



# BEAC PUBLIC HEARING

## LOCAL ADOPTION OF THE LATEST CALIFORNIA BUILDING STANDARDS CODE AND UNIFORM HOUSING CODE

**AUGUST 19, 2019**

**PREPARED BY**



**SUSTAINABLE  
LONG BEACH**

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**PROPOSED AMENDMENT:**

Section 18.40.010 of the Long Beach Municipal Code is amended to read as follows:

18.40.010 – Adoption.

The City Council adopts and incorporates by reference as though set forth in full in this chapter the ~~2016~~2019 Edition of the California Building Code (herein referred to as the “California Building Code”). The California Building Code is Part 2 of the California Code of Regulations, Title 24, also referred to as the California Building Standards Code. This part is based on the provisions of the ~~2015~~2018 Edition of the International Building Code (herein referred to as the “International Building Code”) as developed by the International Code Council with necessary California amendments. The following appendices of the California Building Code are included: Appendices C, ~~G~~, and I, and J. The following sections, chapters or appendices of the California Building Code are deleted: Sections 101 through 116 of Chapter 1, Division II; Section 3113 of Chapter 31, and Section 3308 of Chapter 33; Chapters 27, 28, 29, 31A, 31C, 31D, 31E, 31F, and 34; and Appendices A, B, D, E, F, ~~G~~, H, ~~J~~, K, L, and M, N, and O.

The adoption of the California Building Code is subject to the changes, amendments and modifications to said code as provided in this chapter, and certain provisions of the Long Beach Municipal Code, which shall remain in full force and effect as provided in this title. Such codes and code provisions shall constitute and be known as the Long Beach Building Code. A copy of the California Building Code, printed as code in book form, shall be on file in the Office of the City Clerk.

**RATIONALE:**

Administrative changes to reference the latest edition of the State’s code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles. This proposed amendment makes administrative changes to reflect that certain non-mandatory sections, chapters, and/or appendices are either included or deleted as part of the code adoption.

**FINDINGS:**

Local Administrative Clarification – Amendment is necessary for local administrative clarification, does not modify a Building Standards as defined in Section 18909(c) of the California Health and Safety Code, and does not require the express findings and determination required by Sections 17958, 17958.5 and 17958.7 of the California Health and Safety Code.

**PROPOSED AMENDMENT:**

Section 18.40.030 of the Long Beach Municipal Code is amended to read as follows:

18.40.030 – Amend CBC Section 201.4—Terms not defined.

Section 201.4 of the ~~2016~~2019 Edition of the California Building Code is amended to read as follows:

201.4 Terms not defined. Where terms are not defined through the methods authorized by this section, such terms shall have ordinarily accepted meanings such as the context implies. Webster's Third New International Dictionary of the English Language, Unabridged, shall be considered as providing ordinarily accepted meanings.

**RATIONALE:**

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This amendment makes minor editorial changes to reference a specific dictionary to be used for words not defined in the code since the IBC does not have such a reference.

**FINDINGS:**

Local Administrative Clarification – Amendment is necessary for local administrative clarification, does not modify a Building Standards as defined in Section 18909(c) of the California Health and Safety Code, and does not require the express findings and determination required by Sections 17958, 17958.5 and 17958.7 of the California Health and Safety Code.

## PROPOSED AMENDMENT:

Section 18.40.040 of the Long Beach Municipal Code is amended to read as follows:

18.40.040 – Amend CBC Section 302.1—Classification.

The last two sentences in Section 302.1 of the ~~2016~~2019 Edition of the California Building Code is amended to read as follows:

~~Where a structure is proposed for a purpose that is not specifically provided for in this code or about which there is any question, such structure shall be classified, as determined by the Building Official, in the group that the occupancy most nearly resembles, according to the fire safety and relative hazard involved. Where a structure is proposed for a purpose that is not specifically listed in this section or about which there is any question, such structure shall be classified, as determined by the Building Official, in the occupancy it most nearly resembles based on the fire safety and relative hazard. Occupied roofs shall be classified, as determined by the Building Official, in the group that the occupancy most nearly resembles, according to the fire safety and relative hazard, and shall comply with Section 503.1.4.~~

## RATIONALE:

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This amendment makes minor editorial changes to clarify that the Building Official is authorized to make the final determination on the proposed occupancy of a building or structure where such use is not specifically provided for in the code.

## FINDINGS:

Local Administrative Clarification – Amendment is necessary for local administrative clarification, does not modify a Building Standards as defined in Section 18909(c) of the California Health and Safety Code, and does not require the express findings and determination required by Sections 17958, 17958.5 and 17958.7 of the California Health and Safety Code.

**PROPOSED AMENDMENT:**

Section 18.40.045 is added to Chapter 18.40 of the Long Beach Municipal Code to read as follows:

18.40.045 – Amend CBC Section 1507.3.1—Deck requirements.

Section 1507.3.1 of the 2019 Edition of the California Building Code is amended to read as follows:

1507.3.1 Deck requirements. Concrete and clay tile shall be installed only over solid sheathing boards.

**RATIONALE:**

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. Section 1507.3.1 is amended to require concrete and clay tiles to be installed only over solid structural sheathing boards. The change is necessary because there were numerous observations of tile roofs pulling away from wood framed buildings following the 1994 Northridge Earthquake. The SEAOSC/LA City Post Northridge Earthquake committee findings indicated significant problems with tile roofs was due to inadequate design and/or construction. Therefore, the amendment is needed to minimize such occurrences in the event of future significant earthquakes.

**FINDINGS:**

Local Geologic Condition – Amendment is necessary on the basis of a local geologic condition. The City of Long Beach is a densely populated city having buildings and structures constructed over or near a vast array of fault traces resulting from the active Newport-Inglewood fault system that is capable of producing a major earthquake. The proposed amendment to require concrete and clay tiles to be installed over solid sheathing boards is intended to better limit personal injury and property damage as a result of seismic activity and therefore need to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the California Building Code.

**PROPOSED AMENDMENT:**

Section 18.40.050 of the Long Beach Municipal Code is amended to read as follows:

18.40.050 – Amend CBC Section 1612.3—Establishment of flood hazard areas.

Section 1612.3 of the ~~2016~~2019 Edition of the California Building Code is amended to read as follows:

1612.3 Establishment of flood hazard areas. To establish flood hazard areas, the City shall adopt a flood hazard map and supporting data. The flood hazard map shall include, at a minimum, areas of special flood hazard as identified by the Federal Emergency Management Agency in an engineering report entitled "The Flood Insurance Study for the City of Long Beach" dated July 6, 1998, as amended or revised with the accompanying Flood Insurance Rate Map (FIRM) and Flood Boundary and Floodway Map (FBFM) and related supporting data along with any revisions thereto. The adopted flood hazard map and supporting data are hereby adopted by reference and declared to be part of this section.

**RATIONALE:**

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles. This proposal amendment references the flood study that established special flood hazard throughout the City.

**FINDINGS:**

Local Administrative Clarification – Amendment is necessary for local administrative clarification, does not modify a Building Standards as defined in Section 18909(c) of the California Health and Safety Code, and does not require the express findings and determination required by Sections 17958, 17958.5 and 17958.7 of the California Health and Safety Code. The proposed amendment makes editorial changes to reference flood insurance study and therefore need to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the Long Beach Municipal Code.

**PROPOSED AMENDMENT:**

Section 18.40.060 of the Long Beach Municipal Code is amended to read as follows:

18.40.060 – Amend CBC Section ~~1612.5~~1612.4—Flood hazard documentation.

Section ~~1612.5~~1612.4 Items 1.1 and 2.1 of the ~~2016~~2019 Edition of the California Building Code are amended to read as follows:

1.1 The elevation of the lowest floor, including the basement, as required by the lowest floor elevation inspection in Subsection 18.07.050.A.3 of the Long Beach Municipal Code and for the final inspection in Subsection 18.07.050.A.13 of the Long Beach Municipal Code.

2.1 The elevation of the bottom of the lowest horizontal structural member as required by the lowest floor elevation inspection in Subsection 18.07.050.A.3 of the Long Beach Municipal Code and for the final inspection in Subsection 18.07.050.A.13 of the Long Beach Municipal Code.

**RATIONALE:**

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles. This proposed amendment makes minor editorial changes to reflect the appropriate reference to the City's Municipal Code for flood related inspections.

**FINDINGS:**

Local Administrative Clarification – Amendment is necessary for local administrative clarification, does not modify a Building Standards as defined in Section 18909(c) of the California Health and Safety Code, and does not require the express findings and determination required by Sections 17958, 17958.5 and 17958.7 of the California Health and Safety Code. The proposed amendment makes minor editorial changes to reflect the appropriate reference to the City's Municipal Code for flood related inspections and therefore need to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the California Building Code.



## PROPOSED AMENDMENT:

Section 18.40.070 of the Long Beach Municipal Code is amended to read as follows:

18.40.070 – Add CBC Sections ~~1613.5.2~~ 1613.5 and 1613.5.1 ~~—Structural separation Amendments to ASCE 7.~~

Sections ~~1613.5.2~~ 1613.5 and 1613.5.1 ~~is~~ are added to Chapter 16 of the ~~2016~~ 2019 Edition of the California Building Code to read as follows:

~~1613.5.2 Structural Separation. Modify ASCE 7 Section 12.12.3 Equation 12.12-1 as follows:~~

$$\delta_M = C_d \delta_{max} \quad (12.12-1)$$

1613.5 Amendments to ASCE 7. The provisions of Section 1613.5 shall be permitted as an amendment to the relevant provisions of ASCE 7.

1613.5.1 Values for Vertical Combinations. Modify ASCE 7 Section 12.2.3.1 Exception 3 as follows:

3. Detached one- and two-family dwellings up to two stories in height of light frame construction.

## RATIONALE:

Administrative changes to reference the latest edition and section of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. 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 lesson learned from studies after the Northridge Earthquake, the proposed modification to ASCE 7-16 Section 12.2.3.1 Exception 3 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.

## FINDINGS:

Local Geological Conditions – Amendment is necessary on the basis of a local geologic condition. The City of Long Beach is a densely populated city having buildings and structures constructed over or near a vast array of fault traces resulting from the active Newport-Inglewood fault system that is capable of producing a major earthquake. The proposed amendment to limit mixed structural system to two stories is intended to improve quality of construction by reducing potential damages that may result from vertical irregularities of the structural system in buildings subject to high seismic load to better limit personal injury and property damage as a result of geologic activity and therefore need to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the California Building Code.

## PROPOSED AMENDMENT:

Section 18.40.080 of the Long Beach Municipal Code is amended as follows:

18.40.080 – Add CBC Section 1613.~~5-45.2~~—Wood Diaphragms.

Section 1613.~~5-35.2~~ is added to Chapter 16 of the ~~2016~~2019 Edition of the California Building Code to read as follows:

1613.~~5-35.2~~ Wood Diaphragms. Modify ASCE 7 Section 12.11.2.2.3 as follows:

~~12.11.2.2.3 Wood Diaphragms. In wood diaphragms, the continuous ties shall be in addition to the diaphragm sheathing. Anchorage shall not be accomplished by use of toe nails or nails subject to withdrawal nor shall wood ledgers or framing be used in cross-grain bending or cross-grain tension. The diaphragm sheathing shall not be considered effective as providing ties or struts required by this section.~~

12.11.2.2.3 Wood Diaphragms. The anchorage of concrete or masonry structural walls to wood diaphragms shall be in accordance with AWC SDPWS 4.1.5.1 and this section. Continuous ties required by this section shall be in addition to the diaphragm sheathing. Anchorage shall not be accomplished by use of toenails or nails subject to withdrawal, nor shall wood ledgers or framing be used in cross-grain bending or cross-grain tension. The diaphragm sheathing shall not be considered effective for providing the ties or struts required by this section

For structures assigned to Seismic Design Category D, E or F, wood diaphragms supporting concrete or masonry walls shall comply with the following:

1. The spacing of continuous ties shall not exceed 40 feet. Added chords of diaphragms may be used to form subdiaphragms to transmit the anchorage forces to the main continuous crossties.
2. The maximum diaphragm shear used to determine the depth of the subdiaphragm shall not exceed 75% of the maximum diaphragm shear.

## RATIONALE:

Administrative changes to reference the latest edition and section of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. A joint Structural Engineers Association of Southern California, 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, there was a need to limit subdiaphragm allowable shear loads to control combined orthogonal stresses within the diaphragm. Recognizing the importance and need to continue the recommendation made by the task force while taking into consideration the improve performances and standards for diaphragm construction today, this proposal increases the continuous tie spacing limit to 40 ft in lieu of 25 ft and to use 75% of the allowable code diaphragm shear to determine the depth of the sub-diaphragm in lieu of the 300 plf and is deemed appropriate and acceptable. Due to the frequency of this type of failure during the past significant earthquakes, various jurisdictions within the Los Angeles region have taken this additional step to prevent roof or floor diaphragms from pulling away from concrete or masonry walls.

## FINDINGS:

Local Geological Conditions – Amendment is necessary on the basis of a local geologic condition. The City of Long Beach is a densely populated city having buildings and structures constructed over or near a vast array of fault traces resulting from the active Newport-Inglewood fault system that is capable of producing a major earthquake. The proposed amendment to limit mixed structural system to two stories is intended

to improve quality of construction by reducing potential damages that may result from vertical irregularities of the structural system in buildings subject to high seismic load to better limit personal injury and property damage as a result of geologic activity and therefore need to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the California Building Code.

## PROPOSED AMENDMENT:

Section 18.40.090 of the Long Beach Municipal Code is amended as follows:

18.40.090 – Add CBC Section 1613.55.3.4 – ~~Structural separation~~ Wood diaphragms.

~~Section 1613.5.4 is added to Chapter 16 of the 2016 Edition of the California Building Code to read as follows:~~

~~1613.5.4 Wood Diaphragms. Modify ASCE 7 Section 12.11.2.2.3 as follows:~~

~~12.11.2.2.3 Wood Diaphragms. In wood diaphragms, the continuous ties shall be in addition to the diaphragm sheathing. Anchorage shall not be accomplished by use of toe nails or nails subject to withdrawal nor shall wood ledgers or framing be used in cross-grain bending or cross-grain tension. The diaphragm sheathing shall not be considered effective as providing ties or struts required by this section.~~

~~For structures assigned to Seismic Design Category D, E or F, wood diaphragms supporting concrete or masonry walls shall comply with the following:~~

- ~~1. The spacing of continuous ties shall not exceed 40 feet. Added chords of diaphragms may be used to form subdiaphragms to transmit the anchorage forces to the main continuous crossties.~~
- ~~2. The maximum diaphragm shear used to determine the depth of the subdiaphragm shall not exceed 75% of the maximum diaphragm shear.~~

~~1613.5.3 Structural Separation. Modify ASCE 7 Section 12.12.3 Equation 12.12-1 as follows:~~

$$\delta_M = C_d \delta_{max} \quad (12.12-1)$$

## RATIONALE:

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles. 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 hospitals, schools, police and fire stations from adjoining structures. The proposal to omit the importance factor from Equation 12.12-1 will ensure that a safe seismic separation distance is provided.

## FINDINGS:

Local Geological Conditions – Amendment is necessary on the basis of a local geologic condition. The City of Long Beach is a densely populated city having buildings and structures constructed over or near a vast array of fault traces resulting from the active Newport-Inglewood fault system that is capable of producing a major earthquake. The proposed amendment to require special anchorage of the diaphragm to the wall and limit the allowable shear will address special needs for concrete and masonry construction with flexible wood diaphragm the amendment makes modification and changes to better limit personal injury and property damage as a result of seismic activity and therefore need to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the California Building Code.

## PROPOSED AMENDMENT:

Section 18.40.100 of the Long Beach Municipal Code is amended to read as follows:

18.40.100 – Add CBC Section ~~1613.7~~1613.6—Suspended ceiling.

Section ~~1613.7~~1613.6 is added to Chapter 16 of the ~~2016~~2019 Edition of the California Building Code to read as follows:

~~1613.7~~1613.6 **Suspended Ceilings.** Minimum design and installation standards for suspended ceilings shall be determined in accordance with the requirements of Section 2506.2.1 of this code and this section.

~~1613.7.4~~1613.6.1 **Scope.** This part contains special requirements for suspended ceilings and lighting systems. Provisions of Section 13.5.6 of ASCE 7 shall apply except as modified herein.

~~1613.7.2~~1613.6.2 **General.** The suspended ceilings and lighting systems shall be limited to 6 feet (1828 mm) below the structural deck unless the lateral bracing is designed by a registered design professional.

~~1613.7.3~~1613.6.3 **Sprinkler Heads.** All sprinkler heads (drops) except fire-resistance-rated floor/ceiling or roof/ceiling assemblies, shall be designed to allow for free movement of the sprinkler pipes with oversize rings, sleeves or adaptors through the ceiling tile. Sprinkler heads and other penetrations shall have a 2 inch (50 mm) oversize ring, sleeve, or adapter through the ceiling tile to allow for free movement of at least 1 inch (25 mm) in all horizontal directions. Alternatively, a swing joint that can accommodate 1 inch (25 mm) of ceiling movement in all horizontal directions is permitted to be provided at the top of the sprinkler head extension.

Sprinkler heads penetrating fire-resistance-rated floor/ceiling or roof/ceiling assemblies shall comply with Section 714 of this code.

~~1613.7.4~~1613.6.4 **Special Requirements for Means of Egress.** Suspended ceiling assemblies located along means of egress serving an occupant load of 30 or more shall comply with the following provisions.

~~1613.7.4.1~~1613.6.4.1 **General.** Ceiling suspension systems shall be connected and braced with vertical hangers attached directly to the structural deck along the means of egress serving an occupant load of 30 or more and at lobbies accessory to Group A Occupancies. Spacing of vertical hangers shall not exceed 2 feet (610 mm) on center along the entire length of the suspended ceiling assembly located along the means of egress or at the lobby.

~~1613.7.4.2~~1613.6.4.2 **Assembly Device.** All lay-in panels shall be secured to the suspension ceiling assembly with two hold-down clips minimum for each tile within a 4-foot (1219 mm) radius of the exit lights and exit signs.

~~1613.7.4.3~~1613.6.4.3 **Emergency Systems.** Independent supports and braces shall be provided for light fixtures required for exit illumination. Power supply for exit illumination shall comply with the requirements of Section 1008.3 of this code.

~~1613.7.4.4~~1613.6.4.4 **Supports for Appendage.** Separate support from the structural deck shall be provided for all appendages such as light fixtures, air diffusers, exit signs, and similar elements.

## RATIONALE:

Administrative changes to reference the latest edition and section of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This

proposed amendment is a continuation of an amendment adopted during previous code adoption cycles. The California Building Code has little to no information regarding the safe design and construction requirements for ceiling suspension systems subject to seismic loads. It is through the experience of prior earthquakes, such as the Northridge Earthquake, that this amendment is proposed so as to minimize the amount of bodily and building damage within the spaces in which this type of ceiling will be installed. This proposed amendment complements ASCE 7-10 Chapter 13 Section 13.5.6.2.2 and the cited reference to ASTM E580.

#### **FINDINGS:**

Local Geological Conditions – Amendment is necessary on the basis of a local geologic condition. The City of Long Beach is a densely populated city having buildings and structures constructed over or near a vast array of fault traces resulting from the active Newport-Inglewood fault system that is capable of producing a major earthquake. The proposed amendment requiring safe design and construction requirements for ceiling suspension systems to resist seismic loads is intended to minimize the amount of damage within a building and along the path of the means of egress to better limit personal injury and property damage as a result of geologic activity and therefore need to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the California Building Code.

## PROPOSED AMENDMENT:

Section 18.40.110 of the Long Beach Municipal Code is amended to read as follows:

18.40.110 – Amend CBC Section 1704.6—Structural observations.

Section 1704.6 of the ~~2016~~2019 Edition of the California Building Code is amended to read as follows:

1704.6 Structural observations. Where required by the provisions of Section 1704.6.1, ~~or~~ 1704.6.2 or 1704.6.3, the owner or the owner's authorized agent shall employ a structural observer to perform structural observations. Structural observation does not include or waive the responsibility for the inspections or special inspections in Chapter 18.07 of the Long Beach Municipal Code or the special inspections in Section 1705 or other sections of this code. The structural observer shall be one of the following individuals:

1. The registered design professional responsible for the structural design, or
2. A registered design professional designated by the registered design professional responsible for the structural design.

Prior to the commencement of observations, the structural observer shall submit to the Building Official a written statement identifying the frequency and extent of structural observations.

The owner or owner's representative shall coordinate and call a preconstruction meeting between the structural observer, contractors, affected subcontractors and special inspectors. The structural observer shall preside over the meeting. The purpose of the meeting shall be to identify the major structural elements and connections that affect the vertical and lateral load resisting systems of the structure and to review scheduling of the required observations. A record of the meeting shall be included in the report submitted to the Building Official.

Observed deficiencies shall be reported in writing to the owner or owner's representative, special inspector, contractor and the Building Official. Upon the form prescribed by the Building Official, the structural observer shall submit to the Building Official a written statement at each significant construction stage stating that the site visits have been made and identifying any reported deficiencies which, to the best of the structural observer's knowledge, have not been resolved. A final report by the structural observer which states that all observed deficiencies have been resolved is required before acceptance of the work by the Building Official.

## RATIONALE:

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles. The language in Section 1704.6 of the California Building Code permits the owner to employ any registered design professional to perform structural observations with minimum guideline. 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.

## FINDINGS:

Local Geological Condition – Amendment is necessary on the basis of a local geologic condition. The City of Long Beach is a densely populated city having buildings and structures constructed over or near a vast array of fault traces resulting from the active Newport-Inglewood fault system that is capable of producing a major earthquake. The proposed amendment to require the registered design professional in responsible charge for the structural design to observe the construction will help ensure acceptable standards of workmanship is provided, to improve the quality of the observation, to better limit personal injury and property damage as a result of geologic activity and therefore need to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the California Building Code.



**PROPOSED AMENDMENT:**

Section 18.40.115 is added to Chapter 18.40 of the Long Beach Municipal Code to read as follows:

18.40.115 – Amend CBC Section 1704.6.2—Structural observations for seismic resistance.

Section 1704.6.2 of the 2019 Edition of the California Building Code is amended to read as follows:

1704.6.2 Structural observations for seismic resistance. Structural observations shall be provided for those structures assigned to Seismic Design Category D, E or F where one or more of the following conditions exist:

1. The structure is classified as Risk Category III or IV.
2. The structure is classified as Risk Category I or II, and a lateral design is required for the structure or portion thereof.

Exception: One-story wood framed Group R-3 and Group U Occupancies less than 2,000 square feet in area, provided the adjacent grade is not steeper than 1 unit vertical in 10 units horizontal (10% sloped), assigned to Seismic Design Category D.

**RATIONALE:**

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles. With the higher seismic demand placed on buildings and structures in this region, the language in Section 1704.6.2 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.

**FINDINGS:**

Local Geologic Condition – Amendment is necessary on the basis of a local geologic condition. The City of Long Beach is a densely populated city having buildings and structures constructed over or near a vast array of fault traces resulting from the active Newport-Inglewood fault system that is capable of producing a major earthquake. The proposed amendment to require the registered design professional in responsible charge for the structural design to observe the construction will help ensure acceptable standards of workmanship is provide, to improve the quality of the observation to better limit personal injury and property damage as a result of geologic activity and therefore need to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the California Building Code.

## PROPOSED AMENDMENT:

Section 18.40.120 of the Long Beach Municipal Code is amended to read as follows:

18.40.120 – Amend CBC Section 1705.3—Concrete construction.

Section 1705.3 of the ~~2016~~2019 Edition of the California Building Code is amended to read as follows:

1705.3 Concrete Construction. ~~The s~~Special inspections and tests of concrete construction shall be performed in accordance with this section and Table 1705.3.

Exceptions: Special inspections and tests shall not be required for:

1. Isolated spread concrete footings of buildings three stories or less above grade plane that are fully supported on earth or rock, where the structural design of the footing is based on a specified compressive strength,  $f'_c$ , no greater than 2,500 pounds per square inch (psi) (17.2 Mpa) regardless of the compressive strength specified in the construction documents or used in the footing construction.
2. Continuous concrete footings supporting walls of buildings three stories or less above grade plane that are fully supported on earth or rock where:
  - 2.1. The footings support walls of light-frame construction;
  - 2.2. The footings are designed in accordance with Table ~~1805.9.7~~1809.7; or
  - 2.3. The structural design of the footing is based on a specified compressive strength,  $f'_c$ , no greater than 2,500 pounds per square inch (psi) (17.2 Mpa), regardless of the compressive strength specified in the construction documents or used in the footing construction.
3. Nonstructural concrete slabs supported directly on the ground, including prestressed slabs on grade, where the effective prestress in the concrete is less than 150 psi (1.03 Mpa).
4. Concrete patios, driveways and sidewalks, on grade.

## RATIONALE:

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles. Results from studies after the 1994 Northridge Earthquake indicated that a lot of the damages were attributed to lack of quality control during construction resulting in poor performance of the building or structure. This amendment requires special inspection for concrete with a compressive strength greater than 2,500 pounds per square inch to improve performance through additional quality control measures.

## FINDINGS:

Local Geologic Condition – Amendment is necessary on the basis of a local geologic condition. The City of Long Beach is a densely populated city having buildings and structures constructed over or near a vast array of fault traces resulting from the active Newport-Inglewood fault system that is capable of producing a major earthquake. The proposed amendment ensures better performance of building or structure by requiring special inspection for concrete with a compressive strength greater than 2,500 pounds per square inch to better limit personal injury and property damage as a result of geologic activity and therefore need to be incorporated into the code to assure that new buildings and structures and additions or alterations to

existing buildings or structures are designed and constructed in accordance with the scope and objectives of the California Building Code.

## PROPOSED AMENDMENT:

Section 18.40.130 of the Long Beach Municipal Code is amended to read as follows:

18.40.130 – Amend CBC Section 1705.12—Special inspections for Sseismic resistance.

Exception 3 of Section 1705.12 of the ~~2016~~2019 Edition of the California Building Code is amended to read as follows:

3. The structure is a detached one- or two-family dwelling not exceeding two stories above grade plane, is not assigned to Seismic Design Category D, E or F and does not have any of the following horizontal or vertical irregularities in accordance with Section 12.3 of ASCE 7:

3.1 Torsional or extreme torsional irregularity.

3.2 Nonparallel systems irregularity.

3.3 Stiffness-soft story or stiffness-extreme soft story irregularity.

3.4 Discontinuity in lateral strength-weak story irregularity.

## RATIONALE:

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles. There are a few detached one- or two-family dwellings not exceeding two stories above grade plane that are built as "box-type" structures, especially those in the hillside areas and near the oceanfront. Many steel moment frame, braced frames, and/or cantilevered columns within these buildings can still be shown as "regular" structures by calculations. With the higher seismic demand placed on buildings in this area, the language in Sections 1705.12 Exception 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 and excludes those located in higher seismic zones.

## FINDINGS:

Local Geologic Condition – Amendment is necessary on the basis of a local geologic condition. The City of Long Beach is a densely populated city having buildings and structures constructed over or near a vast array of fault traces resulting from the active Newport-Inglewood fault system that is capable of producing a major earthquake. The proposed amendment to exclude structures assigned to Seismic Design Category D, E or F from being exempt from requiring special inspections will improve quality assurance and ensures better performance of buildings or structures to better limit personal injury and property damage as a result of geologic activity and therefore need to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the California Building Code.

**PROPOSED AMENDMENT:**

Section 18.40.140 of the Long Beach Municipal Code is amended to read as follows:

18.40.140 – Amend CBC Section 1707.1—Alternative test procedure.

Section 1707.1 of the ~~2016~~2019 Edition of the California Building Code is amended by changing the reference to "Section 104.11" to read "Section 18.03.060 of the Long Beach Municipal Code."

**RATIONALE:**

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles. This amendment makes minor editorial changes to reflect the appropriate reference to the City's Municipal Code for alternate test procedure.

**FINDINGS:**

Local Administrative Clarification – Amendment is necessary for local administrative clarification, does not modify a Building Standards as defined in Section 18909(c) of the California Health and Safety Code, and does not require the express findings and determination required by Sections 17958, 17958.5 and 17958.7 of the California Health and Safety Code.

## PROPOSED AMENDMENT:

Section 18.40.150 of the Long Beach Municipal Code is amended to read as follows:

18.40.150 – Amend CBC Section 1807.1.4—Permanent wood foundation systems.

Section 1807.1.4 of the ~~2016~~2019 Edition of the California Building Code is amended to read as follows:

1807.1.4 Permanent wood foundation systems. Permanent wood foundation systems shall be designed and installed in accordance with ~~AF&PA~~ACW PWF. Lumber and plywood shall be preservative treated in accordance with AWPA U1 (Commodity Specification A, ~~Use Category 4B and Section 5.2~~Special Requirement 4.2) and shall be identified in accordance with Section 2303.1.9.1. Permanent wood foundation systems shall not be used for structures assigned to Seismic Design Category D, E or F.

## RATIONALE:

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles. No substantiating data has been provided to show that 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 foundation systems 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 event and wet applications. The proposed amendment takes the precautionary steps to reduce or eliminate potential problems that may result in using wood foundation systems 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.

## FINDINGS:

Local Geologic and Climatic Conditions – Amendment is necessary on the basis of a local geologic and climatic conditions. The City of Long Beach is a densely populated city having buildings and structures constructed over or near a vast array of fault traces resulting from the active Newport-Inglewood fault system that is capable of producing a major earthquake. The City of Long Beach is a densely populated city having buildings and structures constructed within a climate system capable of producing major winds, fire and rain related disasters, including but not limited to those caused by the Santa Ana winds and El Nino (or La Nina) subtropical-like weather. The proposed amendment takes the precautionary steps to reduce or eliminate potential problems that may result in using wood foundation systems 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 to better limit personal injury and property damage as a result of geologic activity and therefore need to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the California Building Code.

## PROPOSED AMENDMENT:

Section 18.40.160 of the Long Beach Municipal Code is amended to read as follows:

18.40.160 – Amend CBC Section 1807.1.6— Prescriptive design of concrete and masonry foundation walls.

Section 1807.1.6 of the ~~2016~~2019 Edition of the California Building Code is amended to read as follows:

1807.1.6 Prescriptive design of concrete and masonry foundation walls. Concrete and masonry foundation walls that are laterally supported at the top and bottom shall be permitted to be designed and constructed in accordance with this section. Prescriptive design of foundation walls shall not be used for structures assigned to Seismic Design Category D, E or F.

## RATIONALE:

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles. 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 does 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.

## FINDINGS:

Local Geologic Condition – Amendment is necessary on the basis of a local geologic condition. The City of Long Beach is a densely populated city having buildings and structures constructed over or near a vast array of fault traces resulting from the active Newport-Inglewood fault system that is capable of producing a major earthquake. The proposed amendment to reduce or eliminate potential problems that may result by following prescriptive design provisions that does not take into consideration the surrounding environment to better limit personal injury and property damage as a result of geologic activity and therefore need to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the California Building Code.

## PROPOSED AMENDMENT:

Section 18.40.163 is added to Chapter 18.40 of the Long Beach Municipal Code to read as follows:

### 18.40.163 – Amend CBC Section 1807.2— Retaining walls.

Section 1807.2 of the 2019 Edition of the California Building Code is amended to read as follows:

1807.2 Retaining walls. Retaining walls shall be designed in accordance with Section 1807.2.1 through 1807.2.3. Retaining walls assigned to Seismic Design Category D, E or F shall not be partially or wholly constructed of wood.

## RATIONALE:

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. No substantiating data has been provided to show that wood foundation systems 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. Wood foundation systems 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 precautionary steps to reduce or eliminate potential problems that may result in using wood foundation systems 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 proposed amendment is a continuation of an amendment adopted during previous code adoption cycles.

## FINDINGS:

Local Geologic and Climatic Conditions – Amendment is necessary on the basis of a local geologic and climatic conditions. The City of Long Beach is a densely populated city having buildings and structures constructed over or near a vast array of fault traces resulting from the active Newport-Inglewood fault system that is capable of producing a major earthquake. The City of Long Beach is a densely populated city having buildings and structures constructed within a climate system capable of producing major winds, fire and rain related disasters, including but not limited to those caused by the Santa Ana winds and El Nino (or La Nina) subtropical-like weather. The proposed amendment prohibit the use of wood foundation systems as well as limit prescriptive design provisions in an effort to mitigate potential problems or deficiencies due to the proliferation of wood-destroying organism to better limit personal injury and property damage as a result of geologic activity and therefore need to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the California Building Code.



## PROPOSED AMENDMENT:

Section 18.40.165 is added to Chapter 18.40 of the Long Beach Municipal Code to read as follows:

### 18.40.165 – Amend CBC Section 1807.3.1—Limitations.

Section 1807.3.1 of the 2019 Edition of the California Building Code is amended to read as follows:

1807.3.1 Limitations. The design procedures outlined in this section are subject to the following limitations:

1. The frictional resistance for structural walls and slabs on silts and clays shall be limited to one-half of the normal force imposed on the soils by the weight of the footing or slab.
2. Posts embedded in earth shall not be used to provide lateral support for structural or nonstructural materials such as plaster, masonry or concrete unless bracing is provided that develops the limited deflection required.

Wood poles shall be treated in accordance with AWP A U1 for sawn timber posts (Commodity Specification A, Use Category 4B) and for round timber posts (Commodity Specification B, Use Category 4B). Wood poles and posts embedded in direct contact with soil shall not be used for structures assigned to Seismic Design Category D, E or F.

Exception: Wood poles and posts embedded in direct contact with soil may be used to support nonhabitable, nonoccupiable structures such as fences when approved by the Building Official.

## RATIONALE:

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles. No substantiating data has been provided to show that wood foundation systems 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. Wood foundation systems 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 precautionary steps to reduce or eliminate potential problems that may result in using wood foundation systems 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 proposed amendment is a continuation of an amendment adopted during previous code adoption cycles.

## FINDINGS:

Local Geologic and Climatic Conditions – Amendment is necessary on the basis of a local geologic and climatic conditions. The City of Long Beach is a densely populated city having buildings and structures constructed over or near a vast array of fault traces resulting from the active Newport-Inglewood fault system that is capable of producing a major earthquake. The City of Long Beach is a densely populated city having buildings and structures constructed within a climate system capable of producing major winds, fire and rain related disasters, including but not limited to those caused by the Santa Ana winds and El Nino (or La Nina) subtropical-like weather. The proposed amendment takes the precautionary steps to reduce or eliminate potential problems that may result in using wood foundation systems 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 to better limit personal injury and property damage as a result of geologic activity and therefore need to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the California Building Code.

## PROPOSED AMENDMENT:

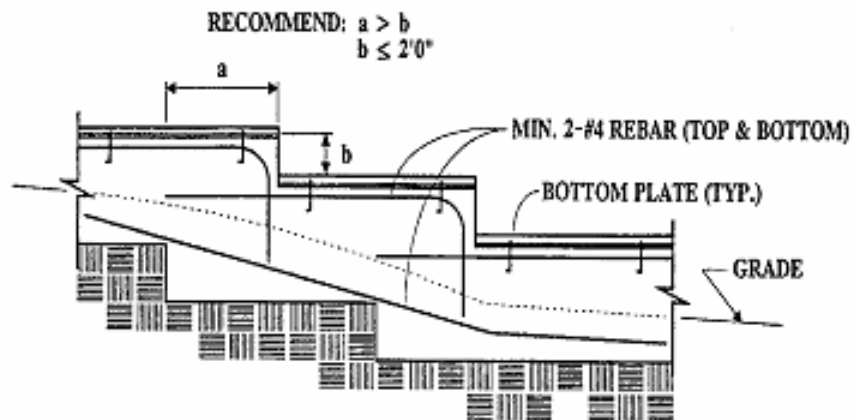
Section 18.40.170 of the Long Beach Municipal Code is amended to read as follows:

18.40.170 – Amend CBC Section 1809.3—Stepped footings.

Section 1809.3 of the ~~2016~~2019 Edition of the California Building Code is amended to read as follows:

1809.3 Stepped footings. The top surface of footings shall be level. The bottom surface of footings shall be permitted to have a slope not exceeding one unit vertical in 10 units horizontal (10-percent slope). Footings shall be stepped where it is necessary to change the elevation of the top surface of the footing or where the surface of the ground slopes more than one unit vertical in 10 units horizontal (10-percent slope).

For structures assigned to Seismic Design Category D, E or F, the stepping requirement shall also apply to the top surface of grade beams supporting walls. Footings shall be reinforced with four 1/2-inch diameter (12.7 mm) deformed reinforcing bars. Two bars shall be placed at the top and bottom of the footings as shown in Figure 1809.3.



STEPPED FOUNDATIONS

FIGURE 1809.3  
STEPPED FOOTING

## RATIONALE:

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles. With the higher seismic demand placed on buildings and structures in this region, precautionary steps are proposed 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 proposed amendment is a continuation of an amendment adopted during previous code adoption cycles.

## FINDINGS:

Local Geologic Condition – Amendment is necessary on the basis of a local geologic condition. The City of Long Beach is a densely populated city having buildings and structures constructed over or near a vast

array of fault traces resulting from the active Newport-Inglewood fault system that is capable of producing a major earthquake. The proposed amendment to reduce or eliminate potential problems that may result for under reinforced footings located on sloped surfaces to better limit personal injury and property damage as a result of geologic activity and therefore need to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the California Building Code.

**PROPOSED AMENDMENT:**

Section 18.40.180 of the Long Beach Municipal Code is amended to read as follows:

18.40.180 – Amend CBC Section 1809.7 and Table 1809.7—Prescriptive footings for light-frame construction.

Section 1809.7 and Table 1809.7 of the ~~2016~~2019 Edition of the California Building Code are amended to read as follows:

1809.7 Prescriptive footings for light-frame construction. Where a specific design is not provided, concrete or masonry-unit footings supporting walls of light-frame construction shall be permitted to be designed in accordance with Table 1809.7. Light-frame construction using Pprescriptive footings in Table 1809.7 shall not exceed one story above grade plane for structures assigned to Seismic Design Category D, E or F.

**TABLE 1809.7**  
**PREScriptive FOOTINGS SUPPORTING WALLS OF**  
**LIGHT-FRAME CONSTRUCTION** <sup>a, b, c, d, e</sup>

NUMBER OF FLOORS SUPPORTED BY THE FOOTING <sup>f</sup>	WIDTH OF FOOTING (inches)	THICKNESS OF FOOTING (inches)
1	12	6
2	15	6
3	18	8

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm

- Depth of footings shall be in accordance with Section 1809.4.
- The ground under the floor shall be permitted to be excavated to the elevation of the top of the footing.
- Not Adopted.
- See Section 1908 for additional requirements for concrete footings of structures assigned to Seismic Design Category C, D, E or F.
- For thickness of foundation walls, see Section 1807.1.6.
- Footings shall be permitted to support a roof addition to the stipulated number of floors. Footings supporting roof only shall be as required for supporting one floor.

**RATIONALE:**

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles. 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 proposed 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, precautionary steps are proposed to reduce or eliminate potential problems that may result by following prescriptive design provisions for footing that does 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 issues 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.

**FINDINGS:**

Local Geologic Condition – Amendment is necessary on the basis of a local geologic condition. The City of Long Beach is a densely populated city having buildings and structures constructed over or near a vast

array of fault traces resulting from the active Newport-Inglewood fault system that is capable of producing a major earthquake. The proposed amendment to address the problem of poor performance of plain or under-reinforced footings to better limit personal injury and property damage as a result of geologic activity and therefore need to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the California Building Code.

**PROPOSED AMENDMENT:**

Section 18.40.190 of the Long Beach Municipal Code is amended to read as follows:

18.40.190 – Amend CBC Section 1809.12—Timber footings.

Section 1809.12 of the ~~2016~~2019 Edition of the California Building Code is amended to read as follows:

1809.12 Timber footings. Timber footings shall be permitted for buildings of Type V construction and as otherwise approved by the Building Official. Such footings shall be treated in accordance with AWP A U1 (Commodity Specification A, Use Category 4B). Treated timbers are not required where placed entirely below permanent water level, or where used as capping for wood piles that project above the water level over submerged or marsh lands. The compressive stresses perpendicular to grain in untreated timber footings supported upon treated piles shall not exceed 70 percent of the allowable stresses for the species and grade of timber as specified in the ANSI/AWC NDS. Timber footings shall not be used in structures assigned to Seismic Design Category D, E or F.

**RATIONALE:**

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles. No substantiating data has been provided to show that timber footings are effective in supporting buildings and structures during a seismic event, especially while being subjected to deterioration caused by the combined detrimental effects of 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 event and wet applications. The proposed amendment takes the 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.

**FINDINGS:**

Local Geologic and Climatic Conditions – Amendment is necessary on the basis of a local geologic and climatic condition. The City of Long Beach is a densely populated city having buildings and structures constructed over or near a vast array of fault traces resulting from the active Newport-Inglewood fault system that is capable of producing a major earthquake and constructed within a climate system capable of producing major winds, fire and rain related disasters, including but not limited to those caused by the Santa Ana winds and El Nino (or La Nina) subtropical-like weather. The proposed amendment takes the 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 to better limit personal injury and property damage as a result of geologic activity and therefore need to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the California Building Code.

## PROPOSED AMENDMENT:

Section 18.40.200 of the Long Beach Municipal Code is amended to read as follows:

18.40.200 – Amend CBC Section 1810.3.2.4—Timber.

Section 1810.3.2.4 of the ~~2016~~2019 Edition of the California Building Code is amended to read as follows:

1810.3.2.4 Timber. Timber deep foundation elements shall be designed as piles or poles in accordance with ANSI/AWC NDS. Round timber elements shall conform to ASTM D 25. Sawn timber elements shall conform to DOC PS-20. Timber deep foundation elements shall not be used in structures assigned to Seismic Design Category D, E or F.

## RATIONALE:

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles. No substantiating data has been provided to show that timber deep 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. Timber deep foundation, when they are 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 event and wet applications. The proposed amendment takes the precautionary steps to reduce or eliminate potential problems that may result by using timber deep foundation 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.

## FINDINGS:

Local Geologic and Climatic Conditions – Amendment is necessary on the basis of a local geologic and climatic condition. The City of Long Beach is a densely populated city having buildings and structures constructed over or near a vast array of fault traces resulting from the active Newport-Inglewood fault system that is capable of producing a major earthquake and within a climate system capable of producing major winds, fire and rain related disasters, including but not limited to those caused by the Santa Ana winds and El Nino (or La Nina) subtropical-like weather. The proposed amendment takes the 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 to better limit personal injury and property damage as a result of geologic activity and therefore needs to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the California Building Code.



## PROPOSED AMENDMENT:

Section 18.40.203 is added to Chapter 18.40 of the Long Beach Municipal Code to read as follows:

### 18.40.203 – Amend CBC Section 1905.1.7—ACI 318, Section 14.1.4.

Section 1905.1.7 of the 2019 Edition of the California Building Code is amended to read as follows:

1905.1.7 ACI 318, Section 14.1.4. Delete ACI 318, Section 14.1.4, and replace with the following:

14.1.4 – Plain concrete in structures assigned to Seismic Design Category C, D, E or F.

14.1.4.1 – Structures assigned to Seismic Design Category C, D, E or F shall not have elements of structural plain concrete, except as follows:

- (a) Concrete used for fill with a minimum cement content of two (2) sacks of Portland cement or cementitious material per cubic yard.
- (b) Isolated footings of plain concrete supporting pedestals or columns are permitted, provided the projection of the footing beyond the face of the supported member does not exceed the footing thickness.
- (c) Plain concrete footings supporting walls are permitted provided the footings have at least two continuous longitudinal reinforcing bars. Bars shall not be smaller than No. 4 and shall have a total area of not less than 0.002 times the gross cross-sectional area of the footing. A minimum of one bar shall be provided at the top and bottom of the footing. Continuity of reinforcement shall be provided at corners and intersections.

Exception: Detached one- and two-family dwellings three stories or less in height and constructed with stud-bearing walls, are permitted to have plain concrete footings with at least two continuous longitudinal reinforcing bars not smaller than No. 4 are permitted to have a total area of less than 0.002 times the gross cross-sectional area of the footing.

## RATIONALE:

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles. This proposed 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.

## FINDINGS:

Local Geologic Condition – Amendment is necessary on the basis of a local geologic condition. The City of Long Beach is a densely populated city having buildings and structures constructed over or near a vast array of fault traces resulting from the active Newport-Inglewood fault system that is capable of producing a major earthquake. The proposed amendment requires minimum reinforcement to address the problem of poor performance of plain or under-reinforced footings to better limit personal injury and property damage as a result of geologic activity and therefore needs to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the California Building Code.

## PROPOSED AMENDMENT:

Section 18.40.205 is added to Chapter 18.40 of the Long Beach Municipal Code to read as follows:

### 18.40.205 – Amend CBC Section 1905.1 and add CBC Sections 1905.1.9 thru 1905.1.11, General.

Section 1905.1 of the 2019 Edition of the California Building Code is amended to read as follows:

1905.1 General. The text of ACI 318 shall be modified as indicated in Sections 1905.1.1 through 1905.1.11.

Sections 1905.1.9 thru 1905.1.11 are added to Chapter 19 of the 2019 Edition of the California Building Code to read as follows:

1905.1.9 ACI 318, Section 18.7.5. Modify ACI 318, Section 18.7.5, by adding Section 18.7.5.7 and 18.7.5.8 as follows:

18.7.5.7 Where the calculated point of contraflexure is not within the middle half of the member clear height, provide transverse reinforcement as specified in ACI 318 Sections 18.7.5.1, Items (a) through (c), over the full height of the member.

18.7.5.8 – At any section where the design strength,  $\phi P_n$ , of the column is less than the sum of the shears  $V_e$  computed in accordance with ACI 318 Sections 18.7.6.1 and 18.6.5.1 for all the beams framing into the column above the level under consideration, transverse reinforcement as specified in ACI 318 Sections 18.7.5.1 through 18.7.5.3 shall be provided. For beams framing into opposite sides of the column, the moment components are permitted to be assumed to be of opposite sign. For the determination of the design strength,  $\phi P_n$ , of the column, these moments are permitted to be assumed to result from the deformation of the frame in any one principal axis.

1905.1.10 ACI 318, Section 18.10.4. Modify ACI 318, Section 18.10.4, by adding Section 18.10.4.6 as follows:

18.10.4.6 – Walls and portions of walls with  $P_u > 0.35P_o$  shall not be considered to contribute to the calculated shear strength of the structure for resisting earthquake-induced forces. Such walls shall conform to the requirements of ACI 318 Section 18.14.

1905.1.11 ACI 318, Section 18.12.6. Modify ACI 318, by adding Section 18.12.6.2 as follows:

18.12.6.2 Collector and boundary elements in topping slabs placed over precast floor and roof elements shall not be less than 3 inches (76 mm) or 6 db in thickness, where db is the diameter of the largest reinforcement in the topping slab.

## RATIONALE:

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles. This proposed amendment is intended to carry over critical provisions for the design of concrete columns in moment frames from the legacy 1997 Uniform Building Code. 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 legacy 1997 Uniform Building Code a critical provision for the design of concrete shear walls. It essentially limits the use of very highly gravity-loaded walls in 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 have 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 topping slab to prevent buckling of such reinforcements.

**FINDINGS:**

Local Geologic Condition – Amendment is necessary on the basis of a local geologic condition. The City of Long Beach is a densely populated city having buildings and structures constructed over or near a vast array of fault traces resulting from the active Newport-Inglewood fault system that is capable of producing a major earthquake. The proposed amendment to increase confinement in critical columns, limiting the use of highly gravity loaded walls, and increase concrete coverage in thin slabs are intended to prevent failure of the structure and to better limit personal injury and property damage as a result of geologic activity and therefore needs to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the California Building Code.

## PROPOSED AMENDMENT:

Section 18.40.210 of the Long Beach Municipal Code is amended to read as follows:

18.40.210 – Amend CBC Section 2304.12.5—Wood used in retaining walls and cribs.

Section 2304.12.5 of the ~~2016~~2019 Edition of the California Building Code is amended to read as follows:

2304.12.5 Wood used in retaining walls and cribs. Wood installed in retaining or crib walls shall be preservative treated in accordance with AWPA U1 for soil and fresh water use. Wood shall not be used in retaining or crib walls for structures assigned to Seismic Design Category D, E or F.

## RATIONALE:

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles. No substantiating data has been provided to show that wood used in retaining or crib walls are 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 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 event and wet applications. The proposed amendment takes the 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.

## FINDINGS:

Local Geologic and Climatic Conditions – Amendment is necessary on the basis of a local geologic and climatic condition. The City of Long Beach is a densely populated city having buildings and structures constructed over or near a vast array of fault traces resulting from the active Newport-Inglewood fault system that is capable of producing a major earthquake and within a climate system capable of producing major winds, fire and rain related disasters, including but not limited to those caused by the Santa Ana winds and El Nino (or La Nina) subtropical-like weather. The proposed amendment 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 to better limit personal injury and property damage as a result of geologic activity and therefore needs to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the California Building Code.

## PROPOSED AMENDMENT:

Section 18.40.220 of the Long Beach Municipal Code is amended to read as follows:

18.40.220 – Add CBC Section ~~2305.44.10.2.1~~—Quality of nails.

Section ~~2305.44.10.2.1~~ is added to Chapter 23 of the ~~2016~~2019 Edition of the California Building Code to read as follows:

~~2305.44.10.2.1~~ Quality of Nails. In Seismic Design Category D, E or F, mechanically driven nails used in wood structural panel shear walls shall meet the same dimensions as that required for hand-driven nails, including diameter, minimum length and minimum head diameter. Clipped head or box nails are not permitted in new construction. The allowable design value for clipped head nails in existing construction may be taken at no more than the nail-head-area ratio of that of the same size hand-driven nails.

## RATIONALE:

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles. The overdriving of nails into the structural wood panel 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 as allowed in Table A1 of AFPA SDPWS footnote referencing to ASTM F1667, continues to be restricted from being used 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 less 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.

## FINDINGS:

Local Geologic Condition – Amendment is necessary on the basis of a local geologic condition. The City of Long Beach is a densely populated city having buildings and structures constructed over or near a vast array of fault traces resulting from the active Newport-Inglewood fault system that is capable of producing a major earthquake. The proposed amendment limits or prohibits the shear value of overdriven nails or the use of box and clipped head nails to better limit personal injury and property damage as a result of geologic activity and therefore need to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the California Building Code.

## PROPOSED AMENDMENT:

Section 18.40.230 of the Long Beach Municipal Code is amended to read as follows:

18.40.230 – Add CBC Section 2305.~~54~~—Hold-down connectors.

Section 2305.~~54~~ is added to Chapter 23 of the ~~2016~~2019 Edition of the California Building Code to read as follows:

2305.~~54~~ Hold-down connectors. In Seismic Design Category D, E or F, hold-down connectors shall be designed to resist shear wall overturning moments using approved cyclic load values or 75 percent of the allowable seismic load values that do not consider cyclic loading of the product. Connector bolts into wood framing shall require steel plate washers on the post on the opposite side of the anchorage device. Plate size shall be a minimum of 0.229 inch by 3 inches by 3 inches (5.82 mm by 76 mm by 76 mm) in size. Hold-down connectors shall be tightened to finger tight plus one half (1/2) wrench turn just prior to covering the wall framing.

## RATIONALE:

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles. ICC-ES AC 155 Acceptance Criteria for Hold-downs (Tie-Downs) Attached to Wood Members is widely used to establish allowable values for hold-down connectors in evaluation reports. AC 155 uses monotonic loading to establish allowable values. Yet, cyclic and dynamic forces imparted on buildings and structures by seismic activity cause more damage than equivalent forces that are applied in a monotonic manner. However, the engineering, regulatory and manufacturing industries have not reached consensus on the appropriate cyclic or dynamic testing protocols. This condition is expected to continue for some time. In the interim, this proposed amendment continues to limit the allowable capacity to 75% of the evaluation report value to provide an additional factor of safety for statically tested anchorage devices. Steel plate washers will reduce the additional damage that 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 1994 Northridge Earthquake.

## FINDINGS:

Local Geologic Condition – Amendment is necessary on the basis of a local geologic condition. The City of Long Beach is a densely populated city having buildings and structures constructed over or near a vast array of fault traces resulting from the active Newport-Inglewood fault system that is capable of producing a major earthquake. The proposed amendment limits the allowable capacity of hold-downs to 75% of the acceptance report value to provide an additional factor of safety for statically tested anchorage devices to better limit personal injury and property damage as a result of geologic activity and therefore need to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the California Building Code.

## PROPOSED AMENDMENT:

Section 18.40.240 of the Long Beach Municipal Code is amended to read as follows:

18.40.240 – Amend CBC Section 2306.2—Wood-frame diaphragms.

Section 2306.2 of the ~~2016~~2019 Edition of the California Building Code is amended to read as follows:

2306.2 Wood-frame diaphragms. Wood-frame diaphragms shall be designed and constructed in accordance with AWC SDPWS. Where panels are fastened to framing members with staples, requirements and limitations of AWC SDPWS shall be met and the allowable shear values set forth in Table 2306.2(1) or 2306.2(2) shall only be permitted for structures assigned to Seismic Design Category A, B, or C.

Exception: Allowable shear values where panels are fastened to framing members with staples may be used if such values are substantiated by cyclic testing and approved by the building official.

The allowable shear values in Tables 2306.2(1) and 2306.2(2) are permitted to be increased 40 percent for wind design.

Wood structural panel diaphragms used to resist seismic forces in structures assigned to Seismic Design Category D, E or F shall be applied directly to the framing members.

Exception: Wood structural panel diaphragms are permitted to be fastened over solid lumber planking or laminated decking, provided the panel joints and lumber planking or laminated decking joints do not coincide.

## RATIONALE:

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles.

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 does 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 the wood structural panels fastened with common nails. The test result revealed that wood structural panel 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 county within the Los Angeles region has 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 proposed 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.

**FINDINGS:**

Local Geologic Condition – Amendment is necessary on the basis of a local geologic condition. The City of Long Beach is a densely populated city having buildings and structures constructed over or near a vast array of fault traces resulting from the active Newport-Inglewood fault system that is capable of producing a major earthquake. The proposed amendment reduces allowable shear values in wood structural panel shear walls or diaphragms that were not substantiated by cyclic testing to better limit personal injury and property damage as a result of geologic activity and therefore need to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the California Building Code.



## PROPOSED AMENDMENT:

Section 18.40.250 of the Long Beach Municipal Code is amended to read as follows:

18.40.250 – Amend CBC Section 2306.3—Wood-frame shear walls.

Section 2306.3 of the ~~2016~~2019 Edition of the California Building Code is amended to read as follows:

2306.3 Wood-frame shear walls. Wood-frame shear walls shall be designed and constructed in accordance with AWC SDPWS. For structures assigned to Seismic Design Category D, E, or F, application of Tables 4.3A and 4.3B of AWC SDPWS shall include the following:

1. Wood structural panel thickness for shear walls shall not be less than 3/8 inch thick and studs shall not be spaced at more than 16 inches on center.
2. The maximum nominal unit shear capacities for 3/8 inch wood structural panels resisting seismic forces in structures assigned to Seismic Design Category D, E or F is 400 pounds per linear foot (plf).

Exception: Other nominal unit shear capacities may be permitted if such values are substantiated by cyclic testing and approved by the building official.

3. Nails shall be placed not less than 1/2 inch in from the panel edges and not less than 3/8 inch from the edge of the connecting members for shear greater than 350 plf using ASD or 500 plf using LRFD. Nails shall be placed not less than 3/8 inch from panel edges and not less than 1/4 inch from the edge of the connecting members for shears of 350 plf or less using ASD or 500 plf or less using LRFD.
4. Table 4.3B application is not allowed for structures assigned to Seismic Design Category D, E, or F.

For structures assigned to Seismic Design Category D, application of Table 4.3C of AWC SDPWS shall not be used below the top level in a multi-level building for structures.

Where panels are fastened to framing members with staples, requirements and limitations of AWC SDPWS shall be met and the allowable shear values set forth in Table 2306.3(1), 2306.3(2) or 2306.3(3) shall only be permitted for structures assigned to Seismic Design Category A, B, or C.

Exception: Allowable shear values where panels are fastened to framing members with staples may be used if such values are substantiated by cyclic testing and approved by the building official.

The allowable shear values in Tables 2306.3(1) and 2306.3(2) are permitted to be increased 40 percent for wind design. Panels complying with ANSI/APA PRP-210 shall be permitted to use design values for Plywood Siding in the AWC SDPWS.

## RATIONALE:

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles.

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 does 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 the 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 county within the Los Angeles region has 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 proposed 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.

#### **FINDINGS:**

Local Geologic Condition – Amendment is necessary on the basis of a local geologic condition. The City of Long Beach is a densely populated city having buildings and structures constructed over or near a vast array of fault traces resulting from the active Newport-Inglewood fault system that is capable of producing a major earthquake. The proposed amendment reduces allowable shear values in wood structural panel shear walls or diaphragms that were not substantiated by cyclic testing to better limit personal injury and property damage as a result of geologic activity and therefore need to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the California Building Code.

## PROPOSED AMENDMENT:

Section 18.40.260 of the Long Beach Municipal Code is amended to read as follows:

18.40.260 – Add CBC Section 2307.2—Wood-frame shear walls.

Section 2307.2 is added to the ~~2016~~2019 Edition of the California Building Code to read as follows:

2307.2 Wood-frame shear walls. Wood-frame shear walls shall be designed and constructed in accordance with Section 2306.3 as applicable.

## RATIONALE:

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles.

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 does 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 the 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 county within the Los Angeles region has 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 proposed 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.

## FINDINGS:

Local Geologic Condition – Amendment is necessary on the basis of a local geologic condition. The City of Long Beach is a densely populated city having buildings and structures constructed over or near a vast array of fault traces resulting from the active Newport-Inglewood fault system that is capable of producing a major earthquake. The proposed amendment reduces allowable shear values in wood structural panel shear walls or diaphragms that were not substantiated by cyclic testing to better limit personal injury and property damage as a result of geologic activity and therefore need to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the California Building Code.

**PROPOSED AMENDMENT:**

Section 18.40.270 of the Long Beach Municipal Code is amended to read as follows:

18.40.270 – Amend CBC Section 2308.6.8.1—~~Braced wall line support~~Foundation requirements.

Section 2308.6.8.1 of the ~~2016~~2019 Edition of the California Building Code is amended to read as follows:

2308.6.8.1 Foundation requirements. Braced wall lines shall be supported by continuous foundations.

Exception: For structures with a maximum plan dimension not over 50 feet (15240 mm), continuous foundations are required at exterior walls only for structures assigned to Seismic Design Category A, B or C.

For structures in Seismic Design Categories D and E, exterior braced wall panels shall be in the same plane vertically with the foundation or the portion of the structure containing the offset shall be designed in accordance with accepted engineering practice and Section 2308.1.1.

**RATIONALE:**

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles. 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 proposed change 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.

**FINDINGS:**

Local Geologic Condition – Amendment is necessary on the basis of a local geologic condition. The City of Long Beach is a densely populated city having buildings and structures constructed over or near a vast array of fault traces resulting from the active Newport-Inglewood fault system that is capable of producing a major earthquake. The proposed amendment limits the use of the exception provisions to structures assigned to Seismic Design Category A, B or C where lower seismic demands are expected and requires interior braced walls be supported by continuous foundations to better limit personal injury and property damage as a result of geologic activity and therefore need to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the California Building Code.

**PROPOSED AMENDMENT:**

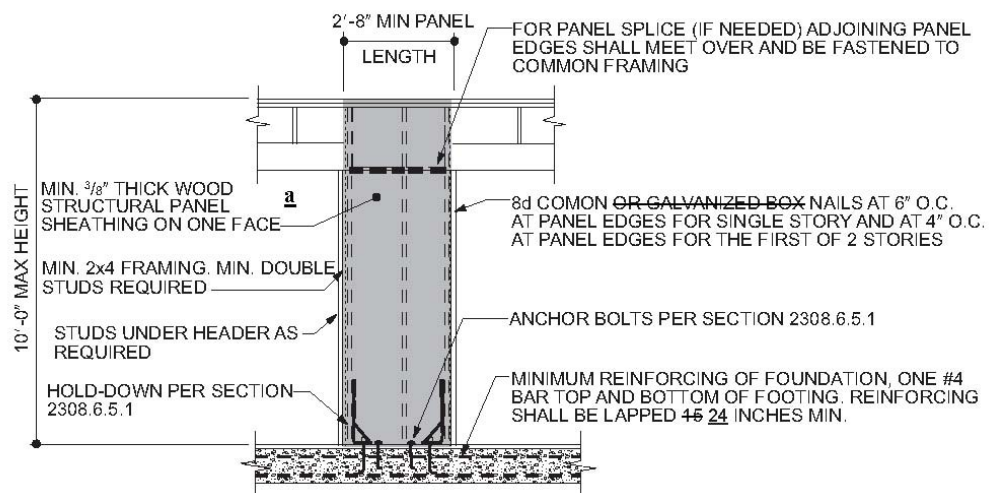
Section 18.40.280 of the Long Beach Municipal Code is amended to read as follows:

18.40.280 – Amend CBC Section 2308.6.5.1 and Figure 2308.6.5.1—Alternate braced wall.

Section 2308.6.5.1 and Figure 2308.6.5.1 of the ~~2016~~2019 Edition of the California Building Code ~~is~~are amended to read as follows:

2308.6.5.1 Alternate braced wall (ABW). An ABW shall be constructed in accordance with this section and Figure 2308.6.5.1. In one-story buildings, each panel shall have a length of not less than 2 feet 8 inches (813 mm) and a height of not more than 10 feet (3048 mm). Each panel shall be sheathed on one face with 3/8-inch (3.2 mm) minimum-thickness wood structural panel sheathing nailed with 8d common or galvanized box nails in accordance with Table 2304.10.1 and blocked at wood structural panel edges. For structures assigned to Seismic Design Category D or E, each panel shall be sheathed on one face with 15/32-inch-minimum-thickness (11.9 mm) wood structural panel sheathing nailed with 8d common nails spaced 3 inches on panel edges, 3 inches at intermediate supports. Two anchor bolts installed in accordance with Section 2308.3.1 shall be provided in each panel. Anchor bolts shall be placed at each panel outside quarter points. Each panel end stud shall have a hold-down device fastened to the foundation, capable of providing an approved uplift capacity of not less than 1,800 pounds (8006 N). The hold-down device shall be installed in accordance with the manufacturer's recommendations. The ABW shall be supported directly on a foundation or on floor framing supported directly on a foundation that is continuous across the entire length of the braced wall line. This foundation shall be reinforced with not less than one No. 4 bar top and bottom. Where the continuous foundation is required to have a depth greater than 12 inches (305 mm), a minimum 12-inch by 12-inch (305 mm by 305 mm) continuous footing is permitted at door openings in the braced wall line. This continuous footing shall be reinforced with not less than one No. 4 bar top and bottom. This reinforcement shall be lapped 24 inches (610 mm) with the reinforcement required in the continuous foundation located directly under the braced wall line.

Where the ABW is installed at the first story of two-story buildings, the wood structural panel sheathing shall be provided on both faces, three anchor bolts shall be placed at one-quarter points and tie-down device uplift capacity shall be not less than 3,000 pounds (13 344 N).



For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

a. For structures assigned to Seismic Design Category D or E, sheathed on one face with 15/32-inch-minimum-thickness (11.9 mm) wood structural panel sheathing.

**FIGURE 2308.6.5.1  
ALTERNATE BRACED WALL PANEL (ABW)**

## **RATIONALE:**

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles. 3/8" thick, 3 ply-plywood shear walls experienced many failures during the Northridge Earthquake. Box nails were observed to cause massive and multiple failures of the typical 3/8" thick 3-ply plywood during the Northridge Earthquake. This proposed amendment specifies minimum sheathing thickness, 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 and reduce and limit potential damages to property. 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.

## **FINDINGS:**

Local Geologic Condition – Amendment is necessary on the basis of a local geologic condition. The City of Long Beach is a densely populated city having buildings and structures constructed over or near a vast array of fault traces resulting from the active Newport-Inglewood fault system that is capable of producing a major earthquake. The proposed amendment specifies minimum sheathing thickness and nail size and spacing so as to provide a uniform standard of construction for designers and builders to better limit personal injury and property damage as a result of seismic activity and therefore need to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the California Building Code.

**PROPOSED AMENDMENT:**

Section 18.40.290 of the Long Beach Municipal Code is amended to read as follows:

18.40.290 – Amend CBC Section 2308.6.5.2 and Figure 2308.6.5.2—~~Alternate bracing wall panel adjacent to a door or window opening.~~ Portal frame with hold-downs.

Section 2308.6.5.2 and Figure 2308.6.5.2 of the ~~2016~~2019 Edition of the California Building Code ~~is~~ are amended to read as follows:

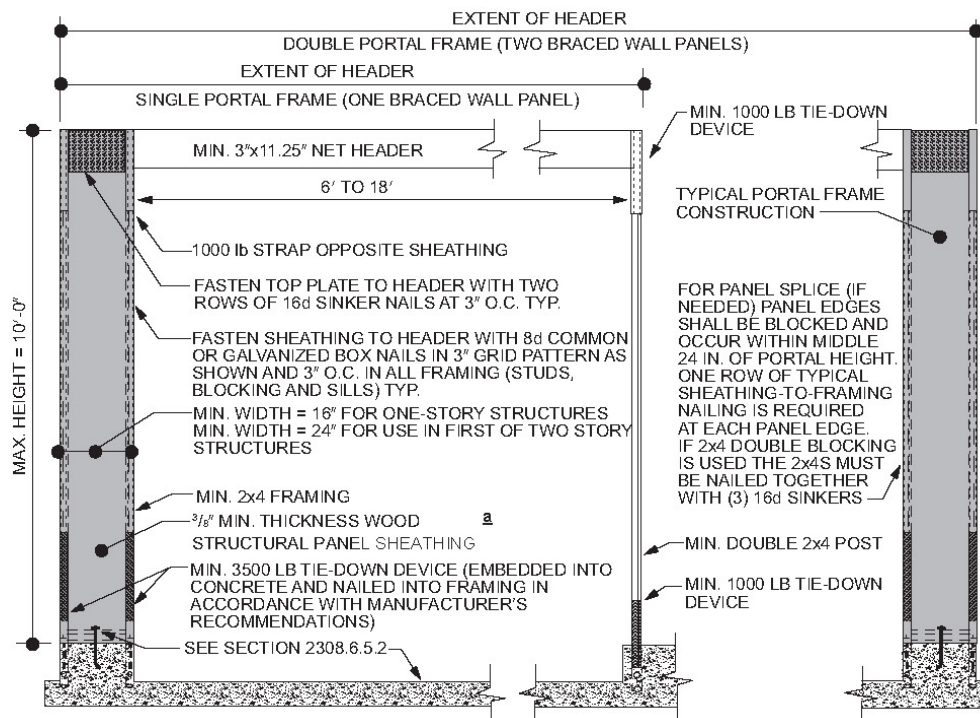
2308.6.5.2 Portal frame with hold-downs (PFH). A PFH shall be constructed in accordance with this section and Figure 2308.6.5.2. The adjacent door or window opening shall have a full-length header.

In one-story buildings, each panel shall have a length of not less than 16 inches (406 mm) and a height of not more than 10 feet (3048 mm). Each panel shall be sheathed on one face with a single layer of 3/8-inch (9.5 mm) minimum-thickness wood structural panel sheathing nailed with 8d common or galvanized box nails in accordance with Figure 2308.6.5.2. For structures assigned to Seismic Design Category D or E, each panel shall be sheathed on one face with 15/32-inch-minimum-thickness (11.9 mm) wood structural panel sheathing nailed with 8d common nails spaced 3 inches on panel edges, 3 inches at intermediate supports and in accordance with Figure 2308.6.5.2. The wood structural panel sheathing shall extend up over the solid sawn or glued-laminated header and shall be nailed in accordance with Figure 2308.6.5.2. A built-up header consisting of at least two 2-inch by 12-inch (51 mm by 305 mm) boards, fastened in accordance with Item 24 of Table 2304.10.1 shall be permitted to be used. A spacer, if used, shall be placed on the side of the built-up beam opposite the wood structural panel sheathing. The header shall extend between the inside faces of the first full-length outer studs of each panel. The clear span of the header between the inner studs of each panel shall be not less than 6 feet (1829 mm) and not more than 18 feet (5486 mm) in length. A strap with an uplift capacity of not less than 1,000 pounds (4,400 N) shall fasten the header to the inner studs opposite the sheathing. One anchor bolt not less than 5/8 inch (15.9 mm) diameter and installed in accordance with Section 2308.3.1 shall be provided in the center of each sill plate. The studs at each end of the panel shall have a hold-down device fastened to the foundation with an uplift capacity of not less than 3,500 pounds (15 570 N).

Where a panel is located on one side of the opening, the header shall extend between the inside face of the first full-length stud of the panel and the bearing studs at the other end of the opening. A strap with an uplift capacity of not less than 1,000 pounds (4400 N) shall fasten the header to the bearing studs. The bearing studs shall also have a hold-down device fastened to the foundation with an uplift capacity of not less than 1,000 pounds (4400 N). The hold-down devices shall be an embedded strap type, installed in accordance with the manufacturer's recommendations. The PFH panels shall be supported directly on a foundation that is continuous across the entire length of the braced wall line. This foundation shall be reinforced with not less than one No. 4 bar top and bottom. Where the continuous foundation is required to have a depth greater than 12 inches (305 mm), a minimum 12-inch by 12-inch (305 mm by 305 mm) continuous footing is permitted at door openings in the braced wall line. This continuous footing shall be reinforced with not less than one No. 4 bar top and bottom. This reinforcement shall be lapped not less than 24 inches (610 mm) with the reinforcement required in the continuous foundation located directly under the braced wall line.

Where a PFH is installed at the first story of two-story buildings, each panel shall have a length of not less than 24 inches (610 mm).

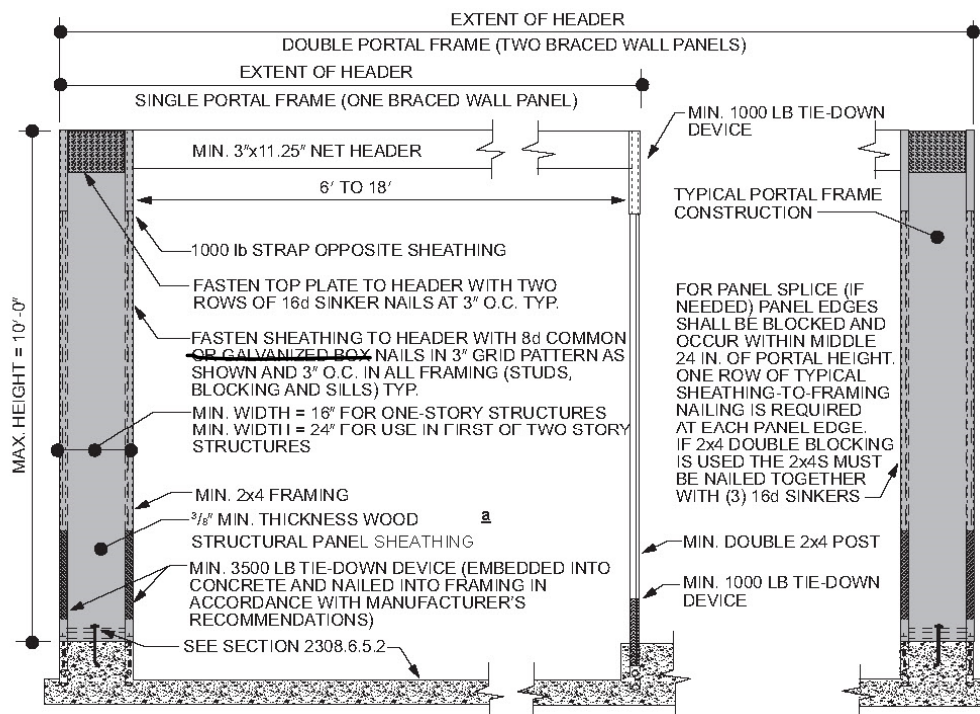




For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound = 4.448 N.

**a.** For structures assigned to Seismic Design Category D or E, sheathed on one face with 15/32-inch-minimum-thickness (11.9 mm) wood structural panel sheathing.

**FIGURE 2308.6.5.2  
PORTAL FRAME WITH HOLD-DOWNS (PFH)**



For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound = 4.448 N.

**a.** For structures assigned to Seismic Design Category D or E, sheathed on one face with 15/32-inch-minimum-thickness (11.9 mm) wood structural panel sheathing.

**FIGURE 2308.6.5.2  
PORTAL FRAME WITH HOLD-DOWNS (PFH)**



**RATIONALE:**

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles. 3/8" thick, 3 ply-plywood shear walls experienced many failures during the Northridge Earthquake. Box nails were observed to cause massive and multiple failures of the typical 3/8" thick 3-ply plywood during the Northridge Earthquake. This proposed amendment specifies minimum sheathing thickness, 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 and reduce and limit potential damages to property. 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.

**FINDINGS:**

Local Geologic Condition – Amendment is necessary on the basis of a local geologic condition. The City of Long Beach is a densely populated city having buildings and structures constructed over or near a vast array of fault traces resulting from the active Newport-Inglewood fault system that is capable of producing a major earthquake. The proposed amendment specifies minimum sheathing thickness and nail size and spacing so as to provide a uniform standard of construction for designers and builders to better limit personal injury and property damage as a result of seismic activity and therefore need to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the California Building Code.







**PROPOSED AMENDMENT:**

Section 18.40.300 of the Long Beach Municipal Code is amended to read as follows:

18.40.300 – Amend CBC Table 2308.6.1—Wall bracing requirements.

Table 2308.6.1 of the ~~2016~~2019 Edition of the California Building Code is amended to read as follows:

**TABLE 2308.6.1<sup>a</sup>**  
**WALL BRACING REQUIREMENTS**

SEISMIC DESIGN CATEGORY	STORY CONDITION (SEE SECTION 2308.2)	MAXIMUM SPACING OF BRACED WALL LINES	BRACED PANEL LOCATION, SPACING (O.C.) AND MINIMUM PERCENTAGE (X)			MAXIMUM DISTANCE OF BRACED WALL PANELS FROM EACH END OF BRACED WALL LINE
			Bracing method <sup>b</sup>			
			LIB	DWB, WSP	SFB, PBS, PCP, HPS, GB <sup>c,d</sup>	
A and B		35'- 0"	Each end and ≤ 25'- 0" o.c.	Each end and ≤ 25'- 0" o.c.	Each end and ≤ 25'- 0" o.c.	12'- 6"
		35'- 0"	Each end and ≤ 25'- 0" o.c.	Each end and ≤ 25'- 0" o.c.	Each end and ≤ 25'- 0" o.c.	12'- 6"
		35'- 0"	NP	Each end and ≤ 25'- 0" o.c.	Each end and ≤ 25'- 0" o.c.	12'- 6"
C		35'- 0"	NP	Each end and ≤ 25'- 0" o.c.	Each end and ≤ 25'- 0" o.c.	12'- 6"
		35'- 0"	NP	Each end and ≤ 25'- 0" o.c. (minimum 25% of wall length) <sup>e</sup>	Each end and ≤ 25'- 0" o.c. (minimum 25% of wall length) <sup>e</sup>	12'- 6"
D and E <u>f, g, h</u>		25'- 0"	NP	$S_{DS} < 0.50$ : Each end and ≤ 25'- 0" o.c. (minimum 21% of wall length) <sup>e</sup>	$S_{DS} < 0.50$ : Each end and ≤ 25'- 0" o.c. (minimum 43% of wall length) <sup>e</sup>	8'- 0"
				$0.5 \leq S_{DS} < 0.75$ : Each end and ≤ 25'- 0" o.c. (minimum 32% of wall length) <sup>e</sup>	$0.5 \leq S_{DS} < 0.75$ : Each end and ≤ 25'- 0" o.c. (minimum 59% of wall length) <sup>e</sup>	
				$0.75 \leq S_{DS} \leq 1.00$ : Each end and ≤ 25'- 0" o.c. (minimum 37% of wall length) <sup>e</sup>	$0.75 \leq S_{DS} \leq 1.00$ : Each end and ≤ 25'- 0" o.c. (minimum 75% of wall length)	
				$S_{DS} > 1.00$ : Each end and ≤ 25'- 0" o.c. (minimum 48% of wall length) <sup>e</sup>	$S_{DS} > 1.00$ : Each end and ≤ 25'- 0" o.c. (minimum 100% of wall length) <sup>e</sup>	

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

NP = Not Permitted.

a. This table specifies minimum requirements for braced wall panels along interior or exterior braced wall lines.

b. See Section 2308.6.3 for full description of bracing methods.

c. For Method GB, gypsum wallboard applied to framing supports that are spaced at 16 inches on center.

d. The required lengths shall be doubled for gypsum board applied to only one face of a braced wall panel.

e. Percentage shown represents the minimum amount of bracing required along the building length (or wall length if the structure has an irregular shape).

f. DWB, SFB, PBS, and HPS wall braces are not permitted in Seismic Design Categories D or E.

g. Minimum length of panel bracing of one face of the wall for WSP sheathing shall be at least 4'-0" long or both faces of the wall for GB or PCP sheathing shall be at least 8'-0" long; h/w ratio shall not exceed 2:1. Wall framing to which sheathing used for bracing is applied shall be nominal 2 inch wide (actual 1 1/2 inch (38 mm) or larger members and spaced a maximum of 16 inches on center. Braced wall panel construction types shall not be mixed within a braced wall line.

h. WSP sheathing shall be a minimum of 15/32" thick nailed with 8d common placed 3/8 inches from panel edges and spaced not more than 6 inches on center and 12 inches on center along intermediate framing members.

## RATIONALE:

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles. This proposed 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.

## **FINDINGS:**

Local Geologic Condition – Amendment is necessary on the basis of a local geologic condition. The City of Long Beach is a densely populated city having buildings and structures constructed over or near a vast array of fault traces resulting from the active Newport-Inglewood fault system that is capable of producing a major earthquake. The proposed amendment specifies minimum sheathing thickness and nail size and spacing so as to provide a uniform standard of construction for designers and builders to better limit personal injury and property damage as a result of seismic activity and therefore need to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the California Building Code.

**PROPOSED AMENDMENT:**

Section 18.40.310 of the Long Beach Municipal Code is amended to read as follows:

18.40.310 – Amend CBC Section 2304.10.1—Fastener requirements.

Section 2304.10.1 of the ~~2016~~2019 Edition of the California Building Code is amended to read as follows:

2304.10.1 Fastener requirements. Connections for wood members shall be designed in accordance with the appropriate methodology in Section 2301.2. The number and size of fasteners connecting wood members shall not be less than that set forth in Table 2304.10.1. Staple fasteners in Table 2304.10.1 shall not be used to resist or transfer seismic forces in structures assigned to Seismic Design Category D, E or F.

Exception: Staples may be used to resist or transfer seismic forces when the allowable shear values are substantiated by cyclic testing and approved by the Building Official.

**RATIONALE:**

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles. 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 limit 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 the nailed wood structural shear panels. 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 to resist or transfer seismic forces shall not be permitted without being substantiated by cyclic testing.

**FINDINGS:**

Local Geologic Condition – Amendment is necessary on the basis of a local geologic condition. The City of Long Beach is a densely populated city having buildings and structures constructed over or near a vast array of fault traces. The proposed amendment limit the use of staple fasteners in resisting or transferring seismic forces to better limit personal injury and property damage as a result of seismic activity and therefore need to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the California Building Code.

**PROPOSED AMENDMENT:**

Section 18.40.320 of the Long Beach Municipal Code is amended to read as follows:

18.40.320 – Amend CBC Section 2308.6.9—Attachment of sheathing.

Section 2308.6.9 of the ~~2016~~2019 Edition of the California Building Code is amended to read as follows:

2308.6.9 Attachment of sheathing. Fastening of braced wall panel sheathing shall not be less than that prescribed in Tables 2308.6.1 or 2304.10.1. Wall sheathing shall not be attached to framing members by adhesives. Staple fasteners in Table 2304.10.1 shall not be used to resist or transfer seismic forces in structures assigned to Seismic Design Category D, E or F.

Exception: Staples may be used to resist or transfer seismic forces when the allowable shear values are substantiated by cyclic testing and approved by the Building Official.

All braced wall panels shall extend to the roof sheathing and shall be attached to parallel roof rafters or blocking above with framing clips (18 gauge minimum) spaced at maximum 24 inches (6096 mm) on center with four 8d nails per leg (total eight 8d nails per clip). Braced wall panels shall be laterally braced at each top corner and at maximum 24 inches (6096 mm) intervals along the top plate of discontinuous vertical framing.

**RATIONALE:**

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles. This proposed amendment 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.

**FINDINGS:**

Local Geologic Condition – Amendment is necessary on the basis of a local geologic condition. The City of Long Beach is a densely populated city having buildings and structures constructed over or near a vast array of fault traces. The proposed amendment limits the use of staple fasteners in resisting or transferring seismic forces to better limit personal injury and property damage as a result of seismic activity and therefore need to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the California Building Code.

**PROPOSED AMENDMENT:**

Section 18.40.330 of the Long Beach Municipal Code is amended to read as follows:

18.40.330 – Amend CBC Section 2503.1—Inspection.

Section 2503.1 of the ~~2016~~2019 Edition of the California Building Code is amended to read as follows:

2503.1 Inspection. Lath, gypsum board and gypsum panel products shall be inspected in accordance with Section 18.07.050 of the Long Beach Municipal Code.

**RATIONALE:**

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles. This amendment makes minor editorial changes to reflect the appropriate reference to the City's Municipal Code for inspection related requirements.

**FINDINGS:**

Local Administrative Clarification – Amendment is necessary for local administrative clarification, does not modify a Building Standards as defined in Section 18909(c) of the California Health and Safety Code, and does not require the express findings and determination required by Sections 17958, 17958.5 and 17958.7 of the California Health and Safety Code.

**PROPOSED AMENDMENT:**

Section 18.40.340 of the Long Beach Municipal Code is amended to read as follows:

18.40.340 – Amend CBC Section 3307.1—Protection required.

Section 3307.1 of the ~~2016~~2019 Edition of the California Building Code is amended to read as follows:

3307.1 Protection required. Adjoining public and private property shall be protected from damage during construction, remodeling and demolition work. Protection shall be provided for footings, foundations, party walls, chimneys, skylights and roofs. Provisions shall be made to control water runoff and erosion during construction or demolition activities. The person making or causing an excavation to be made shall provide written notice to the owners of adjoining buildings advising them that the excavation is to be made and that the adjoining buildings should be protected. Said notification shall be delivered not less than ten (10) days prior to the scheduled starting date of the excavation.

The requirements of protection of adjacent property with respect to excavations shall be as provided in Section 832 of the California Civil Code.

Prior to the issuance of any permit which authorizes an excavation where the excavation is to be of a greater depth than are the walls or foundation of any adjoining building or structure and located closer to the property line than the depth of the excavation, the owner of the subject site shall provide the Building Official with evidence that the adjacent property owner or owners have been given a thirty (30) day written notice of such intent to make an excavation. This notice shall state the depth to which such excavation is intended to be made and when the excavation will commence. This notice shall be by certified mail, return receipt requested.

This section shall not be construed to waive the requirements of the General Safety Orders of the California Department of Industrial Relations, nor the provisions of Section 832 of the California Civil Code concerning the rights of coterminous owners as to excavations.

**RATIONALE:**

Administrative changes to reference the latest edition of the State's code. State law requires that local jurisdictions adopt the 2019 Edition of the California Building Code by January 1, 2020. This proposed amendment is a continuation of an amendment adopted during previous code adoption cycles. This amendment makes administrative changes to reflect the noticing requirement of adjacent property owners due to excavation that meets certain conditions as stipulated in Section 832 of the California Civil Code. Administrative procedures are provided to clarify to permit applicants regarding how this provision is to be satisfied.

**FINDINGS:**

Local Administrative Clarification – Amendment is necessary for local administrative clarification, does not modify a Building Standards as defined in Section 18909(c) of the California Health and Safety Code, and does not require the express findings and determination required by Sections 17958, 17958.5 and 17958.7 of the California Health and Safety Code.