

Introduced by: \_\_\_\_\_

ORDINANCE NO. \_\_\_\_\_

**AN ORDINANCE OF THE CITY OF PASADENA ADOPTING TITLE 24 OF THE CALIFORNIA CODE OF REGULATIONS, PARTS 1-12, INCORPORATING THE 2019 CALIFORNIA BUILDING CODE AND APPENDIX CHAPTERS C, D, H, I AND J; THE 2019 CALIFORNIA RESIDENTIAL CODE APPENDIX CHAPTERS H, J, AND V; THE 2019 CALIFORNIA GREEN BUILDING STANDARDS CODE; THE 2019 CALIFORNIA ELECTRICAL CODE; THE 2019 CALIFORNIA MECHANICAL CODE; THE 2019 CALIFORNIA PLUMBING CODE; THE 2019 CALIFORNIA ADMINISTRATIVE CODE; THE 2019 CALIFORNIA ENERGY CODE; THE 2019 CALIFORNIA FIRE CODE AND APPENDIX CHAPTER 4 AND APPENDICES B THROUGH O; THE 2019 CALIFORNIA HISTORICAL BUILDING CODE; THE 2019 CALIFORNIA REFERENCED STANDARDS CODE AND THE 2019 CALIFORNIA EXISTING BUILDING CODE**

Whereas the City of Pasadena is adopting the 2019 editions of the California Building Code, Residential Building Code, Fire Code and Green Building Standards Code and is making certain amendments thereto; and

Whereas State law requires that a city must adopt specific findings as to the topographic, geological, and climatic conditions to justify the amendment to these codes;

Now Therefore, the City Council of the City of Pasadena finds as follows:

1. With respect to the amendments to the State code as set forth in Sections 14.04.110, 115, 258, 265, 315

**Justification: Topographic and Climatic,** Pasadena's hillside areas have narrow and winding access roads, which makes timely response by large fire suppression vehicles difficult. Additionally, long period of dry, hot weather, combined with unpredictable seasonal winds (Santa Ana wind conditions) result in increased exposure to fire risk. These amendments prohibit the use of wood as exterior wall and roof covering material in very high, high and moderate fire hazard areas and require other exterior wall finishes and roofing materials to have a Class A assembly. This will reduce the potential for rapid spread of fire throughout the City during periods of strong seasonal winds.

2. With respect to the amendments to the State Code as set forth in Sections 14.04.400 below,

**Justification: Climatic.** Because of the risk of delays in fire rescue response time due to traffic congestion and due to the high number of swimming pools within close proximity to small children and because of local climate which makes pool ownership desirable, pool barriers are necessary. Additionally, the amendments are consistent with barrier requirements previously in force in the City of Pasadena.

3. With respect to the amendments to the State Code as set forth in Sections 14.04.120, 130, 140, 145, 147, 150, 160, 170, 175, 180, 210, 215, 216, 225, 235, 250, 260, 267, 275, 282, 285, 290, 295,

**Justification: Geologic.** Pasadena is situated primarily on the Sierra Madre Fault near the base of the San Gabriel Mountains. Other faults near or in the city are the Eagle Rock fault (originally termed the San Rafael fault), Verdugo Hills fault, and Elysian Park fault. Said faults are generally considered major Southern California earthquake faults which may experience rupture at any time. Review of damage resulting from the January 17, 1994 Northridge Earthquake revealed significant damage to many buildings throughout the Southern California region. The referenced amendments are necessary to implement improved design standards, to use current recognized standards and referenced recently published, and to reduce the risk of personal injury, loss of life and property damage within structures.

4. With respect to the amendments to the state code as set forth in Sections 14.04.165, 185, 190, 217, 220, 270, 280,

**Justification Local Climatic and Geological Conditions.** The greater Los Angeles region is a densely populated area having buildings and structures constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. In addition, the region is within a climate system capable of producing major winds, fire and rain related disasters, including but not limited to the those caused by the Santa Ana winds and El Nino (or La Nina) subtropical-like weather. This region is especially susceptible to more active termite and wood attacking insects and microorganisms. The proposed modification to 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 organisms and therefore need to be incorporated into the code to assure that new buildings and structures and addition or alterations to existing buildings or structures are designed and constructed on accordance with the scope and objectives of the International Residential Code.

5. With respect to the amendments to the state code as set forth in Section 14.04.500, 502, 507 and 509,

**Justification: Local Environmental and Climatic Conditions.** The greater Los Angeles region is a densely populated area having buildings and structures constructed within a region where environmental resources are scarce due to varying and occasional immoderate temperatures and weather conditions, and heavily traveled traffic corridors and highways, near and within the proximity of airports and/or ports, near the ocean, and within flood prone areas. This impacts the quality of the air, causes higher decibel noise level, and increases the risk of rising sea or flood levels. The proposed modification to increase the number of EV charging space and station will help to address and significantly reduce local air and noise pollutions, greenhouse gas emissions, and will improve the health and welfare of the region's residents, businesses and visitors and reduce the rise in sea or flood levels that could put at risk the region's homes and businesses, public facilities, airports and/or ports. The proposed modification to the require higher efficiencies and energy usage and greeter beneficial use of environmental material will be achieved with the proposed expansion of the Mandatory and Voluntary requirements and therefore need to be incorporated into the code to assure that new residential and non-residential buildings are designed and constructed in accordance with the scope and objectives of the California Green Building Standards Code.

6. With respect to the amendments to the state fire code as set forth in section 14.28.010 items 040, 050, 060, 070, 080, 090, 100, 110, 120, 130, 140, 310, 340, 350, 360, 370, 380, 390, 400, 410, 420, 430,

**Justification: Topographic.** The increased use of decreased property line setback development and increased development densities increase the community risk from fire or hazardous materials spread and the number of persons potentially endangered. The proposed amendments allow for either increased review and mitigation, or decreased hazard to the community, or both.

7. With respect to the amendments to the state fire code as set forth in section 14.28.010 items 200, 210, 220, 230, 240, 250, 260, 270, 280, 320, and 330,

**Justification: Topographic and Climatic.** Increasing vehicular density, narrow and winding access roads to hillside areas, and hot, dry weather and seasonal winds result in increased exposure to fire risk. The increased use of decreased property line setback development and increased development densities increase the community risk from fire spread and the number of persons potentially endangered. The proposed amendments allow for either increased review and mitigation, or decreased hazard to

the community through increased use of automatic fire detection or extinguishing systems, and/or the decreased use of combustible exterior materials, or both.

8. With respect to the amendments to the state fire code as set forth in section 14.28.010 items 180 and 190,

**Justification: Topographic.** The increased use of decreased property line setback development, increased use of light weight construction, increased intermingling of hazardous occupancies with less hazardous occupancies that have been historically separated, and increased development densities increase the community risk from fire spread and other hazardous conditions and the number of persons potentially endangered. The proposed amendments allow for the increased efficacy and safety of the response to emergencies by ensuring acceptable emergency communications and thereby improving the safety of both the community and emergency responders.

9. With respect to the amendments to the state fire code as set forth in section 14.28.010 item 450, 460, and 470,

**Justification: Topographic.** The increased use of decreased property line setback development, increased use of light weight construction, increased intermingling of hazardous occupancies with less hazardous occupancies that have been historically separated, and increased development densities increase the community risk from fire spread and other hazardous conditions and the number of persons potentially endangered. This amendment increases public and firefighter safety by increasing the likelihood that automatic fire extinguishing systems will have sufficient water flow capacity to contain or extinguish significant fires before the fire extends to adjacent areas or structures.

10. With respect to the amendments to the state fire code as set forth in section 14.28.010 item 290, and 300,

**Justification: Topographic.** The increased use of decreased property line setback development, increased use of light weight construction, increased intermingling of hazardous occupancies with less hazardous occupancies that have been historically separated, and increased development densities increase the community risk from fire spread and other hazardous conditions and the number of persons potentially endangered. This amendment increases public and firefighter safety during special events where temporary structures are erected and occupied presenting unique egress challenges.

11. For sections not specified above, no express findings are required under the

requirements established by sections 17958, 17958.5, and 17958.7 of the California Health and Safety Code as these amendments are administrative in nature, merely provide clarification of existing California Code requirement, or address matters outside the scope of the above sections.

Accordingly, the People of the City of Pasadena ordain as follows:

**SECTION 1.** This ordinance, due to its length and corresponding publication cost will be published by title and summary as permitted by Section 508 of the Charter of the City of Pasadena. The approved summary of this ordinance is as follows:

#### **"Summary**

Ordinance No. \_\_\_\_\_. The ordinance adopts the 2019 California Building Code, the 2019 California Residential Code, the 2019 California Green Building Standards Code, the 2019 California Electrical Code, 2019 California Mechanical Code, the 2019 California Plumbing Code, the 2019 California Administrative Code, the 2019 California Energy Code, the 2019 California Fire Code, the 2019 California Historical Building Code, the 2019 California Referenced Standards Code, and the 2019 California Existing Building Code as required by state law. The ordinance also provides for some amendments to these codes to accommodate special topographic, geological, and climatic conditions found in Pasadena consistent with state law. Ordinance No. \_\_\_\_\_ shall take effect 30 days after its publication by title and summary. The full text of the ordinance is on file in the City Clerk's Office."

**SECTION 2.** Chapter 14.03 of the Pasadena Municipal is hereby repealed in its entirety and rewritten as follows:

#### **14.03.010 - Adoption and filing.**

Except as herein provided by specific changes, the administrative, organizational and enforcement for the technical codes which regulate the site preparation and construction, alteration, moving, demolition, repair, use and occupancy of buildings, structures and building service equipment within the city shall be in accordance with the provisions and in the manner prescribed in administrative provisions of the 2019 Edition of the California Building Code, as published by the California State Building Standards Commission.

#### **14.03.020 - Section 101.1 of Chapter 1 Division II and Section R101.1 of the California Residential Building Code amended Title**

This ordinance shall be known and cited as the Pasadena Building Code for Building Construction Regulation, and will be referred to herein as this Code.

**14.03.030 - Chapter 1 Division II Section 103.1 of the 2019 edition of the California Building Code and Chapter 1 Division II Section R103.1 of the 2019 edition of the California Residential Building Code, creation of enforcement agency is amended as follows:**

There has been established heretofore in this jurisdiction a code enforcement agency entitled, The Planning and Community Development Department which employs a Building Official who shall be authorized to enforce the provisions of this code.

**SECTION 3.** Chapter 14.04 of the Pasadena Municipal Code is hereby repealed in its entirety and rewritten as follows:

**14.04.010 - Adoption and filing.**

California Building Codes adopted. California Code of Regulation Title 24 part 1-12. The 2019 California Building Code Chapters 1-35 and Appendix Chapters C, D, H, I, and J; the 2019 California Residential Code Appendix Chapters ~~E~~, H, J, and V, the 2019 California Green Building Standards Code, the 2019 California Electrical Code; The 2019 California Mechanical Code; the 2019 California Plumbing Code, and 2019 California Fire Code **and Appendix Chapter 4 and appendices B through O; California Historical Building Code, 2019 California Referenced Standards, and 2019 California Existing Building Code** all as published by the California Building Standards Commission and as amended by the State Department of Housing And Community Development (HCD), the Division of the State Architect/Access and Compliance (DSA/AC), and the State Office of Statewide Health, Planning and Development (OSHPD), The Office of the State Fire Marshal (SFM): all as published by the International Code Council. One copy of all of the above publications is on file for public inspection and is hereby adopted with the same force and effect as though set out herein in full.

**14.04.015 - Section 105.2.1 is added to Chapter 1 Division II Section ~~105.2~~ of the 2019 California Building Code and to Section 105.2 of the 2019 California Residential Building Code to read as follows:**

A zoning permit may be required for items exempted from building permit requirements under Chapter 1 Division II Section 105.2. Exempted work shall not violate any provisions of this code, Federal, State, Local laws, or regulations.

**14.04.020 – Section 105.5 of the 2019 California Building Code and Section R105.5 of the 2019 California Residential Building Code is amended to read as follows:**

Expiration. Beginning January 1, 2017, every permit **applied and** issued by the Building Official under the provisions of this Code shall expire by limitation and become null and void if all work by said permit is not completed within the time limits specified below from the date of issuance of the building permit:

<b>Construction Type</b>	<b>Project Completion Time</b>
Single-Family or Duplex	24 months
Multiple Family (3+ units)	36 months
Non-residential	36 months

- a. Before such work can be recommenced, a permit extension, as specified in Subsection A, shall be first obtained. No permit shall be extended more than twice.
- b. Time limits will not be increased by issuance of subsequent building permits for the same project.
- c. When a project is divided into separate permits by the applicant the work on such permits is to be done concurrently, the time allowed to complete all work on each separate permit shall be established from the initial permit issuance date.

**A. Extensions and Fees.**

- a. Any permittee holding an active permit may apply in writing for an extension of the time within which work under that permit may be continued when, for good and satisfactory reasons, he or she is unable to continue work within the time required by this section due to circumstances beyond the control of the permittee. The written request must demonstrate that:

- i. Due to circumstances beyond the owner's or permittee's control, construction could not be commenced, continued or completed in the authorized time period;
  - ii. If the construction has started, substantial progress has been made;
  - iii. The condition of the property presents no health or safety hazard; and,
  - iv. The continued delay will not create any unreasonable aesthetic impact to the neighborhood or substantial economic detriment to the neighboring property owners.
- b. The Building Official may extend the time for action by the permittee for a period not exceeding six calendar months. Payment of the building permit extension fee shall be required. The extension fee shall be calculated as the greater of two percent (2%) of the estimated total project valuation or one-thousand dollars.
- c. Building permits shall not be extended more than twice, and each extension shall not exceed six months.
- d. **When a permit expires, the permit holder must first pay permit extension fees as described in (b) above and reactivation fees in order to continue to complete the project. This extension may not exceed six months to complete the project and receive finals.**

**B. Appeals.** If the property owner feels aggrieved by the determination of the Building Official regarding the applicable time limit or by the denial of an additional six-month extension, the property owner may appeal to the Code Compliance Hearing Officer within ten days of the Building Official's decision. The appellant shall pay a hearing appeal fee at the time of filing an appeal in an amount as shall be established from time to time by resolution of the City Council. The Code Compliance Hearing Officer shall notify the appellant in writing of the date of the hearing on the appeal, and such notice shall be sent at least ten days before the date of the hearing, which shall be held no later than thirty days after the filing of the appeal.

**14.04.022 - Posting of Construction Sign.**

Except for single-family construction involving only minor interior remodel, minor building permits, window change outs, re-roofs or other minor building permits, one sign, visible from the street, must be posted listing project address, permit number, work description, name of Construction Company, contact name of Construction Company and phone number and/or if owner-builder contact name and phone number of owner. **A**



**sign may also be required when determined by the Building Official.** The sign shall also list the City's allowable construction hours and days pursuant to Pasadena Municipal Code Section 9.36.070, and clearly identify the permit expiration date. Said sign shall be white in color as background and a minimum size of 24" in height by 36" in width with 1" high legible black lettering. Posting of the required sign is the responsibility of the permittee, and such sign shall be posted and maintained at the construction site where it can be read by the public. This notice must be posted prior to the start of construction and displaced continuously until all permitted work is inspected and approved by City of Pasadena Building & Safety Division. Sign to be verified by the City upon the first inspection. Signs shall be replaced if damaged, torn, faded, or if the required information is illegible, as determined by the Building Official.

#### **14.04.24 - Construction Site Fencing.**

Whenever a building permit is issued to construct, add or alter to a building or site, the installation of perimeter temporary fencing shall be required.

The installation of temporary fencing shall be required for the following projects:

1. Projects involve grading, trenching or excavation activities,
2. The construction area is visible from the public right-of-way with the exception of roof replacement, window change-outs with no framing work.
3. There is outside storage of building materials, equipment, construction materials or equipment stored at the front of the property.
4. The property is vacant during the duration of the construction.
5. As determined by the Building Official

The Building Official shall require the site to be temporarily fenced and screened on all sides for the duration of the construction project. The height of the fence shall be seventy-two inches (72) high with gates to access the site. The screening material shall be tightly secured to the fencing, free of holes and without advertising. The perimeter fencing may be removed when there are no remaining exterior construction activities visible from the public right-of-way and there is no longer visible outside storage of building materials, equipment or fixtures or as determined by the Building Official. An address sign shall be installed and be visible from public right of way at all perimeter points to include the street name and number of the site using minimum six-inch high letters and numbers, and shall be posted at the top of the perimeter fence or at least five feet from the ground. A "No Trespassing" sign, conforming to the requirements of California Penal Code, Section 602, shall be installed at all perimeter access points, posted at the top of the perimeter fence or at least five feet from the ground.

#### **14.04.030 - Violations.**

All sections in the codes referenced in Section 14.04.010 herein pertaining to violations are amended in their entirety to read as follows:

It shall be unlawful for any person, firm or corporation to erect, construct, enlarge, alter, repair, move, improve, remove, convert, or demolish, equip, use, occupy, or maintain any building or structure in the City, or cause same to be done, contrary to or in violation of any of the provisions of this chapter. Any person, firm, or corporation violating any of the provisions of this Ordinance, shall be deemed guilty of a misdemeanor, and each such person shall be deemed guilty of a separate offense for each and every day or portion thereof during which any violation of any of the provisions of this Ordinance is committed, continued, or permitted, and upon conviction of any such violation such persons shall be punished by a fine of not more than one thousand dollars (\$1,000) or double the permit fee whichever is greater or by imprisonment for not more than one (1) year, or by both such fine and imprisonment.

In addition to the above penalty provisions, violation of any of the provisions of this chapter may be subject to the administrative proceedings set forth in Chapter 1.25 of this code.

#### **14.04.040 - Board of appeals.**

All sections in the respective codes pertaining to the Board of Appeals are hereby amended in their entirety to read as follows:

In order to hear and decide appeals or orders and determine the suitability of alternate materials and methods of construction and to provide for reasonable interpretations of the provisions of these Codes, there shall be and there is hereby created a Board of Appeals, composed of the Mayor and the City Council.

The city clerk shall be the secretary to the Board. The Board may adopt reasonable rules and regulations for conducting its investigations and shall render all its decisions and findings on contested matters, in writing to the building official, with a duplicate copy thereof to any appellant or contestant affected by any such decision of findings, and may recommend to the City Council such new legislation, if any, as is consistent therewith.

The City Council may prescribe by resolution, to employ at the cost and expense of the City, such qualified individuals as the Board, in its discretion, may deem reasonably

necessary in order to assist it in its investigations and in making its findings and decisions.

**14.04.050 - Fees.**

The council shall by resolution adopt a schedule of fees for the permits issued pursuant hereto.

**14.04.100 - Changes and additions to the adopted codes.**

Pursuant to the Health and Safety Code Sections 17358.5 and 17958.7, the City establishes the following local modifications. The requisite findings if applicable for such requirements are set forth in the ordinance fact sheet accompanying this ordinance.

**14.04.110 - Section 1505.1 of the 2019 California Building Code is amended to read as follows:**

General. Roof assemblies shall be divided into the classes defined below. Class A and B and C roof assemblies and roof coverings required to be listed by this section shall be tested in accordance with ASTM E108 or UL 790. In addition, fire-retardant-treated wood roof coverings shall be tested in accordance with ASTM D 2898. The minimum roof coverings installed on buildings shall comply with Table 1505.1 based on the type of construction of the building. **All roof assemblies and roof coverings shall be of not less than Class B. No wood roof covering material shall be installed on any structure located in the very high, high and moderate fire hazard zones as identified by the Pasadena Fire Department.**

Exception: Skylights and sloped glazing that comply with Chapter 24 or Section 2610.

**In the moderate fire hazard zone, the fire code official may, upon a showing of good cause and necessity, approve the use of fire-resistive wood as part of class A listed assemblies, and may require additional mitigation as warranted, for the repair or maintenance of existing structures.**

**14.04.115 - Section 1505.6 of the 2019 Edition of the California Building Code is amended to read as follows:**

Fire-retardant-treated wood shingles and shakes. Fire-retardant-treated wood shingles and shakes shall not be installed in the very high, high and moderate fire zones. Fire-retardant-treated wood shakes and shingles are wood shakes and shingles complying

with UBC Standard 15-3 or 15-4 which are impregnated by the full-cell vacuum-pressure process with fire-retardant chemicals, and which have been qualified by UBC Standard 15-2 for use on Class A or B or C roofs.

Fire-retardant-treated wood shakes and shingles shall comply with ICC-ES EGI07 and with the weathering requirements contained in Health and Safety Code Section 13132.7(j). Each bundle shall bear labels from an ICC accredited quality control agency identifying their roof-covering classification and indicating their compliance with ICC-ES EGI07 and with the weathering requirements contained in Health and Safety Code Section 13132.7(j).

Health and Safety Code Section 13132.7(j). No wood roof covering materials shall be sold or applied in this state unless both of the following conditions are met:

- (1) The materials have been approved and listed by the State Fire Marshal as complying with the requirements of this section.
- (2) The materials have passed at least five years of the 10-year natural weathering test. The 10-year natural weathering test required by this subdivision shall be conducted in accordance with standard 15-2 of the 1994 edition of the Uniform Building Code at a testing facility recognized by the State Fire Marshal.

**Exception: In the moderate fire hazard zone, the fire code official may, upon a showing of good cause and necessity, approve the use of fire-resistive wood as part of class A listed assemblies, and may require additional mitigation as warranted, for the repair or maintenance of existing structures.**

**14.04.120 - Section 1507 of the 2019 California Building Code is amended by adding a section 1507.1.1 entitled roof sheathing to read as follows:**

When finish roofing material is removed to the existing open space sheathing, a minimum of 3/8-inch thick plywood sheathing shall be installed. The new sheathing shall comply with the requirements of the California Building Code. The sheathing shall be installed such that the edges align over rafters and individual spaced sheathing boards. The sheathing shall be attached to the existing spaced sheathing with 6d common nails at 6 inches (147mm) on center at supported edges and 6d common nails at 12 inches (294mm) on center at intermediate supports.

**14.04.130 – Sections ~~1613.5.3~~ 1613.4 and 1613.4.1 is are added to Chapter 16 of the 2019 Edition of the California Building Code to read as follows:**

~~1613.7 ASCE 7, 12.2.3.1, Exception 3. Modify ASCE 7 Section 12.2.3.1~~

Exception 3 to read as follows:

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

**1613.4 - Amendments to ASCE 7. The provisions of Section 1613.4 shall be permitted as an amendment to the relevant provisions of ASCE 7.**

**1613.4.1 - 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.**

**14.04.140 - Section ~~1613.5.4~~ 1613.4.2 is added to Chapter 16 of the 2019 Edition of the California Building Code to read as follows:**

~~1613.8 ASCE 7, 12.11.2.2.3. Modify ASCE 7 Section 12.11.2.2.3 to read 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.~~

**1613.4.2 - Wood diaphragms. Modify ASCE 7 Section 12.11.2.2.3 as follows:**

**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.**

**14.04.145 – Section 1704.6 of the 2019 Edition of the California Building Code is amended to read as follows:**

**Section 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 registered design professional **structural observer** to perform structural observations. Structural observation does not include or waive the responsibility for the inspections in Section 110 or the special inspections in Section 1705 or other section 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.

~~At the conclusion of the work included in the permit, the structural observer shall submit to the building official a written statement that the site visits have been made and identify any reported deficiencies that, to the best of the structural observer's knowledge, have not been resolved.~~

**The owner or owner's authorized agent 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 authorized agent, 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.

**14.04.147 - Section ~~1704.61~~ 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 ~~assigned to Seismic Design Category E,~~ is classified as Risk Category I or II, and ~~is greater than two stories above the grade plane~~ 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.

**3. When such observation is specifically required by the Building Official.**

**14.04.150 - Section 1705.3 of the 2019 Edition of the California Building Code is amended to read as follows:**

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

**Exceptions:** Special inspection 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 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 foundation walls constructed in accordance with Table 1807.1.6.2.~~
4. Concrete patios, driveways and sidewalks, on grade.

**14.04.160 – Section 1705.12 of the 2019 Edition of the California Building Code is amended to read as follows:**

**1705.12 Special inspections for seismic resistance.** Special inspections for seismic resistance shall be required as specified in Sections 1705.12.1 through 1705.12.9, unless exempted by the exceptions of Section 1704.2.

**Exception:** The special inspections specified in Sections 1705.12.1 through 1705.12.9 are not required for structures designed and constructed in accordance with one of the following:

1. The structure consists of light-frame construction; the design spectral response acceleration at short periods,  $S_{Ds}$ , as determined in Section



1613.2.4, does not exceed 0.5; and the building height of the structure does not exceed 35 feet (10 668 mm).

2. The seismic force-resisting system of the structure consists of reinforced masonry or reinforced concrete; the design spectral response acceleration at short periods,  $S_{DS}$ , as determined in Section 1613.2.4, does not exceed 0.5; and the building height of the structure does not exceed 25 feet (7620 mm).
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.
  - 3.2 Stiffness-soft story or stiffness-extreme soft story irregularity.
  - 3.4 Discontinuity in lateral strength-weak story irregularity.

**14.04.165 - Section 1807.1.4 of the 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 AWC PWF. Lumber and plywood shall be treated in accordance with AWPA U1 (Commodity Specification A, 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.**

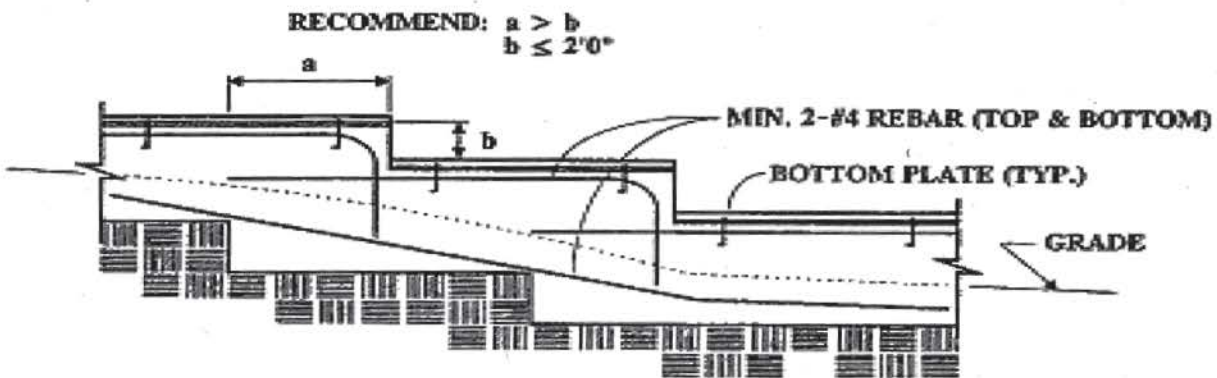
**14.04.170 - Section 1807.1.6 of the 2019 Edition of the California Building Code is amended to read as follows:**

**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.**

14.04.175 - Section 1809.3 of the 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 continuous footings supporting walls. Footings shall be reinforced with four No. 4 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

14.04.180 - Section 1809.7 and Table 1809.7 of the 2019 Edition of the California Building Code is 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 prescriptive 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 a, b, c, d, e**

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

- a. Depth of footings shall be in accordance with Section 1809.4.
- b. The ground under the floor shall be permitted to be excavated to the elevation of the top of the footing.
- c. ~~Interior stud-bearing walls shall be permitted to be supported by isolated footings. The footing width and length shall be twice the width shown in this table, and footings shall be spaced not more than 6 feet on center. **Not Adopted.**~~
- d. See Section 1905 for additional requirements for concrete footings of structures assigned to Seismic Design Category C, D, E or F.
- e. For thickness of foundation walls, see Section 1807.1.6.
- f. 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.
- g. ~~Plain concrete footings for Group R-3 occupancies shall be permitted to be 6 inches thick.~~

**14.04.185 - Section 1809.12 of the 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 AWPA 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 on 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.**

**14.04.190 - Section 1810.3.2.4 of the 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.**

**14.04.210 - 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) ~~Structural plain concrete basement, foundation or other walls below the base as defined in ASCE 7 are permitted in detached one and two family dwellings three stories or less in height constructed with stud bearing walls. In dwellings assigned to Seismic Design Category D or E, the height of the wall shall not exceed 8 feet (2438 mm), the thickness shall not be less than 7 ½ inches (190 mm), and the wall shall retain no more than 4 feet (1219 mm) of unbalanced fill. Walls shall have reinforcement in accordance with 14.6.1.~~ **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.

~~Exception: In detached one and two family dwellings three stories or less in height, the projection of the footing beyond the face of the supported member is permitted to 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. ~~For footings that exceed 8 inches (203 mm) in thickness, a~~ 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.

**Exceptions:**

1. ~~In Seismic Design Categories A, B and C, 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 without longitudinal reinforcement.~~ **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.**
2. ~~For foundation systems consisting of a plain concrete footing and a plain concrete stemwall, a minimum of one bar shall be provided at the top of the stemwall and at the bottom of the footing.~~
3. ~~Where a slab on ground is cast monolithically with the footing, one No. 5 bar is permitted to be located at either the top of the slab or bottom of the footing.~~

**14.04.215 - Section 1905.1 is amended and Sections 1905.1.9 thru 1905.1.11 are added to Chapter 19 of the 2019 California Building Code to read as follows:**

**1905.1 General.** The text of ACI 318 shall be modified as indicated in Sections 1905.1.1 through ~~1905.1.8~~ **1905.1.11.**

**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  $6 d_b$  in thickness, where  $d_b$  is the diameter of the largest reinforcement in the topping slab.

14.04.216 - Section 2304.10.1 of the 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 2302.1. 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.

14.04.217 - Section 2304.10.2.1 of the 2019 Edition of the California Building Code is amended to read as follows:

2304.10.2.1 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.

**14.04.220 - Section 2304.12.5 of the 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.

**14.04.225 - Section 2305.4 is added to Chapter 23 of the 2019 Edition of the California Building Code to read as follows:**

**2305.4 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.

**14.04.235 Sections 2308.6.5, 2308.6.5.1 and 2308.6.5.2 and Figures 2308.6.5.1 and 2308.6.5.2 of the 2019 Edition of the California Building Code are amended to read as follows:**

**2308.6.5 Alternative bracing.** An alternate braced wall (ABW) or a portal frame with hold-downs (PFH) described in this section is permitted to substitute for a 48-inch (1219 mm) braced wall panel of Method DWB, WSP, SFB, PBS, PCP or HPS. For Method GB, each 96-inch (2438 mm) section (applied to one face) or 48-inch (1219 mm) section (applied to both faces) or portion thereof required by Table 2308.6.1 is permitted to be replaced by one panel constructed in accordance with Method ABW or PFH.

**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 ~~or turned-down slab edge~~ is permitted at door openings in the braced wall line. This continuous footing ~~or turned-down slab edge~~ shall be reinforced with not less than one No. 4 bar top and bottom. This reinforcement shall be lapped ~~15~~ **24** inches (~~318~~ **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).

**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 or ~~turned-down slab edge~~ is permitted at door openings in the braced wall line. This continuous footing or ~~turned-down slab edge~~ shall be reinforced with not less than one No. 4 bar top and bottom. This reinforcement shall be lapped not less than ~~15~~ **24** inches (384 ~~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).

**\*Note: For figure 2308.6.5.1 and 2308.6.5.2, structures assigned to Seismic Category D or E, sheathed on one face with 15/32 inch-minimum thickness wood structural panel sheathing nailed with 8d common nails spaced 6 inches on panel edges, 12 inches at intermediate supports.**

**14.04.250 - Section 2308.6.9 of the 2019 Edition of the California Building Code is amended to read as follows:**