.	Elongation, %	22 min.	19 min.	CVN Toughness, ft-lbf (J)	20 (27) min. @ 0 °F (-18 °C) ^a		<p>^a Filler metals classified as meeting 20 ft-lbf (27 J) min. at a temperature lower than 0 °F (-18 °C) also meet this requirement.</p>		
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HOA.738871.4

Code Section	Condition	Explanation of Amendment
2304.9.1 and Table 2304.9.1	Geological	Due to the high geologic activities in the Southern California area and the expected higher level of performance on buildings and structures, this proposed local amendment limits the use of staple fasteners in resisting or transferring seismic forces. In September 2007, limited cyclic testing data was provided to the ICC Los Angeles Chapter Structural Code Committee showing that stapled wood structural shear panels do not exhibit the same behavior as nailed wood structural shear panels. The test results of stapled wood structural shear panels appeared much lower in strength and drift than nailed wood structural shear panel test results. Therefore, the use of staples as fasteners to resist or transfer seismic forces shall not be permitted without being substantiated by cyclic testing. This amendment is a continuation of a similar amendment adopted during previous code adoption cycles, and is necessary due to the increased risk of significant earthquakes in the County.
2304.11.7	Climatic Geological	No substantiating data has been provided to show that wood used in retaining or crib walls is effective in supporting buildings and structures during a seismic event while being subject to deterioration caused by the combined detrimental effect of constant moisture in the soil and wood-destroying organisms. Wood used in retaining or crib walls, when it is not properly treated and protected against deterioration, has performed very poorly. Most contractors are typically accustomed to construction in dry and temperate weather in the Southern California region and are not generally familiar with the necessary precautions and treatment of wood that makes it suitable for both seismic events and wet applications. The proposed amendment takes the necessary precautionary steps to reduce or eliminate potential problems that may result by using wood in retaining or crib walls that experience relatively rapid decay due to the fact that the region does not experience temperatures cold enough to destroy or retard the growth and proliferation of wood-destroying organisms. This amendment is a continuation of an amendment adopted during previous code adoption cycles, and is necessary due to the increased risk of significant earthquakes in the County.
2305.4	Geological	The overdriving of nails into the structural wood panels still remains a concern when pneumatic nail guns are used for wood structural panel shear wall nailing. Box nails were observed to cause massive and multiple failures of the typical 3/8-inch thick plywood during the 1994 Northridge Earthquake. The use of clipped head nails continues to be restricted from use in wood structural panel shear walls where the minimum nail head size must be maintained in order to minimize nails from pulling through sheathing materials. Clipped or mechanically driven nails used in wood structural panel shear wall construction were found to perform much worse in previous wood structural panel shear wall testing done at the University of California Irvine. The existing test results indicated that, under cyclic loading, the wood structural panel shear walls were less energy absorbent and less ductile. The panels reached ultimate load capacity and failed at substantially less lateral deflection than those using same size hand-driven nails. This amendment reflects the recommendations by the Structural Engineers Association of Southern California (SEAOSC) and the Los Angeles City Joint Task Force that investigated the poor performance observed in 1994 Northridge Earthquake. This amendment is a continuation of an amendment adopted during previous code adoption cycles, and is necessary due to the increased risk of significant earthquakes in the County.

Code Section	Condition	Explanation of Amendment
2305.5	Geological	<p>Many of the hold-down connectors currently in use do not have any acceptance report based on dynamic testing protocol. This amendment continues to limit the allowable capacity to 75% of the acceptance report value to provide an additional factor of safety for statically tested anchorage devices. Cyclic forces imparted on buildings and structures by seismic activity cause more damage than equivalent forces which are applied in a static manner. Steel plate washers will reduce the additional damage which can result when hold-down connectors are fastened to wood framing members. This amendment reflects the recommendations by the Structural Engineers Association of Southern California (SEAOSC) and the Los Angeles City Joint Task Force that investigated the poor performance observed in the 1994 Northridge Earthquake. This amendment is a continuation of an amendment adopted during previous code adoption cycles, and is necessary due to the increased risk of significant earthquakes in the County.</p>
2306.2.1 and Tables 2306.2.1(3) through 2306.2.1(4)	Geological	<p>The Structural Engineers Association of Southern California (SEAOSC) and the Los Angeles City Joint Task Force that investigated the damages to buildings and structures during the 1994 Northridge Earthquake recommended reducing allowable shear values in wood structural panel shear walls or diaphragms that were not substantiated by cyclic testing. That recommendation was consistent with a report to the Governor from the Seismic Safety Commission of the State of California recommending that code requirements be "more thoroughly substantiated with testing." The allowable shear values for wood structural panel shear walls or diaphragms fastened with staples are based on monotonic testing and do not take into consideration that earthquake forces load shear wall or diaphragm in a repeating and fully reversible manner. In September 2007, limited cyclic testing was conducted by a private engineering firm to determine if wood structural panels fastened with staples would exhibit the same behavior as wood structural panels fastened with common nails. The test result revealed that wood structural panels fastened with staples appeared to be much lower in strength and stiffness than wood structural panels fastened with common nails. It was recommended that the use of staples as fasteners for wood structural panel shear walls or diaphragms not be permitted to resist seismic forces in structures assigned to Seismic Design Category D, E and F unless it can be substantiated by cyclic testing. Furthermore, the cities and unincorporated areas within the Los Angeles region have taken extra measures to maintain the structural integrity of the framing of shear walls and diaphragms designed for high levels of seismic forces by requiring wood sheathing be applied directly over the framing members and prohibiting the use of panels placed over gypsum sheathing. This amendment is intended to prevent the undesirable performance of nails when gypsum board softens due to cyclic earthquake displacements and the nail ultimately does not have any engagement in a solid material within the thickness of the gypsum board. This amendment continues the previous amendment adopted during the 2007 code adoption cycle.</p>

Code Section	Condition	Explanation of Amendment
2306.3 and Tables 2306.3 through 2306.3(2)	Geological	<p>The Structural Engineers Association of Southern California (SEAOSC) and the Los Angeles City Joint Task Force that investigated the damages to buildings and structures during the 1994 Northridge Earthquake recommended reducing allowable shear values in wood structural panel shear walls or diaphragms that were not substantiated by cyclic testing. That recommendation was consistent with a report to the Governor from the Seismic Safety Commission of the State of California recommending that code requirements be "more thoroughly substantiated with testing." The allowable shear values for wood structural panel shear walls or diaphragms fastened with stapled nails are based on monotonic testing and do not take into consideration that earthquake forces load shear wall or diaphragm in a repeating and fully reversible manner. In September 2007, limited cyclic testing was conducted by a private engineering firm to determine if wood structural panels fastened with stapled nails would exhibit the same behavior as wood structural panels fastened with common nails. The test result revealed that wood structural panel fastened with stapled nails appeared to be much lower in strength and stiffness than wood structural panels fastened with common nails. It was recommended that the use of stapled nail as fasteners for wood structural panel shear walls or diaphragms not be permitted to resist seismic forces in structures assigned to Seismic Design Category D, E and F unless it can be substantiated by cyclic testing. Furthermore, the cities and unincorporated areas within the Los Angeles region have taken extra measures to maintain the structural integrity of the framing of shear walls and diaphragms designed for high levels of seismic forces by requiring wood sheathing be applied directly over the framing members and prohibiting the use of panels placed over gypsum sheathing. This amendment is intended to prevent the undesirable performance of nails when gypsum board softens due to cyclic earthquake displacements and the nail ultimately does not have any engagement in a solid material within the thickness of the gypsum board. This amendment continues the previous amendment adopted during the 2007 code adoption cycle, and is necessary due to the increased risk of significant earthquakes in the County.</p>
2306.7	Geological	<p>Due to the high geologic activities in the Southern California area and the expected higher level of performance on buildings and structures, this amendment limits the location where shear walls sheathed with lath, plaster or gypsum board are used in multi-level buildings. The poor performance of such shear walls sheathed with other materials in the 1994 Northridge Earthquake was investigated by the Structural Engineers Association of Southern California (SEAOSC) and the Los Angeles City Task Force and formed the basis for this amendment. Considering that shear walls sheathed with lath, plaster or gypsum board are less ductile than steel moment frames or wood structural panel shear walls, the cities and unincorporated areas of the Los Angeles region have taken the necessary measures to limit the potential structural damage that may be caused by the use of such walls at the lower level of multi-level building that are subject to higher levels of seismic loads. This amendment is a continuation of an amendment adopted during previous code adoption cycles.</p>

Code Section	Condition	Explanation of Amendment
2308.3.4	Geological	With the higher seismic demand placed on buildings and structures in this region, interior walls can easily be called upon to resist over half of the seismic loading imposed on simple buildings or structures. Without a continuous foundation to support the braced wall line, seismic loads would be transferred through other elements such as non-structural concrete slab floors, wood floors, etc. The purpose of this amendment is to limit the use of the exception to structures assigned to Seismic Design Category A, B or C where lower seismic demands are expected. Requiring interior braced walls be supported by continuous foundations is intended to reduce or eliminate the poor performance of buildings or structures. This amendment is a continuation of an amendment adopted during previous code adoption cycles.
2308.12.2	Geological	Additional weight attributed to the use of heavy veneer substantially increases loads to conventionally braced walls in an earthquake. Moreover, normal to greater than normal wall loads that occur in an earthquake can seriously overstress wood bearing walls in combined seismic/gravity load combinations. Numerous conventionally framed veneer covered structures sustained serious damages in the Northridge Earthquake as a result of the heavy weight of the veneer. This amendment is a continuation of an amendment adopted during previous code adoption cycles, and is necessary due to the increased risk of significant earthquakes in the County.
2308.12.4 and Table 2308.12.4	Geological	This amendment specifies minimum sheathing thickness and nail size and spacing so as to provide a uniform standard of construction for designers and buildings to follow. This is intended to improve the performance level of buildings and structures that are subject to the higher seismic demands placed on buildings or structure in this region. This proposed amendment reflects the recommendations by the Structural Engineers Association of Southern California (SEAOSC) and the Los Angeles City Joint Task Force that investigated the poor performance observed in 1994 Northridge Earthquake. This amendment is a continuation of an amendment adopted during previous code adoption cycles, and is necessary due to the increased risk of significant earthquakes in the County.
2308.12.5	Geological	Due to the high geologic activities in the Southern California area and the expected higher level of performance on buildings and structures, this amendment limits the use of staple fasteners in resisting or transferring seismic forces. In September 2007, limited cyclic testing data was provided to the ICC Los Angeles Chapter Structural Code Committee showing that stapled wood structural shear panels do not exhibit the same behavior as nailed wood structural shear panels. The test results of stapled wood structural shear panels appeared much lower in strength and drift than nailed wood structural shear panel test results. Therefore, the use of staples as fasteners to resist or transfer seismic forces shall not be permitted without being substantiated by cyclic testing. This amendment is a continuation of a similar amendment adopted during previous code adoption cycles.
3401.8.1 to 3401.8.3	Geological	The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. The purpose of the amendments is to prevent inadequate construction or bracing to resist horizontal forces, thus becoming a hazard to life or property in the event of an earthquake.

Code Section	Condition	Explanation of Amendment
3401.9	Geological	The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. The purpose of the amendment is to save lives in the event of an earthquake when panics occur and glass shatters.
J101.1	Geological Topographical Climate	This section is revised to include erosion and sediment control measures to address the complex and diverse set of soil types and geologic conditions that exist in the Los Angeles County region.
J103.1 – J103.2	Geological Topographical Climate	This section is revised to provide adequate control of grading operations typical to the Los Angeles County region due to the complex and diverse set of soil types, climates, and geologic conditions that exist in the Los Angeles County region.
J104.2.1 – J104.4	Geological Topographical Climate	Sections revised or added to provide adequate control of grading operations typical to the Los Angeles County region due to the complex and diverse set of soil types, climates, and geologic conditions that exist in the Los Angeles County region.
J105.1- J105.14	Geological Topographical Climate	Sections revised or added to provide adequate control of grading operations typical to the Los Angeles County region due to the complex and diverse set of soil types, climates, and geologic conditions that exist in the Los Angeles County region.
J106.1	Geological Topographical Climate	Section revised to require more stringent cut slope ratios to address the complex and diverse set of soil types and geologic conditions that exist in the Los Angeles County region.
J106.2	Geological Topographical Climate	Section added to require drainage terraces to address the complex and diverse set of soil types, climates, and geologic conditions which exist in the Los Angeles County region.
J107.1- J107.7	Geological Topographical Climate	Sections revised to provide more stringent fill requirements for slope stability, and settlement due to the complex and diverse set of soil types, climates, and geologic conditions which exist in the Los Angeles County region.
J107.8 – J107.9	Geological Topographical Climate	Sections revised to provide more stringent inspection and testing requirements for fill slope stability due to the complex and diverse set of soil types, climates, and geologic conditions which exist in the Los Angeles County region.
J108.1 – J108.4	Geological Topographical Climate	Sections revised to provide more stringent slope setback requirements to address the complex and diverse set of soil types, climates, and geologic conditions which exist in the Los Angeles County region.
J109.1 – J109.3	Geological Topographical Climate	Sections revised to provide more stringent drainage and terracing requirements to address the complex and diverse set of soil types, climates, and geologic conditions which exist in the Los Angeles County region.
J109.5	Geological Topographical Climate	Subsection added to provide for adequate outlet of drainage flows due to the diverse set of soil types, climates, and geologic conditions which exist in the Los Angeles County region.
J110 – J110.8.5	Geological Topographical Climate	Sections revised or added to provide for State requirements of storm water pollution prevention and more stringent slope planting, and slope stability requirements to control erosion due to the complex and diverse set of soil types, climates, and geologic conditions that exist in the Los Angeles County region.
J111	Geological Topographical Climate	Section revised to reference additional standards for soils testing due to the complex and diverse set of soil types, climates, and geologic conditions that exist in the Los Angeles County region.

SECTION 109. This ordinance shall become operative on January 1, 2011.

[TITLE26MYCC]

HOA.738871.4

ELECTRICAL CODE AMENDMENTS

CODE SECTION	CONDITION	EXPLANATION
690.19	Geological	Emergency situations caused by seismic events may require the disconnection of electrical power in a building. Presently, the CEC does not require a disconnecting means for conductors for multi-arrayed solar photovoltaic systems.

SECTION 7. This ordinance shall become operative on January 1, 2011.

[TITLE27MYCC]

SECTION 17. The provisions of this ordinance contain various changes, modifications, and additions to the 2010 Edition of the California Plumbing Code. Some of these changes are administrative in nature in that they do not constitute changes or modifications to requirements contained in the building standards published in the California Building Standard Code.

Pursuant to California Health and Safety Code sections 17958.5, 17958.7, and 18941.5, the Board of Supervisors hereby expressly finds that all of the changes and modifications to requirements contained in the building standards published in the California Building Standards Code, contained in this ordinance, which are not administrative in nature, are reasonably necessary because of local climatic, geological, or topographical conditions in the County of Los Angeles as more particularly described in the table set forth below.

Plumbing Code Amendments

CODE SECTION	CONDITION	EXPLANATION
K3.0	Geological, Topographical,	To establish more restrictive requirements for protection of local groundwater due to local soil conditions.
K4.0(C)	Geological, Topographical	To establish more restrictive requirements for protection of local groundwater due to local soil conditions.
K8.0(E)	Geological, Topographical	To establish more restrictive requirements for protection of local groundwater due to local soil conditions.

CODE SECTION	CONDITION	EXPLANATION
K6.0(H)	Geological, Topographical	To establish more restrictive requirements for protection of local groundwater due to local soil conditions.
K7.0(B)	Geological, Topographical	To establish more restrictive requirements for protection of local groundwater due to local soil conditions.
K10.0(A)(5)	Geological	To establish more restrictive requirements to prevent earth movement based on local soil and seismic conditions.
K11.0(F)	Geological	To establish more restrictive requirements to prevent earth movement based on local soil and seismic conditions.
Table K-3	Geological, Topographical	To establish more restrictive requirements for protection of local groundwater due to local soil conditions, sewer capacity, and sewage treatment.
Table K-4	Geological, Topographical	To establish consistency with requirements of the County Health Department, for sewer capacity, and sewage treatment due to local soil conditions.
Table K-5	Geological, Topographical	To establish consistency with requirements of the County Health Department for sewer capacity, and sewage treatment, due to local soil conditions.

SECTION 18. This ordinance shall become operative on January 1, 2011.

[TITLE28MYCC]

TABLE

MECHANICAL CODE AMENDMENTS		
CODE SECTION	CONDITION	EXPLANATION
501	Climatic	Additional Health Department requirements are necessary due to local air quality concerns.
510.1.7	Geological	To reduce damage during a seismic event.
604.2	Geological	To reduce damage during a seismic event.
1119.4	Geological	To reduce the potential for release of toxic refrigerant caused by shifting equipment during a seismic event.

SECTION 15. This ordinance shall become operative on January 1, 2011.

[TITLE29MYCC]

administrative in nature, are reasonably necessary because of local climatic, geological, or topographical conditions in the County of Los Angeles as more particularly described in the table set forth below.

Code Section	Condition	Explanation of Amendment
R301.1.3.2	Geological	After the 1994 Northridge Earthquake, the Wood Frame Construction Joint Task Force recommended that the quality of wood frame construction needs to be greatly improved. One such recommendation identified by the Task Force is to improve the quality and organization of structural plans prepared by the engineer or architect so that plan examiners, building inspectors, contractors, and special inspectors may logically follow and construct the presentation of the seismic force-resisting systems in the construction documents. For buildings or structures located in Seismic Design Category D ₀ , D ₁ , D ₂ , or E that are subject to a greater level of seismic forces, the requirement to have a California licensed architect or engineer prepare the construction documents is intended to minimize or reduce structural deficiencies that may cause excessive damage or injuries in wood frame buildings. Structural deficiencies such as plan and vertical irregularities, improper shear transfer of the seismic force-resisting system, missed details or connections important to the structural system, and the improper application of the prescriptive requirements of the California Residential Code can be readily addressed by a registered design professional.
R301.1.4	Geological Topographical	This technical amendment is for buildings constructed on hillsides. Due to the local topographical and geological conditions of the sites within the greater Los Angeles region and their susceptibility to earthquakes, this amendment is required to address and clarify special needs for buildings constructed on hillside locations. A joint Structural Engineers Association of Southern California (SEAOSC), Los Angeles County, and Los Angeles City Task Force investigated the performance of hillside building failures after the Northridge earthquake. Numerous hillside failures resulted in loss of life and

Code Section	Condition	Explanation of Amendment
		millions of dollars in damage. These criteria were developed to minimize the damage to these structures and have been in use by the City and County of Los Angeles for several years.
R301.2.2.2.5	Geological	Due to the high geologic activities in the Southern California area and the expected higher level of performance on buildings and structures, this local amendment limits the type of irregular conditions as specified in the 2010 California Residential Code. Such limitations are recommended to reduce structural damages in the event of an earthquake. The cities and county of the Los Angeles region have taken extra measures to maintain the structural integrity of the framing of the shear walls and all associated elements when designed for high levels of seismic loads.
R301.2.2.3.5.1	Geological	The term "one" in AISI S230, Section B1 conflicts with Table B1-1, whereas in the table it states the "thinnest connected steel sheet." The term "one" in the AISI S230, Section B1 language can misleadingly be interpreted as though one of the sheets can be 33 mils and the other sheet thicker, but that you still qualify for a reduction factor; this is not the intent of the tables. For example, in a steel-to-steel connection consisting of a 33 mils and 44 mils, and if in any part of the code it is required to provide (4) No. 8 screws; according to Table B1-1 the factor 1.0 would apply to the required number of screws and thus a reduction of screws would not be allowed.
R322.1.4.1	Geological Topographical	This amendment is intended to clarify who should perform studies and analyses for design flood elevations. Based on our vast experience with drainage and grading sites, we have concluded that registered civil engineers are highly equipped to perform such design and analyses.
R327	Climatic	States that Chapter R327 requirements are applicable to all occupancy groups as wildfire exposure impacts all types of buildings and structures. This amendment is needed due to the high-fire severity zones caused by low humidity, strong winds and dry vegetation.
R327.1.1	Climatic	Clarifies the application of Chapter R327 to include additions, alterations, and/or relocated buildings. Additions, alterations, and/or relocated buildings have the same fire risk as new buildings.

Code Section	Condition	Explanation of Amendment
R327.1.3	Climatic	Clarifies the application of Chapter R327 to include additions, alterations, and/or relocated buildings. Additions, alterations, and/or relocated buildings have the same fire risk as new buildings.
R327.1.3.1	Climatic	Clarifies the application of Chapter R327 to include additions, alterations, and/or relocated buildings. Additions, alterations, and/or relocated buildings have the same fire risk as new buildings.
R327.3.5.2	Climatic	Due to low humidity, strong winds, and dry vegetation in high-fire severity zones, the Fire Department could not find sufficient evidence to allow the use of wood-shingle/wood-shake roof.
R327.3.5.2.2	Climatic	Due to low humidity, strong winds and dry vegetation in high-fire severity zones, the Fire Department could not find sufficient evidence to allow the use of wood-shingle/wood-shake roof.
R327.4.3	Climatic	Due to low humidity, strong winds, and dry vegetation in high-fire severity zones, the Fire Department could not find sufficient evidence to allow the use of wood-shingle/wood-shake roof.
R327.5.2	Climatic	Due to low humidity, strong winds, and dry vegetation in high-fire severity zones, the Fire Department could not find sufficient evidence to allow the use of wood-shingle/wood-shake roof and would require the use of Class A roof covering.
R401.1	Geological	Wood foundations, even those that are preservative-treated, encounter a higher risk of deterioration when contacting the adjacent ground. The required seismic anchorage and transfer of lateral forces into the foundation system necessary for 2-story structures and foundation walls could become compromised at varying states of wood decay. In addition, global structure overturning moment and sliding resistance is reduced when utilizing wood foundations as opposed to conventional concrete or masonry systems. However, non-occupied, single-story storage structures pose significantly less risk to human safety and should be able to utilize the wood foundation guidelines specified in this Chapter.
R403.1.2 R403.1.3 R403.1.5	Climatic Geological	This proposed amendment requires minimum reinforcement in continuous footings and stepped footings to address the problem of poor performance of plain or under-reinforced footings during a seismic event. This amendment reflects the recommendations by the

Code Section	Condition	Explanation of Amendment
		<p>Structural Engineers Association of Southern California (SEAOSC) and the Los Angeles City Joint Task Force that investigated the poor performance observed in the 1994 Northridge Earthquake. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles. Interior walls can easily be called upon to resist over half of the seismic loading imposed on simple buildings or structures. Without a continuous foundation to support the braced wall line, seismic loads would be transferred through other elements such as non-structural concrete slab floors, wood floors, etc. Requiring interior braced walls be supported by continuous foundations is intended to reduce or eliminate the poor performance of buildings or structures.</p>
R404.2	Climatic Geological	<p>No substantiating data has been provided to show that wood foundations are effective in supporting structures and buildings during a seismic event while being subject to deterioration caused by presence of water in the soil as well as other materials detrimental to wood foundations. Wood foundations, when they are not properly treated and protected against deterioration, have performed very poorly and have led to slope failures. Most contractors are typically accustomed to construction in dry weather in the Southern California region and are not generally familiar with the necessary precautions and treatment of wood that makes it suitable for both seismic events and wet applications. With the higher seismic demand placed on buildings and structures in this region, coupled with the dryer weather conditions here as oppose to the northern and eastern part of the country, it is the intent of this proposal to take the necessary precautionary steps to reduce or eliminate potential problems that may result from the use of wood footings and foundations that does not take into consideration the conditions of this surrounding environment.</p>
R501.1	Geological	<p>There is no limitation for weight of mechanical and plumbing fixtures and equipment in the CRC Code. Requirements of ASCE 7-05 and CBC are necessary that limits equipment weight up to 400 pounds, mounted at 4 feet or less above the floor or attic level without engineering design.</p>

Code Section	Condition	Explanation of Amendment
R503.2.4	Geological	Section R502.10 of the Code does not provide any prescriptive criteria to limit the maximum floor opening size nor does Section R503 provide any details to address the issue of shear transfer near larger floor openings. With the higher seismic demand placed on buildings and structures in this region, it is important to ensure that a complete load path is provided to reduce or eliminate potential damages caused by seismic forces. Requiring blocking with metal ties around larger floor openings and limiting opening size is consistent with the requirements of Section R301.2.2.2.5.
602.3.2	Geological	The cities and county of the Los Angeles region have taken extra measures to maintain the structural integrity of the framing of the shear walls when designed for high levels of seismic loads by eliminating single top plate construction. The performance of modern day braced wall panel construction is directly related to an adequate load path extending from the roof diaphragm to the foundation system.
Table R602.3(1)	Geological	In September 2007, limited cyclic testing data was provided to the ICC Los Angeles Chapter Structural Code Committee showing that stapled wood structural shear panels do not exhibit the same behavior as the nailed wood structural shear panels. As a matter of fact, the test results of the stapled wood structural shear panels appeared much lower in strength and drift than the nailed wood structural shear panel test results. Therefore, the use of staples as fasteners for shear walls sheathed with other materials shall not be permitted without being substantiated by cyclic testing. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles for the California Building Code.
Table R602.3(2)	Geological	In September 2007, limited cyclic testing data was provided to the ICC Los Angeles Chapter Structural Code Committee showing that stapled wood structural shear panels do not exhibit the same behavior as the nailed wood structural shear panels. As a matter of fact, the test results of the stapled wood structural shear panels appeared much lower in strength and drift than the nailed wood structural shear panel test results. Therefore, the

Code Section	Condition	Explanation of Amendment
		<p>use of staples as fasteners for shear walls sheathed with other materials shall not be permitted without being substantiated by cyclic testing. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles for the California Building Code.</p>
<p>Table R602.10.1.2(2)</p>	<p>Geological</p>	<p>Due to the high geologic activities in the Southern California area and the expected higher level of performance on buildings and structures, this local amendment continues to reduce/eliminate the allowable shear values for shear walls sheathed with lath, plaster, or gypsum board. The poor performance of such shear walls sheathed with other materials in the 1994 Northridge Earthquake was investigated by the Structural Engineers Association of Southern California (SEAOSC) and the Los Angeles City Task Force. The cities and county of the Los Angeles region have taken extra measures to maintain the structural integrity of the framing of the shear walls when designed for high levels of seismic loads. In addition, this proposed amendment is consistent with the conventional framing provisions of the 2010 California Building Code.</p>
<p>Table R602.10.2</p>	<p>Geological</p>	<p>3/8" thick 3 ply-plywood shear walls experienced many failures during the Northridge Earthquake. This proposed amendment specifies minimum WSP sheathing thickness and nail size and spacing so as to provide a uniform standard of construction for designers and buildings to follow. This is intended to improve the performance level of buildings and structures that are subject to the higher seismic demands placed on buildings or structure in this region. This proposed amendment reflects the recommendations by the Structural Engineers Association of Southern California (SEAOSC) and the Los Angeles City Joint Task Force that investigated the poor performance observed in 1994 Northridge Earthquake. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles for the California Building Code. In September 2007, cyclic testing data was provided to the structural code committee showing that stapled wood structural shear panels do not exhibit the same behavior as the nailed</p>

Code Section	Condition	Explanation of Amendment
		wood structural shear panels. In addition, the test results of the stapled wood structural shear panels appeared much lower in strength and drift than the nailed wood structural shear panel test results.
Figure R602.10.3.2	Geological	3/8" thick 3 ply-plywood shear walls experienced many failures during the Northridge Earthquake. The poor performance of such shear walls sheathed in the 1994 Northridge Earthquake was investigated by the Structural Engineers Association of Southern California (SEAOSC) and the Los Angeles City Task Force. Box nails were observed to cause massive and multiple failures of the typical 3/8" thick 3 ply-plywood during the Northridge Earthquake. The cities and county of the Los Angeles region have taken extra measures to maintain the structural integrity of the framing of the shear walls when designed for high levels of seismic loads. The proposal for minimum lap splice requirement is consistent with Section 12.16.1 of ACI 318-05. The performance of modern day braced wall panel construction is directly related to an adequate load path extending from the roof diaphragm to the foundation system. This proposed amendment continues amendments adopted during the previous code cycle for the California Building Code.
R602.10.3.3	Geological	The proposal to change the minimum lap splice requirement is consistent with Section 12.16.1 of ACI 318-05.
Figure R602.10.3.3	Geological	3/8" thick 3 ply-plywood shear walls experienced many failures during the Northridge Earthquake. The poor performance of such shear walls sheathed in the 1994 Northridge Earthquake was investigated by the Structural Engineers Association of Southern California (SEAOSC) and the Los Angeles City Task Force. The cities and county of the Los Angeles region have taken extra measures to maintain the structural integrity of the framing of the shear walls when designed for high levels of seismic loads. Box nails were observed to cause massive and multiple failures of the typical 3/8-inch thick plywood during the Northridge Earthquake. This proposed amendment continues amendments adopted during the previous code cycle for the California Building Code.

Code Section	Condition	Explanation of Amendment
Table R602.10.4.1	Geological	<p>3/8" thick 3 ply-plywood shear walls experienced many failures during the Northridge Earthquake. The poor performance of such shear walls sheathed in the 1994 Northridge Earthquake was investigated by the Structural Engineers Association of Southern California (SEAOSC) and the Los Angeles City Task Force. The cities and county of the Los Angeles region have taken extra measures to maintain the structural integrity of the framing of the shear walls when designed for high levels of seismic loads. This proposed amendment continues the previous amendment adopted during the 2007 code adoption cycle for the California Building Code. In September 2007, limited cyclic testing data was provided to the ICC Los Angeles Chapter Structural Code Committee showing that stapled wood structural shear panels do not exhibit the same behavior as the nailed wood structural shear panels. As a matter of fact, the test results of the stapled wood structural shear panels appeared much lower in strength and drift than the nailed wood structural shear panel test results. Therefore, the use of staples as fasteners for shear walls sheathed with other materials shall not be permitted without being substantiated by cyclic testing. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles.</p>
Figure R602.10.4.1.1	Geological	<p>3/8" thick 3 ply-plywood shear walls experienced many failures during the Northridge Earthquake. The poor performance of such shear walls sheathed in the 1994 Northridge Earthquake was investigated by the Structural Engineers Association of Southern California (SEAOSC) and the Los Angeles City Task Force. The cities and county of the Los Angeles region have taken extra measures to maintain the structural integrity of the framing of the shear walls when designed for high levels of seismic loads. This proposed amendment continues the previous amendment adopted during the 2007 code adoption cycle for the California Building Code. The proposal in which "washers shall be a minimum of 0.229 inch by 3 inches by 3 inches in size" is consistent with Section R602.11.1 of the 2010 California Residential Code and Section 2308.12.8 of the 2010 California Building Code.</p>

Code Section	Condition	Explanation of Amendment
R802.10.7.1	Geological	The performance of modern day braced wall panel construction is directly related to an adequate load path extending from the roof diaphragm to the foundation system. Interior braced wall panels, therefore, are also directly dependent upon the adequacy of the foundation system. In addition, the proposed amendment for Section R403.1.2 specifies that all exterior walls and required interior braced wall panels in buildings shall be supported with continuous footings.
R606.2.4	Geological	The addition of the word "or" will prevent the use of unreinforced parapets in Seismic Design Category D ₀ , D ₁ , or D ₂ , or on townhouses in Seismic Design Category C.
Table R802.5.1(9)	Geological	The number of nails required for the heel joint connection per Table R802.5.1(9) can be excessive depending on the rafter slope, spacing, and roof span. This footnote will help to prevent splitting of connecting wood members when large numbers of nail are required as stated in the National Design Specification for Wood Construction (NDS).
R802.8	Geological	This proposed amendment provides provisions to ensure that the ends of wood members and the points of bearing have adequate lateral support to prevent rotation and to help stabilize the members during construction. This proposed amendment is consistent with and similar to requirements contained in the NDS.
R802.10.2	Geological	Wood trusses are engineered structural elements that require engineered design and calculations. This amendment provides clarifications that all wood truss design drawings are to be prepared by a registered professional.
R803.2.4	Geological	Section R802 of the Code does not provide any prescriptive criteria to limit the maximum size of roof openings, nor does Section R803 provide any details to address the issue of shear transfer near larger roof openings. With the higher seismic demand placed on buildings and structures in this region, it is important to ensure that a complete load path is provided to reduce or eliminate potential damage caused by seismic forces. Requiring blocking with metal ties around larger roof openings and limiting the size of openings is consistent with the requirements of Section R301.2.2.2.5.

Code Section	Condition	Explanation of Amendment
R1001.3.1	Geological	The performance of fireplaces/chimneys without anchorage to the foundation has been observed to be inadequate during major earthquakes. The lack of anchorage to the foundation results in overturn or displacement.

SECTION 53. This ordinance shall become operative on January 1, 2011.

[30RESBLDNGMYCC]