PROPOSED AMENDMENTS ALL RELATING TO THE ADOPTION OF THE LATEST CALIFORNIA BUILDING, ELECTRICAL, MECHANICAL AND PLUMBING CODES AND THE UNIFORM HOUSING CODE

TITLE 18 OF THE LONG BEACH MUNICIPAL CODE

Section 17958.7 of the California Health and Safety Code requires that the latest California Building Standards Codes apply to local construction 180 days after they become effective at the State level. The 2007 edition of the California Building, Electrical, Mechanical and Plumbing Codes, as adopted and published by the California Building Standards Commission, are mandated to go in effect, along with any adopted local amendments, on January 1, 2008.

State law requires that local amendments to the California Building Standards Codes be enacted only when an express finding is made that such modifications or changes are reasonably necessary because of local climatic, geological or topographical conditions.

The following are proposed changes to the Long Beach Municipal Code. Existing requirements are continued except where specifically amended or deleted. For clarity, words to be deleted are ~~crossed out~~ and additions are underlined.

Section [X]. Section 18.04.010 is added to the Long Beach Municipal Code to read as follows:

18.04.010 Title.

This title shall be known as the "Long Beach Building Code," a portion of the "Long Beach Municipal Code," and wherever the word "code" is used in this title, it shall mean the "Long Beach Building Code."

COMMENT: This administrative amendment is to be consistent with latest edition of the California Building Code and makes minor editorial changes to reflect the title of the code.

Section [X]. Section 18.04.010 of the Long Beach Municipal Code is amended to read as follows:

~~18.04.010~~18.04.020 Purpose.

~~A. The purpose of this title is to provide minimum standards to safeguard life or limb, health, property and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, location and maintenance of all buildings and structures within the city and certain equipment specifically regulated herein.~~

~~B. The purpose of this title is not to create or otherwise establish or designate any particular class or group of persons who will or should be especially protected or benefited by the terms of this title.~~

The purpose of this code is to establish the minimum requirements to safeguard the public health, safety and general welfare through structural strength, means of egress facilities, stability, access to persons with disabilities, sanitation, adequate light and ventilation and energy conservation; safety to life and property from fire and other hazards attributed to the built environment; and to provide safety to firefighters and emergency responders during emergency operations.

COMMENT: This administrative amendment is to be consistent with latest edition of the California Building Code and makes minor editorial changes to reflect the purpose of the code.

Section [X]. Section 18.04.020 of the Long Beach Municipal Code is amended to read as follows:

~~18.04.020~~18.04.030 Scope.

A. The provisions of this title shall apply to the site preparation and the construction, alteration, moving, demolition, repair, maintenance, or use of any building or structure within the city, except work located primarily in a public way other than pedestrian protection structures required by Chapter 32 of the California Building Code, public utility, towers and poles, mechanical equipment not specifically regulated in this title, and hydraulic flood control structures.

B. Additions, alterations, repairs and changes of use or occupancy in all buildings and structures shall comply with the provisions for new buildings and structures except as otherwise specifically provided in Chapter 34 of the California Building Code.

C. Where, in any specific case, different chapters of this title specify different materials, methods of construction or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable.

D. The provisions of the Uniform Housing Code, as adopted and amended in this title, shall apply to all existing buildings or portions thereof used, or designed or intended to be used, for human habitation.

E. Wherever in this title reference is made to the appendix, the provisions in the appendix shall not apply unless specifically adopted.

COMMENT: This administrative amendment is to be consistent with latest

edition of the California Building Code and makes minor editorial changes to the Section referenced.

Section [X]. Section 18.04.040 is added to the Long Beach Municipal Code to read as follows:

18.04.040 Violations.

A. General. No person shall construct, alter, repair, demolish, remove, move, use, occupy or maintain, within the city, any building or structure or any portion thereof, except as provided by this title.

No person shall grade, excavate or fill any land except as provided by this title.

The permissive provisions of this title shall not be presumed to waive any limitations imposed by other statutes or ordinances of the state or city.

All the provisions of this title shall be limitations for safeguarding life, limb, health, property and public welfare.

If two or more pertinent limitations are not identical, those limitations shall prevail which provide the greater safety to life or limb, health, property or public welfare.

B. Violation of a building or grading permit. Every person who knowingly and willfully procures a building and/or grading permit without the consent of the owner of record of the property for which the permit is issued, or such person's agent, may be guilty of a misdemeanor.

EXCEPTION: This section shall not apply to building and/or grading permits obtained pursuant to and in compliance with an order of a court of law or a governmental agency.

C. Violation of an order. No person shall fail to comply with any valid order issued pursuant to any provision or requirement of this title.

For the purposes of this section, a "person authorized by the department to perform inspections" is any person who is a registered deputy inspector, a structural inspector, a certified welder or a certified licensed contractor. The term "writing" shall include, but is not limited to, forms, applications, approvals, reports or certifications required by the department. Every violation of this section may be punishable as a misdemeanor.

COMMENT: This administrative amendment makes clear that no person is allowed to violate the provision of this title. To prevent any work performed without the consent of the owner or false statement to the department, stronger punitive language is included in the code.

Section [X]. Section 18.04.090 of the Long Beach Municipal Code is amended to read as follows:

18.04.090 Alternate materials, design and methods of construction and equipment.

A. General. The provisions of this title are not intended to prevent the ~~use~~installation of any materials or to prohibit any design or method of construction not specifically prescribed by this title provided that any such alternat~~e~~ive has been approved and its use authorized by the building official. An alternative material, design or method of construction may be approved where the building official finds that the proposed design is satisfactory and complies with the intent of the provisions of this title, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this title in quality, strength, effectiveness, fire resistance, durability and safety. The building official shall require that sufficient evidence or proof be submitted to substantiate any claims that may be made regarding its use.

~~B. The building official may approve any such alternate provided he or she finds that the proposed design is satisfactory and complies with the provisions of this title and that the materials, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this title in suitability, strength, effectiveness, fire resistance, durability, safety and sanitation.~~

~~C. The building official shall require that sufficient evidence or proof be submitted to substantiate any claims that may be made regarding its use.~~

B. Research reports. Supporting data, where necessary to assist in the approval of materials or assemblies not specifically provided for in this title, shall consist of valid research reports from approved sources and its use authorized by the building official.

C. Test. Whenever there is insufficient evidence of compliance with any of the provisions of this title, or evidence that any material or construction method does not conform to the requirements of this title, or in order to substantiate claims for alternative materials or methods, the building official may require tests as proof evidence of compliance to be made at no expense to this jurisdiction. Test methods shall be as specified by this title or by other recognized test standards. If there are no recognized and accepted test methods for the proposed alternate, the building official shall determine test procedures. All tests shall be made by an approved agency. Reports of such tests shall be retained by the building official for the period of not less than two years after the acceptance of the structure.

D. Fee. A written application shall be submitted together with a filing fee as set forth in the schedule of fees and charges established by city council resolution. An additional fee as set forth in the schedule of fees and charges established by city council resolution per hour or fraction thereof shall be charged when actual staff review time exceeds one hour. The requirement for application and fees and charges may be waived by the building official for materials, products or methods which have been

evaluated and listed by the International ~~Conference of Building Officials~~ Code Council, the national research board, or other recognized agency.

E. Expiration. The rights and privileges granted by the building official shall be voided if the permit is not secured within twelve (12) months of the date the approval was granted or if the permit expires under any of the conditions specified in Section 18.12.100.

EXCEPTION: The building official may grant extensions of time if a permit applicant submits in writing substantial evidence that unusual condition or circumstances precluded the securing of the permit within the allocated time or caused the permit to expire.

COMMENT: This administrative amendment is to be consistent with latest edition of the California Building Code and makes minor editorial changes on the alternate request procedure. An expiration date has been added to eliminate projects where no action has taken place.

Section [X]. Section 18.04.100 of the Long Beach Municipal Code is amended to read as follows:

18.04.100 Granting of modifications.

A. General. Whenever there are practical difficulties involved in carrying out the provisions of this title, the building official may grant modifications for individual cases, upon the application of the owner or owner's representative, provided ~~he or she~~the building official shall first find that a special individual reason makes the strict letter of this title impractical~~,~~ and ~~that~~ the modification is in ~~conformity~~ compliance with the intent and purpose of this title~~,~~ and that such modification does not lessen ~~any fire protection requirements or any degree of structural integrity~~ health, accessibility, life and fire safety, or structural requirements. The details of action granting modifications shall be recorded and entered in the files of the department.

B. Fee. A written application shall be submitted together with a filing fee as set forth in the schedule of fees and charges established by city council resolution. An additional fee as set forth in the schedule of fees and charges established by city council resolution per hour or fraction thereof shall be charged when staff review time exceeds one hour.

C. Expiration. The rights and privileges granted by the building official shall be voided if the permit is not secured within twelve (12) months of the date the approval was granted or if the permit expires under any of the conditions specified in Section 18.12.100.

EXCEPTION: The building official may grant extensions of time if a permit applicant

submits in writing substantial evidence that unusual condition or circumstances precluded the securing of the permit within the allocated time or caused the permit to expire.

COMMENT: This administrative amendment is to be consistent with latest edition of the California Building Code and makes minor editorial changes to reflect the criteria for a modification request. An expiration date has been added to eliminate projects where no action has taken place.

Section [X]. Amend Chapter 18.04 of the Long Beach Municipal Code by deleting Section 18.04.110 which read as follows:

~~18.04.110 Test required as proof of compliance.~~

~~A. Whenever there is insufficient evidence of compliance with any of the provisions of this title or evidence that any material or construction does not conform to the requirements of this title, the building official may require tests as proof of compliance at no expense to this jurisdiction.~~

~~B. Test methods shall be as specified by this title or by other recognized test standards. If there are no recognized and accepted test methods for the proposed alternate, the building official shall determine test procedures.~~

~~C. All tests shall be made by an approved agency. Reports of such tests shall be retained by the building official for the period of not less than two years after the acceptance of the structure.~~

COMMENT: This provision is relocated into Section 18.04.090 of the Long Beach Municipal Code.

Section [X]. Section 18.08.020 of the Long Beach Municipal Code is amended to read as follows:

18.08.020 A definitions.

"Approved fabricator" means an established and qualified person, firm or corporation approved by the building official, pursuant to Chapters 18.12, 18.16 of this title, and Section ~~1701.7~~1704.2 of the California Building Code.

COMMENT: This administrative amendment is to be consistent with latest edition of the California Building Code and makes minor editorial changes to correct the Section referenced.

Section [X]. Section 18.08.030 is added to the Long Beach Municipal Code to read as follows:

18.08.030 B definitions.

"Building Official" means the Superintendent of Building and Safety for the City of Long Beach Department of Planning and Building as designated in Section 18.20.020.

COMMENT: This administrative amendment makes minor editorial changes to reflect that the building official is the superintendent of building and safety.

Section [X]. Section 18.08.040 of the Long Beach Municipal Code is amended to read as follows:

18.08.040 C definitions.

"California Building Code" or "CBC" means the code adopted by Section 18.24.010.

"City" means the City of Long Beach, California.

COMMENT: This administrative amendment makes minor editorial changes to reflect the terms "City" used in this code.

Section [X]. Section 18.08.050 of the Long Beach Municipal Code is amended to read as follows:

18.08.050 D definitions.

"Dangerous building" means any building or structure which has any or all of the conditions or defects hereinafter described, provided that such conditions or defects exist to the extent that life, health, property, or safety of the public or its occupants are endangered or persons in the vicinity thereof:

1. Whenever any door, aisle, passageway, stairway or other means of exit is not of sufficient width or size, or is not so arranged as to provide safe and adequate means of exit in case of fire or panic;
2. Whenever the stress in any materials, member or portion thereof, due to all dead and live loads, is more than one and one-half times the working stress or stresses allowed in this title for new buildings of similar structure, purpose or location;
3. Whenever any portion thereof has been damaged by fire, earthquake, wind, flood, or by any other cause, to such an extent that the structural strength or stability thereof is materially less than it was before such catastrophe and is less than the

minimum requirements of this title for new buildings of similar structure, purpose or location;

4. Whenever any portion or member or appurtenance thereof is likely to fail, or to become detached or dislodged, or to collapse and thereby injure persons or damage property;

5. Whenever any portion of a building, or any member, appurtenance or ornamentation on the exterior thereof is not of sufficient strength or stability, or is not so anchored, attached or fastened in place so as to be capable of resisting a wind pressure of one-half of that specified in this title for new buildings of similar structure, purpose or location without exceeding the working stresses permitted in this title for such buildings;

6. Whenever any portion thereof has wracked, warped, buckled or settled to such an extent that walls or other structural portions have materially less resistance to winds or earthquakes than is required in the case of similar new construction;

7. Whenever the building or structure, or any portion thereof, because of: (a) dilapidation, deterioration, or decay; (b) faulty construction; (c) the removal, movement or instability of any portion of the ground necessary for the purpose of supporting such building; (d) the deterioration, decay or inadequacy of its foundation; or (e) any other cause, is likely to partially or completely collapse;

8. Whenever, for any reason, the building or structure, or any portion thereof, is manifestly unsafe for the purpose for which it is being used;

9. Whenever the exterior walls or other vertical members list, lean or buckle to such an extent that a plumb line passing through the center of gravity does not fall inside the middle one-third of the base;

10. Whenever the building or structure, exclusive of the foundation, shows thirty-three percent (33%) or more damage or deterioration of its supporting member or members, or fifty percent (50%) damage or deterioration of its nonsupporting members, enclosing or outside walls or coverings;

11. Whenever the building or structure has been so damaged by fire, wind, earthquake or flood, or has become so dilapidated or deteriorated as to become: (a) an attractive nuisance to children; (b) a harbor for vagrants, criminals or immoral persons; or (c) as to enable persons to resort thereto for the purpose of committing unlawful or immoral acts;

12. Whenever any building or structure has been constructed, exists or is maintained in violation of any specific requirement or prohibition applicable to such building or structure provided by this title;

13. Whenever any building or structure which, whether or not erected in accordance with all applicable laws and ordinances, has in any nonsupporting part, member or portion less than fifty percent (50%), or in any supporting part, member or portion less than sixty six percent (66%) of the: (a) strength; (b) fire resisting qualities or characteristics; or (c) weather resisting qualities or characteristics required by law in the case of a newly constructed building of like area, height and occupancy in the same location;

14. Whenever a building or structure, used or intended to be used for dwelling purposes, because of inadequate maintenance, dilapidations, decay, damage, faulty construction or arrangement, inadequate light, air or sanitation facilities, or otherwise, is determined by the city health officer to be unsanitary, unfit for human habitation or in such a condition that is likely to cause sickness or disease;

15. Whenever any building or structure, because of obsolescence, dilapidated condition, deterioration, damage, inadequate exits, lack of sufficient fire resistive construction, faulty electric wiring, gas connections or heating apparatus, or other cause, is determined by the chief of the fire department to be a fire hazard;

16. Whenever any building or structure is in such a condition as to constitute a public nuisance under common law or equity jurisprudence;

17. Whenever any portion of a building or structure remains on a site after the demolition or destruction of the building or structure or whenever any building or structure is abandoned for a period in excess of six (6) months so as to constitute such building or portion thereof an attractive nuisance or hazard to the public.

"Department" means the Department of Planning and Building.

COMMENT: This administrative amendment makes minor editorial changes to reflect the term "department" used in this code.

Section [X]. Section 18.08.070 of the Long Beach Municipal Code is amended to read as follows:

18.08.070 F definitions.

"Fire code" is chapter 18.48 of this code.

"Foundation-Only Permit" is a building permit issued for that portion of a building which constitutes the footings for the building and which may, subject to the approval of the building official, include those portions of the building below the grade level.

COMMENT: This administrative amendment makes minor editorial changes to reflect the term "foundation-only permit" used in this code.

Section [X]. Section 18.08.080 is added to the Long Beach Municipal Code to read as follows:

18.08.080 G definitions.

"Grading" means any soil excavation or fill or any combination thereof and shall include the conditions resulting from any soil excavation or fill.

COMMENT: This administrative amendment makes minor editorial changes to reflect the term "grading" which was used in previous codes.

Section [X]. Section 18.08.090 is added to the Long Beach Municipal Code to read as follows:

18.08.090 H definitions. (Reserved)

COMMENT: This administrative amendment makes minor editorial changes to reserve "H" definition.

Section [X]. Section 18.08.100 is added to the Long Beach Municipal Code to read as follows:

18.08.100 I definitions.

"International Building Code" or "IBC" means the code incorporated into the California Building Code adopted by Section 18.24.010.

COMMENT: This administrative amendment is to be consistent with latest edition of the California Building Code and makes minor editorial changes to reflect the term "IBC" used in this code.

Section [X]. Section 18.08.130 is added to the Long Beach Municipal Code to read as follows:

18.08.130 L definitions. (Reserved)

COMMENT: This administrative amendment makes minor editorial changes to reserve "L" definition.

Section [X]. Section 18.08.160 of the Long Beach Municipal Code is amended to read as follows:

18.08.160 O definitions.

"Occupancy certificate" or "certificate of occupancy" means the certificate issued by the building official when, after final inspection, it is found that a building or structure complies with all requirements of this title. When used with reference to a building or structure which was constructed and occupied prior to the effective date of any provisions requiring such a certificate, it shall mean the right to occupy such building or structure.

"Occupancy" means the purpose for which a building, or part of a building, is used or intended to be used. The term "Occupancy" as used in this title shall include the room housing that occupancy and the space immediately above a roof or structure if used or intended to be used for other than a shelter.

COMMENT: This administrative amendment is a carry over of an existing definition in the current code and is made to add the reference in the code since the model code does not have this definition.

Section [X]. Section 18.08.190 is added to the Long Beach Municipal Code to read as follows:

18.08.190 R definitions. (Reserved)

COMMENT: This administrative amendment makes minor editorial changes to reserve "R" definition.

Section [X]. Section 18.08.220 of the Long Beach Municipal Code is amended to read as follows:

18.08.220 U definitions. (Reserved)

~~"Uniform Building Code" or "UBC" means the code incorporated into the California Building Code adopted by Section 18.24.010.~~

~~"Uniform building code standards" means the uniform building code standards incorporated into the California Building Code adopted by Section 18.24.010. (See Chapter 35 of the California Building Code.)~~

COMMENT: This administrative amendment makes minor editorial changes. UBC or Uniform Building Code is replaced with IBC or International Building Code as covered in Section 18.08.100.

Section [X]. Section 18.08.240 is added to the Long Beach Municipal Code to read as follows:

18.08.240 W definitions. (Reserved)

COMMENT: This administrative amendment makes minor editorial changes to reserve "W" definition.

Section [X]. Section 18.08.260 is added to the Long Beach Municipal Code to read as follows:

18.08.260 Y definitions. (Reserved)

COMMENT: This administrative amendment makes minor editorial changes to reserve "Y" definition.

Section [X]. Section 18.12.010 of the Long Beach Municipal Code is amended to read as follows:

18.12.010 ~~Required—Subwork—Exceptions.~~Permits Required.

A. ~~General~~Building permits. No person shall erect, construct, enlarge, alter, repair, remodel, move, remove, improve, convert or demolish any building or part of a building or structure, or change the character or occupancy or use of any building or structure, or part of a building or structure, or perform site grading in the city without first obtaining a permit covering such work from the building official.

B. ~~No person shall own, use, occupy or maintain any "unpermitted structure." For the purpose of this title, "unpermitted structure" shall be defined as any structure, or portion thereof, that was erected, constructed, enlarged, altered, repaired, remodeled, moved, removed, improved, converted or demolished at any point in time, without the required permit(s) having first been obtained from the building official, pursuant to subsection A of this section.~~Grading permits. No person shall commence or perform any grading, and no person shall import or export any earth materials to or from any grading site, without first having obtained a permit therefor from the department. Any grading project involving more than 100 cubic yards of excavation and involving an excavation in excess of 5 feet in vertical depth at its deepest point measured from the original ground surface shall be done by a State of California licensed contractor who is licensed to perform the work described herein. A separate permit shall be required for each grading site. One permit may include the entire grading operation at that site, however.

EXCEPTION: All other provisions of this title shall apply, but a grading permit will not be required if the work complies with any one of the following conditions:

1. An excavation which (a) is less than 2 feet in depth, or (b) which does not create a cut slope greater than 5 feet in height and steeper than 1 unit vertical in 2 units horizontal (50% slope). This exception shall not apply to cut which exceeds 50 cubic yards or which changes the existing drainage pattern.

2. A fill less than 1 foot in depth and placed on natural terrain with a slope flatter than 1 unit vertical in 10 units horizontal (10% slope). This exception shall not apply when the fill exceeds 50 cubic yards or when the fill changes the existing drainage

pattern.

3. Excavations for caissons or piles under buildings or structures authorized by valid building permits.

4. Excavations for basements, footings, caissons, piles, swimming pools or underground structures that are authorized by valid building permits.

5. Excavations for wells or tunnels or utilities, which do not provide vertical or lateral support for buildings, or adversely impact the safety or stability of private or public properties.

6. Excavation in an isolated, self-contained area if the department finds that by reason of such isolation and self-containment no danger to private or public property can now or thereafter result from grading operations.

7. As exempted in Section J103.2 of Appendix J of the California Building Code.

C. Subwork permits. Separate permits also must be obtained: plumbing, mechanical, electrical, signs and billboards, and house moving. In cases where only plumbing, mechanical, electrical or sign work is involved, separate subpermits as provided in this title shall be obtained, and no other building permit is required unless there is a change of occupancy or use as defined in this chapter and Chapters 18.08 and 18.16.

EXCEPTION: A single combined permit may be issued for the construction of any building or structure of a ~~g~~Group ~~R, division 3~~R-3 or ~~g~~Group U occupancy, or additions or alterations thereto, which includes all building, electrical, plumbing, heating, ventilating and air conditioning work.

No person shall hang, suspend or otherwise affix any sign, street banner, pole banner, flag, pennant or street decoration on any street light pole, traffic signal pole or over and above any street unless a permit to do so is first obtained from the city manager. Permits issued pursuant to this section shall be in accordance with the provisions of Chapter 16.55 of this code, the city's police on city sponsorship, corporate recognition and advertising, as adopted on July 23, 1996, as amended from time to time, and any guidelines that may from time to time be approved by the city council.

EXCEPTION: The above provisions shall not apply to any sign or advertising matter lettered upon the surface of any awning, provided the awning is securely attached to a building and is not less than seven feet above the sidewalk level immediately below.

D. Other permits. Other permits must be obtained as required pursuant to various applicable ordinances of the city.

E. Unpermitted structure. No person shall own, use, occupy or maintain any "unpermitted structure." For the purpose of this title, "unpermitted structure" shall be defined as any structure, or portion thereof, that was erected, constructed, enlarged, altered, repaired, remodeled, moved, removed, improved, converted or demolished at any point in time, without the required permit(s) having first been obtained from the building official, pursuant to subsection A of this section.

~~E~~F. Exceptions. Exemption from the permit requirements of this title shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this title or any other laws or ordinances of this city. Permits are not required for the following:

1. Neither building nor subpermits of this title are required for the following:

a. Buildings or ~~S~~structures placed in public streets, alleys and sidewalks, except those regulated by Chapter 32 of the California Building Code;

b. Buildings or structures under the auspices of and owned and controlled by the ~~f~~Federal government, the ~~s~~State of California, the ~~c~~County of Los Angeles, or by a public school district;

c. Work done by employees of the city on city owned or leased buildings;

d. A temporary shed, office or storage building and other structure incidental to and for work authorized by a valid grading or building permit. Such structures must be removed upon expiration of the permit or completion of work covered by the permit.

2. Except for work undertaken to correct conditions determined to be substandard or a nuisance under the provisions of Chapter 18.20, building permits are not required for any of the following:

a. Retaining walls or planter boxes not more than four (4) feet in height, measured from the bottom of the footing to the top of the wall, unless supporting a surcharge or sloping earth, or impounding flammable liquids. This exemption shall not apply to retaining walls of any height built on slopes steeper than 1 unit vertical in 5 units horizontal (20% slope)~~;~~.

b. Fences four feet or less in height above grade~~;~~.

c. Unroofed platforms, walks, driveways and decks not more than thirty (30) inches ~~(30")~~ above grade and not over any basement or story below and not part of a required accessible route~~;~~.

d. Application of hot or cold paint or other roof coating on a roof of a building~~;~~.

e. Application of roofing not in excess of five hundred (500) square feet on an existing building within any twelve (12) month period~~;~~.

f. Installation of ceramic tile on floor or countertops and on walls less than forty-eight inches (48") in height~~;~~.

g. Replacement of broken or damaged ceramic tile in an existing installation~~;~~.

h. Plaster patching not in excess of ten (10) square yards of interior or exterior plaster~~;~~.

i. Swimming, bathing and wading ~~P~~pools not over two (2) feet in depth and not having a surface area exceeding two hundred and fifty (250) square feet, where there is no electrical or plumbing installation~~;~~.

j. Veneer less than four (4) feet in height~~;~~.

k. Window awnings supported by an exterior wall of ~~g~~Group ~~R, division 3,~~R-3 and ~~g~~Group U occupancies when projecting not more than fifty-four (54) inches ~~(54");~~.

l. A detached equipment shed, utility building, or children's playhouse or treehouse provided that the building is accessory to a dwelling unit; it does not exceed sixty-four (64) square feet in area nor eight (8) feet in height from floor to roof; it contains no plumbing, electrical, or mechanical installations regulated by this code; and it is not ~~located in a front or side yard required by~~ in violation with title 21 zoning regulations~~;~~.

m. Temporary motion picture, television and theater stage sets and scenery that are not supported by any building~~;~~.

n. Gantry cranes, drill presses, and other similar manufactured machinery or equipment~~;~~.

o. ~~Steel~~Water tanks supported on a foundation at grade if the capacity does not exceed five thousand (5,000) gallons (18,927 L) ~~when~~and the ratio of the height to diameter or width does not exceed ~~one and one-half times the diameter;~~two (2) to one (1).

p. Painting, papering, tiling, carpeting, cabinets, counter tops and similar finish work and are not required to comply with accessibility regulations~~;~~.

q. Nonfixed and ~~M~~movable fixtures, cases, racks, counters and partitions not over five (5) feet nine (9) inches ~~high~~in height.

r. Prefabricated swimming pools accessory to a ~~g~~Group ~~R, division 3~~R-3 occupancy in which the pool walls are entirely above the adjacent grade if the capacity does not exceed five thousand (5,000) gallons (18,927 ~~l~~L); it contains no plumbing, electrical, or mechanical installations regulated by this title; and ~~it~~ is ~~not located in a front or side yard required by zoning regulations~~not in violation of title 21 zoning regulations.

s. Swings and other playground equipment accessory to detached one- and two-family dwellings.

t. Exhibits, booths, partitions and display counters for temporary use not exceeding 30 days in conjunction with an exhibit or show and not exceeding 12 feet in height above the floor.

u. Waterproof pointing of joints in masonry or veneer, also cleaning with detergents which are not injurious to clothing or skin of persons and are not removed by liquid washing, provided work is done from safely enclosed scaffolding which will collect any dust, debris or dropped tools and materials in use.

v. Portable amusement devices and structures, including merry-go-rounds, ferris wheels, rotating conveyances, slides, similar devices, and portable accessory structures whose use is necessary for the operation of such amusement devices and structures; any portable accessory structure included in the provisions of this chapter shall be limited to a cover or roof over each device, but shall not include any storage building or detached structure which is not an integral part of the device; and provided however, that any electrical installations shall require subwork permits where applicable and be regulated by this title.

w. Nothing in this code shall apply to any excavation, removal, fill or deposit of any earth or other materials from individual interment sites, underground crypts or burial vaults within a property which is dedicated or used for cemetery purposes, provided that such work does not affect the lateral support or increase the stresses in or pressure upon any adjacent or contiguous property not owned by the cemetery authority.

x. Any portable metal hangar less than 2,000 square feet in size, located on a city-owned airport, used for the parking of aircraft only, and bearing evidence of approval by the Department of Motor Vehicles of the State of California for movement on any highway. Such structure shall, as an integral part of its basic construction, be equipped with a hitch or coupling device for towing. It shall accommodate, without further major structural change, wheel and axle assemblies which will provide such structure with a safe means of portability. No water or sanitary facilities shall be permitted in such

structure and it shall be equipped with permanent ventilation as required for Group S-2 occupancy; and is not in violation of title 21 zoning regulations.

y. Signs that are exempt under the provision of Section 21.44.070.

z. Signs that are exempt under the provision of Section H101.2 of Appendix H of the California Building Code.

aa. Outdoor tents or cloth structures for temporary use not exceeding one hundred and eighty (180) days, provided such tents are accessory to an indoor or outdoor assembly use on the site; and is not in violation of title 9 public peace, morals and welfare, title 21 zoning regulations and chapter 18.48 fire code.

bb. Shade cloth structures constructed for nursery or agricultural purposes, not including service system.

cc. Towers or poles supporting public utility communication lines, antennas, or power transmission lines.

~~Exemption from the permit requirements of this title shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this title or any other laws or ordinances of this city.~~

COMMENT: This administrative amendment is to be consistent with latest edition of the California Building Code and makes minor editorial changes to incorporate grading requirements (omitted from previous code), street banner permits (previously section 18.56.050) and include additional exception from requiring permit.

Section [X]. Amend Chapter 18.12 of the Long Beach Municipal Code by deleting Section 18.12.040 which read as follows:

~~18.12.040 Harbor district.~~

~~No building permit shall be issued for the construction, extension, alteration, improvement, erection, remodeling or repair of any pier, slip, basin, wharf, dock or other harbor structure of any building or structure within the harbor district, unless the board of harbor commissioners has first granted permission authorizing such work to be done as provided in the charter of the city.~~

COMMENT: This provision has been relocated into subsection A of Section 18.12.060.

Section [X]. Amend Chapter 18.12 of the Long Beach Municipal Code by deleting Section 18.12.045 which read as follows:

~~18.12.045 Marinas.~~

~~No building permit shall be issued for the construction, extension, alterations, improvement, erection, remodeling or repair of any pier, slip, basin, wharf, dock or other marina structure or any building or structure within the Alamitos Bay Marina, Downtown Shoreline Marina or Shoreline Harbor Marina unless the manager of the marine bureau~~

~~has first granted permission authorizing such work to be done.~~

COMMENT: This provision has been relocated into subsection A of Section 18.12.060.

Section [X]. Section 18.12.050 of the Long Beach Municipal Code is amended to read as follows:

18.12.050 ~~Plans, specifications, and details.~~Construction documents.

A. ~~General~~Submittal documents. ~~Plans, specifications, engineering calculations, diagrams, soil investigation reports~~Construction documents, special inspections and ~~structural observation programs, and~~ other data shall be submitted ~~in one or more sets~~ with each application for a permit. ~~Pursuant to~~In accordance with Section 18.12.051, ~~T~~the building official may require ~~plans, computations and specifications~~construction documents to be prepared ~~and designed~~ by ~~an engineer or architect~~ registered design professional licensed by the State of California to practice as such. ~~Submittals~~ Construction documents shall include construction inspection requirements as defined in ~~section~~ Section 18.12.052.

EXCEPTION: The building official may waive the submission of ~~plans, calculations, etc.,~~construction documents and other data not required to be prepared by a registered design professional if ~~he~~it is ~~finds~~found that the nature of the work applied for is such that the review~~ing~~ of ~~plans~~construction documents is not necessary to obtain compliance with this title.

B. Site plan. The construction documents submitted with the application for a permit shall be accompanied by a site plan showing to scale the size and location of new construction and existing structures on the site, show the boundaries, distances from lot lines, the established street grades and the proposed finished grades, neighboring public ways, sufficient dimensions and other data and, as applicable, flood hazard areas, floodways, and design flood elevations; and it shall be drawn in accordance with an accurate boundary line survey. In the case of demolition, the site plan shall show construction to be demolished and the location and size of existing structures and construction that are to remain on the site or plot. The building official is authorized to waive or modify the requirement for a site plan when the application for permit is for alteration or repair or when otherwise warranted.

EXCEPTION: The building official may grant the omission of a site plan when the proposed work is of such a nature that no information is needed to determine compliance with all laws relating to the location of buildings or occupancies.

C. Number of sets of construction documents. Each application for a permit shall be accompanied by two sets of construction documents for plan checking.

EXCEPTION: The building official may waive the requirement for construction documents as required in this title if the building official finds that the information on the application is sufficient to show that the work will conform to the provisions of this title and other relevant laws.

D. Deferred Submittals. For the purposes of this section, deferred submittals are defined as those portions of the design which are not submitted at the time of the application and which are to be submitted to the building official within a specified period.

Deferral of any submittal items shall have prior approval of the building official. The registered design professional in responsible charge shall list the deferred submittals on the construction documents for review by the building official.

Documents for deferred submittal items shall be submitted to the registered design professional in responsible charge who shall review them and forward them to the building official with a notation indicating that the deferred submittal documents have been reviewed and been found to be in general conformance with the design of the building. The deferred submittal items shall not be installed until the design and submittal documents have been approved by the building official.

COMMENT: This administrative amendment is to be consistent with latest edition of the California Building Code and makes minor editorial changes to reflect the new term “construction documents” used in the code, including the requirements of what is required for submission of construction documents.

Section [X]. Section 18.12.051 of the Long Beach Municipal Code is amended to read as follows:

18.12.051 Information and certification required on ~~plans and specifications~~construction documents.

A. Information required. ~~Plans and specifications shall be drawn to scale upon substantial paper or cloth and shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this title and all relevant laws, ordinances, rules and regulations.~~ Construction documents shall be dimensioned and drawn with ink or indelible pencil upon suitable material, or shall be made by a reproduction process approved by the building official. Electronic media documents may be permitted to be submitted when approved by the building official. The first sheet of each set of construction documents shall give the street address of the work and the name and address of the owner of the building.

Construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this code and relevant laws, ordinances, rules and regulations, as determined by the

building official.

~~B. Plans~~Construction documents for buildings of other than ~~g~~Group R~~-3, division 3~~ and ~~group~~ U occupancies shall indicate how required structural and fire resistive integrity will be maintained where a penetration will be made for electrical, mechanical, plumbing and communication conduits, pipes and similar systems.

In lieu of detailed specifications, the department may approve reference on the construction documents to a specific section, subsection or paragraph of this title or other ordinance or law.

Distances and dimensions on the construction documents, when required to show conformity with the provisions of this title, shall be done in figures.

The construction documents shall show in sufficient detail the location, construction, size and character of all portions of the means of egress in compliance with the provisions of this title. In other than occupancies in Groups R-2, R-3, and I-1, the construction documents shall designate the number of occupants to be accommodated on every floor, and in all rooms and spaces.

Construction documents for all buildings shall describe the exterior wall envelope in sufficient detail to determine compliance with this title. The construction documents shall provided details of the exterior wall envelope as required, including flashing, intersections with dissimilar materials, corners, end details, control joints, intersections at roof, eaves or parapets, means of drainage, water-resistive membrane and details around openings.

The construction documents shall include manufacturer's installation instructions that provide supporting documentation that the proposed penetration and opening details described in the construction documents maintain the weather resistance of the exterior wall envelope. The supporting documentation shall fully describe the exterior wall system which was tested, where applicable, as well as the test procedure used.

When required by Section 1704.1.1 of the California Building Code, a statement of special inspection prepared by the register design professional in responsible charge of the project shall be included with the construction documents.

~~C.~~ The ~~plans~~ construction documents shall show all mitigation measures required under the national pollutant discharge elimination system (NPDES) permit issued to the ~~city~~ City of Long Beach. For the application of the NPDES requirements, see ~~c~~Chapter 18.95 of this title.

B. Written records of computations required. When a structural design is required for the purpose of obtaining a permit, it shall be justified by a written record of computations filed with the department and each sheet of the drawings and written record of computations shall be signed by or bear the approved stamp of a registered design professional licensed by the State of California for the type of service performed.

On structures which do not require a registered design professional's signatures according to Article 3, Chapter 7, Division 3, of the California Business and Profession's Code but do require some structural design, the person responsible for such design shall sign the calculations and the sheets of the construction documents having engineering details thereon.

C. Grading construction documents. Application for a grading permit shall be accompanied by construction documents prepared and signed by an individual licensed by the state to prepare such documents.

The first sheet of each set of grading construction documents shall give location of the work, the name and address of the owner and the person by whom they were prepared.

The grading construction documents shall include, but not be limited to, the following information:

1. General vicinity of the proposed site.

2. Property limits and accurate contours of existing ground and details of terrain and area drainage.

3. Limiting dimensions, elevations or finish contours to be achieved by the grading, and proposed drainage channels and related construction.

4. Detailed plans of all surface and subsurface drainage devices, walls, cribbing, dams and other protective devices to be constructed with, or as a part of, the proposed work together with a map showing the drainage area and the estimated runoff of the area served by any drains.

5. Location of any buildings or structures on the property where the work is to be performed and the location of any buildings or structures on land of adjacent owners which are within 15 feet of the property or which may be affected by the proposed grading operations.

6. The location of the top and toe of all cuts and fills, the location of all "daylight" lines, the amount of cut and fill, the location of disposal site for excess material, if known, and the estimated dates for starting and completing grading work.

7. When reports are required pursuant to Section 18.12.140.F or Section J104.3 of Appendix J of the California Building Code, recommendations included in the approved soils engineering report and engineering geology report shall be incorporated into the grading construction documents. A copy of the soils report and geological report shall be attached to the approved set of grading construction documents and kept at the job site.

8. When reports are required pursuant to Section 18.12.140.F or Section J104.3 of Appendix J of the California Building Code, the dates of the soils engineering and engineering geology reports together with the names, addresses and phone numbers of the firms or individuals who prepared the reports shall be incorporated into the grading plans.

The department may require some plans to be prepared by a licensed surveyor when the property location and its limits are not clear. Portions of the aforementioned plan requirements may be waived by the department if it finds that the information on

the application and/or submitted plans is sufficient to show that the work will conform to the provisions of this code and other relevant laws.

The building official may require that grading operations and project designs be modified if delays occur which incur weather-generated problems not considered at the time the permit was issued.

The building official may require professional inspection and testing by the soils engineer. When the building official has cause to believe that geologic factors may be involved, the grading will be required to conform to engineering grading.

D. Yard Restriction. The increase in area permitted by Sections 506 and 507 of the California Building Code shall not be allowed unless or until the owner of the required yard shall file with the department an agreement binding such owner, heirs and assignees, to set aside the required yard as an unobstructed space having no improvements. Such agreement shall be recorded in the Los Angeles County Recorder's Office.

COMMENT: This administrative amendment is to be consistent with latest edition of the California Building Code and makes editorial changes to reflect the necessity of providing specific information on construction documents and other pertinent data.

Section [X]. Section 18.12.052 of the Long Beach Municipal Code is amended to read as follows:

18.12.052 ~~Construction~~ Special inspection.

A. When special inspection is required by ~~s~~Section 18.16.060, the registered design professional in responsible charge ~~architect or engineer of record~~ shall prepare an inspection program which shall be submitted to the building official for approval prior to issuance of the building permit. The inspection program shall designate the portions of the work that require special inspection and the name or names of the individuals or firms who are to perform the special inspections, and indicate the duties of the special inspectors.

B. The special inspector shall be employed by the owner, registered design professional in responsible charge~~the engineer or architect of record~~, or an agent of the owner, but not the contractor or any other person responsible for the work.

C. When structural observation is required by ~~s~~Section ~~1702~~ 1709 of the California ~~b~~Building ~~c~~Code, the inspection program shall name the individuals or firms who are to perform structural observation and describe the stages of construction at which structural observation is to occur.

D. The inspection program shall include samples of inspection reports and provide time limits for submission of reports.

COMMENT: This administrative amendment is to be consistent with latest edition of the California Building Code and makes minor editorial changes to reflect new Section referenced as well as the term "registered design professional in responsible charge."

Section [X]. Amend Chapter 18.12 of the Long Beach Municipal Code by deleting Section 18.12.053 which read as follows:

~~18.12.053 Fills containing decomposable material.~~

~~Permits shall not be issued for buildings or structures regulated by this title within one thousand feet (1,000') of fills containing rubbish or other decomposable material unless the fill is isolated by approved natural or manmade protective systems or unless designed according to the recommendations contained in a report prepared by a licensed civil engineer. Such report shall contain a description of the investigation, study and recommendation to minimize the possible intrusion, and to prevent the accumulation of explosive concentrations of decomposition gases within or under enclosed portions of such building or structure. At the time of the final inspection, the civil engineer shall furnish a signed statement attesting that the building or structure has been constructed in accordance with his recommendations as to decomposition gases required herein.~~

~~Buildings or structures regulated by this code shall not be constructed on fills containing rubbish or other decomposable material unless provision is made to prevent damage to structure, floor, underground piping and utilities due to uneven settlement of the fill. One-story light frame accessory structures not exceeding four hundred (400) square feet in area nor twelve feet (12') in height may be constructed without special provisions for foundation stability.~~

COMMENT: This provision has been relocated into subsection A of Section 18.12.060.

Section [X]. Section 18.12.055 of the Long Beach Municipal Code is amended to read as follows:

18.12.055 ~~Architect or engineer of record~~Registered design professional in responsible charge.

A. ~~General.~~ When it is required that documents be prepared by ~~an architect or engineer~~ a registered design professional licensed in the State of California, the building

official may require the owner to engage and designate on the building permit application a registered design professional ~~an architect or engineer~~ who shall act as the a registered design professional in responsible charge~~architect or engineer of record~~. If the circumstances require, the owner may designate a substitute registered design professional~~architect or engineer of record~~ who shall perform all of the duties required of the original registered design professional in responsible charge~~architect or engineer of record~~. The building official shall be notified in writing by the owner if the registered design professional in responsible charge~~architect or engineer of record~~ is changed or is unable to continue to perform the duties.

B. The registered design professional in responsible charge~~architect or engineer of record~~ shall be responsible for reviewing and coordinating all submittal documents prepared by others, including phased and deferred submittal items, for compatibility with the design of the building.

C. Where structural observation is required by Section 1709 of the California Building Code, the statement of special inspections shall name the individual or firms who are to perform structural observation and describe the stages of construction at which structural observation is to occur.

~~B. Deferred Submittals. For the purposes of this section, deferred submittals are defined as those portions of the design which are not submitted at the time of the application and which are to be submitted to the building official within a specified period.~~

~~Deferral of any submittal items shall have prior approval of the building official. The architect or engineer of record shall list the deferred submittals on the plans and shall submit the deferred submittal documents for review by the building official.~~

~~Submittal documents for deferred submittal items shall be submitted to the architect or engineer of record who shall review them and forward them to the building official with a notation indicating that the deferred submittal documents have been reviewed and that they have been found to be in general conformance with the design of the building. The deferred submittal items shall not be installed until their design and submittal documents have been approved by the building official.~~

COMMENT: This administrative amendment is to be consistent with latest edition of the California Building Code and makes minor editorial changes to reflect change in the term designating an engineer or architect, now called “registered design professional in responsible charge.” Deferred submittal requirements are relocated into Section 18.12.050.

Section [X]. Section 18.12.060 of the Long Beach Municipal Code is amended to read as follows:

18.12.060 Permit Issuance.

A. Issuance. The application, construction documentsplans, specifications, computations and other data filed by an applicant for a permit shall be reviewed by the building official. Such plans construction documents may be reviewed by other departments of the city to check compliance with the laws and ordinances under their jurisdiction. If the building official is satisfied that the work described in an application for permit and the construction documentsplans filed therewith conform to the requirements of this chapter and other pertinent laws and ordinances and that the fees and charges as set forth in the schedule of fees and charges established by city council resolution and other liens, costs, and/or fees due the city have been paid, he or shethe building official shall issue a permit therefor to the applicantpermittee meeting the requirement of Section 18.12.030.

EXCEPTION: The building official shall have the authority to withhold the issuance of permits under the following circumstances:

1. Harbor district. No permit shall be issued for the construction, extension, alteration, improvement, erection, remodeling or repair of any pier, slip, basin, wharf, dock or other harbor structure of any building or structure within the harbor district, unless the board of harbor commissioners has first granted permission authorizing such work to be done as provided in the charter of the city.

2. Marinas. No permit shall be issued for the construction, extension, alteration, improvement, erection, remodeling or repair of any pier, slip, basin, wharf, dock or other marina structure or any building or structure within the Alamitos Bay Marina, Downtown Shoreline Marina or Shoreline Harbor Marina unless the manager of the marine bureau has first granted permission authorizing such work to be done.

3. Fault studies zone. No permit shall be issued for projects located within a Special (Fault) Studies Zone established under Chapter 7.5, Division 2, of the California Public Resources Code unless it can be demonstrated through accepted geologic seismic studies that the proposed structure will be located in a safe manner and not over or astraddle the trace of an active fault. Acceptable geologic seismic studies shall meet the criteria as set forth in rules and regulations established by the building official to ensure that such studies are based on sufficient geologic data to determine the location or nonexistence of the active fault trace on a site. Prior to approval of a project, a geologic report defining and delineating any hazard of surface fault rupture shall be required. If the city finds that no undue hazard of this kind exists, the geologic report on such hazard may be waived, with approval of the state geologist.

4. Storm water. No permit shall be issued for projects unless it incorporate into the construction documents best management practices necessary to control storm water pollution from sediments, erosion and construction materials leaving the construction site. Such requirements shall be in accordance with the provisions contained in Chapter 18.95 NPDES and SUSMP Regulations.

5. Flood hazards. No permit shall be issued for projects located within all areas of special flood hazards within the jurisdiction of the City of Long Beach unless it can be demonstrated that full compliance with the terms of Chapter 21.65 Flood Damage Prevention and other applicable regulations.

6. Fills containing decomposable material. No permit shall be issued for buildings or

structures regulated by this title within one thousand (1,000) feet of fills containing rubbish or other decomposable material unless the fill is isolated by approved natural or manmade protective systems or unless designed according to the recommendations contained in a report prepared by a licensed civil engineer. Such report shall contain a description of the investigation, study and recommendation to minimize the possible intrusion, and to prevent the accumulation of explosive concentrations of decomposition gases within or under enclosed portions of such building or structure. At the time of the final inspection, the civil engineer shall furnish a signed statement attesting that the building or structure has been constructed in accordance with his recommendations as to decomposition gases required herein. Buildings or structures regulated by this title shall not be constructed on fills containing rubbish or other decomposable material unless provision is made to prevent damage to structure, floor, underground piping and utilities due to uneven settlement of the fill. One-story light frame accessory structures not exceeding four hundred (400) square feet in area nor twelve (12) feet in height may be constructed without special provisions for foundation stability.

7. Construction and demolition recycling program. No permit shall be issued for construction or demolition projects subject to Chapter 18.97 Construction and Demolition Recycling Program unless all of the provisions contained therein are completed to the satisfaction of the director of planning and building or his or her designee.

B. ~~When the building official issues the permit, he or she shall endorse in writing or stamp on the plans and specifications "APPROVED". Such approved plans and specifications shall not be changed, modified or altered without authorization from the building official, and all work regulated by this title shall be done in accordance with the approved plans.~~Approval of construction documents. When the building official issues a permit, the construction documents shall be approved, in writing or by stamp, as "APPROVED." Construction documents shall be distributed pursuant to subsection A of Section 18.12.070.

C. Phased approval. The building official may issue a permit for the construction of foundation or any other part of a building or structure before the entire ~~plans and specifications~~ construction documents for the whole building or structure have been ~~submitted or~~ approved, provided that adequate information and detailed statements have been filed complying with all pertinent requirements of this ~~code~~ title. The holder of such permit for the foundation or other parts of a building or structure shall proceed at ~~his or her~~ the holder's own risk with the building operation and without assurance that ~~the~~ a permit for the entire building or structure will be granted.

D. Amended construction documents. Work shall be installed in accordance with the approved construction documents, and any changes made during construction that are not in compliance with the approved construction documents shall be resubmitted for approval as an amended set of construction documents and pay a rechecking fee as determined by Section 18.12.150.

COMMENT: This administrative amendment is to be consistent with latest

edition of the California Building Code and makes editorial changes to reflect "construction documents". In addition, editorial changes are made to reflect "phase approval" includes foundation or any other part of a building or structure. Procedure added to address when construction documents are amended.

Section [X]. Section 18.12.070 of the Long Beach Municipal Code is amended to read as follows:

18.12.070 Retention, ~~and~~ distribution and maintenance of approved ~~plans and specifications~~construction documents.

~~One set of approved plans and specifications shall be returned to the applicant, which set shall be kept on such building or work at all times during which the work authorized thereby is in progress. One set of approved plans, specifications and computations shall be retained by the building official. Except as required by Section 19850 of the Health and Safety Code, the building official shall retain such set of approved plans, specifications and computations for a period of not less than one year from the date of completion of the work covered therein, after which time the building official may, at his or her discretion, either dispose of the copies or retain them as a part of the permanent files of the department. Before issuing a permit, the department shall collect a fee for maintaining plans that are required to be retained by this section. The amount of the plan maintenance fee shall be as set forth in the schedule of fees and charges established by city council resolution and shall be collected for each separate plan to be retained by the department.~~

A. Distribution of construction documents. One set approved construction documents shall be returned to the applicant, which set shall be kept at the site of the construction or work at all times during which the work authorized thereby is in progress and shall be available and open to inspection by the building official or a duly authorized representative. There shall be no deviation from the stamped or approved construction documents without approval by the building official. One set of approved construction documents shall be retained by the building official pursuant to subsection B.

B. Retention of construction documents. The duplicate approved construction documents of every building or structure shall be stamped and retained by the department for a period of not less than one year from the date of completion of the work covered therein, after which time the building official may, at his or her discretion, either dispose of the copies or retain them as a part of the permanent files of the department as required by Section 19850 of the Health and Safety Code.

EXCEPTION: Construction documents for the following need not be maintained, except where required by the department:

1. Single or multiple dwellings in areas which are not part of a common interest development (as defined in Section 1351 of the Civil Code of California), and not more than two stories and basement in height.

2. Garages and other structures appurtenant to buildings described in Item 1 of this exception.

3. Farm or ranch buildings.

4. Any one-story building where the span between bearing walls does not exceed twenty five (25) feet. This exception does not, however, apply to a steel frame or concrete building.

5. Alterations to commercial buildings, apartments and hotels which do not require the signature of a registered design professional.

C. Plan maintenance fee. Before issuing a permit, the department shall collect a fee for maintaining construction documents that are required to be retained by this section. The amount of the plan maintenance fee shall be as set forth in the schedule of fees and charges established by city council resolution and shall be collected for each separate plan to be retained by the department.

D. Inspection of plans. The copy of the approved construction documents maintained by the department as provided by subsection B may be available for inspection only on the premises of the department.

EXCEPTION: Construction documents for banks, other financial institutions or public utilities which are maintained by the department may not be inspected without written permission from the owner of the building.

E. Reproduction of construction documents. Construction documents maintained by the department under subsection B may not be duplicated in whole or in part except with the written permission of the certified, licensed or registered professional or his or her successor, if any, who signed the original documents, and the written permission of the original or current owner of the building, or, if the building is part of a common interest development, with the written permission of the board of directors or governing body of the association established to manage the common interest development; upon request by any State agency; or by order of a proper court. In implementing this provision, the department shall comply with the requirements of Health and Safety Code Section 19851.

The department shall also furnish the form of an affidavit to be completed and signed by the person requesting to duplicate the official copy of the construction documents, which contains provisions stating the following:

1. That the copy of the construction documents shall only be used for the maintenance, operation and use of the building.

2. That drawings are instruments of professional service and are incomplete without the interpretation of the certified, licensed or registered professional of record.

3. That subdivision (a) of Section 5536.25 of the Business and Professions Code states that a licensed architect who signs construction documents shall not be responsible for damage caused by subsequent changes to, or use of, those construction documents where the subsequent changes or uses, including changes or uses made by state or local governmental agencies, are not authorized or approved by the licensed architect who originally signed the construction documents, provided that the architectural service rendered by the architect who signed the construction documents was not also a proximate cause of the damage.

The fees specified in the following Item 1 or 2 shall be paid by the person requesting duplication of construction documents:

1. Construction documents that have not been microfilmed and are authorized for reproduction to be duplicated by other than city services will be released only to a department authorized duplicating service. The cost of duplicating the construction documents shall be paid directly to the duplicating service by the person requesting duplication. That person shall pay a processing fee for each set of construction documents released to the department as determined by Section 18.12.161.

2. Construction documents that have been microfilmed and are authorized for reproduction shall be duplicated by city services or vendors. The department shall collect an initial service fee for each request for reproduction of construction documents plus an additional fee for each sheet requested to be photocopied as determined by Section 18.12.161.

F. Withdrawal of construction documents. The building official shall not permit any original construction documents, or portions thereof upon which a permit has been issued, to be withdrawn from the office of the building official, except for official use by representatives of the city.

COMMENT: This administrative amendment is to be consistent with latest edition of the California Building Code and makes editorial changes to reflect the provision of the Health and Safety Code Section 19850 regarding retention of construction documents.

Section [X]. Amend Chapter 18.12 of the Long Beach Municipal Code by deleting Section 18.12.080 which read as follows:

~~18.12.080 Withdrawal of plans and specifications.~~

~~The building official shall not permit any original plans or specifications, or portions thereof upon which a building permit has been issued, to be withdrawn from the office of the building official, except for official use by representatives of the city.~~

COMMENT: This provision is relocated into Section 18.12.070 of the Long Beach Municipal Code.

Section [X]. Section 18.12.090 of the Long Beach Municipal Code is amended to read as follows:

18.12.090 Validity of permit~~Issuance not deemed approval of violations.~~

A. ~~A. The issuance or granting of a permit or approval of plans and~~

~~specifications shall not be construed to be permit for, or an approval of, any violation of any of the provisions of this chapter. Permits presuming to give authority to violate or cancel the provisions of this title or other ordinances of the jurisdiction shall not be valid.~~

~~B. The issuance of a permit based upon plans and specifications shall not prevent the building official from thereafter requiring the correction of errors in the plans and specifications or from preventing building operations being carried on thereunder when in violation of this chapter or of any other ordinance of the city.~~The issuance or granting of a permit shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this title or of any other law or ordinance. Permits presuming to give authority to violate or cancel the provisions of this title or any other law or ordinance shall not be valid. The issuance of a permit based on construction documents and other data shall not prevent the building official from requiring the correction of errors in the construction documents and other data. The building official may prevent the occupancy or use of a building or structure where in violation of this title or of any other law or ordinance.

B. The issuance of a permit is not an approval or an authorization of the work specified therein. A permit is merely an application for inspection, the issuance of which entitles the permittee to inspection of the work which is described therein.

C. Permits issued under the requirements of this code shall not relieve the owner of responsibility for securing required permits for work to be done which is regulated by any other code, department or division of the City of Long Beach.

COMMENT: This administrative amendment is to be consistent with latest edition of the California Building Code and makes minor editorial changes to reinforce the validity of a permit.

Section [X]. Section 18.12.100 of the Long Beach Municipal Code is amended to read as follows:

18.12.100 Expiration, suspension, revocation and transfer of permit.

~~Every permit issued by the building official under the provisions of this code shall expire by limitation and become null and void if the building or work authorized by such permit is not commenced within one hundred eighty (180) days from the date of such permit, or if the building or work authorized by such permit is suspended or abandoned at any time after the work is commenced for a period of one hundred eighty (180) days. Before such work can be recommenced, a new permit shall be first obtained to do so, and the fee therefor shall be one-half the amount required for a new permit for such work, provided no changes have been made or will be made in the original plans and specifications for such work; and provided, further, that such suspension or abandonment has not exceeded one year. Active permits required by this title may be transferred to a qualified person for a fee as set forth in the schedule of fees and~~

~~charges established by city council resolution.~~

A. Expiration. Every permit issued shall be valid for a period of two years from the date thereof, provided that any permit shall expire on the one hundred and eightieth (180) day from date of issuance if the work permitted thereunder has not been commenced; or shall expire whenever the building official determines the work authorized by any permit has been suspended, discontinued or abandoned for a continuous period of one hundred and eighty (180) days.

EXCEPTION: If the holder of any permit issued by the department presents satisfactory evidence that unusual construction difficulties have prevented work from being started or continued without being suspended within the one hundred and eightieth (180) day time period or completed within the two-year period of validity, the building official may grant extensions of time reasonably necessary because of such difficulties.

Notwithstanding the provisions of this subsection, the validity of a permit may be further restricted in the following conditions:

1. In the case of a building or structure that has been ordered repaired or demolished in accordance with this title, such time limits as are specified therein shall apply.

2. The building official may, because of unusual circumstances or conditions such as, but not limited to, the demolition of an imminently hazardous building, or a grading operation that may be subject to flooding during the rainy season, impose restrictions upon the time limits for expiration of any permit.

B. Unfinished buildings or structures. Whenever the department determines by inspection that work on any building or structure for which a permit has been issued and the work started thereon has been suspended for a period of one hundred and eighty (180) days or more, the owner of the property upon which such structure is located, or other person or agent in control of said property, upon receipt of notice in writing from the department to do so, shall, within ninety (90) days from the date of such written notice, obtain a new permit to complete the required work, pay the fee of one-half the amount required for a new permit for such work, provided no changes have been made or will be made in the original construction documents for such work, and diligently pursue the work to completion and provided, further, that such suspension or abandonment has not exceeded one year; or shall remove or demolish the building or structure within one hundred and eightieth (180) days from the date of the written notice.

C. Restore to original condition. Permits that have expired shall have the site, building or project restored to the condition that existed immediately prior to the commencement of work described by such permit.

D. Failure to comply. It shall be unlawful for any owner or representative of the owner, either before or after the issuance of a permit under this title, and notwithstanding the issuance of such permit, to fail to comply with any order, determination or action of the department.

E. Making false statement to the department. Any person who willfully or knowingly, with the intent to deceive, makes a false statement or representation, or knowingly fails to disclose a material fact in any documentation required by the department to ascertain facts relative to this section, including any oral or written evidence presented, shall be guilty of a misdemeanor. The building official may, in writing, suspend or revoke a permit issued under provisions of this title whenever the permit is issued in error or on the basis of incorrect, inaccurate or incomplete information supplied, or in violation of any ordinance or regulation or of any provision of this title.

F. Active permits required by this title may be transferred to a qualified person for a fee as set forth in the schedule of fees and charges established by city council resolution.

COMMENT: This administrative amendment is to be consistent with latest edition of the California Building Code and makes administrative changes to establish an expiration date of two years on permits where little or no progress are made to complete work in a timely fashion. Procedural rules are established herein to address this issue.

Section [X]. Amend Chapter 18.12 of the Long Beach Municipal Code by deleting Section 18.12.110 which read as follows:

~~18.12.110 Suspension or revocation.~~

~~The building official may, in writing, suspend or revoke a permit issued under provisions of this title whenever the permit is issued in error or on the basis of incorrect information supplied, or in violation of any regulation or of any provision of this code.~~

COMMENT: This provision is relocated into subsection E of Section 18.12.100 of the Long Beach Municipal Code.

Section [X]. Section 18.12.130 of the Long Beach Municipal Code is amended to read as follows:

18.12.130 Permit fees~~—Designated~~.

A. Building ~~P~~permit ~~F~~fees. A building permit (exclusive of subpermits) shall be issued for each building or structure to be erected or upon which work is to be done thereunder, and for each such permit the applicant shall pay a permit filing fee as set forth in the schedule of fees and charges established by city council resolution plus a fee computed on the basis of the estimated total cost of the work proposed to be done, in accordance with the building permit fee as set forth in the schedule of fees and

charges established by city council resolution.

In addition to the above, projects regulated under Chapter 18.95 of this code shall pay an additional fee as set forth in the schedule of fees and charges established by city council resolution.

In addition to the above, projects regulated under Title 24, Part 2, of the California Code of Regulations, Section ~~101.17, et seq.~~108.2.1.2, 109.1 and 1102A, the state's disabled access and adaptability requirements shall pay an additional fee as set forth in the schedule of fees and charges established by city council resolution.

In addition to the above, projects regulated under Chapter 21.62 of this code shall pay an additional fee as set forth in the schedule of fees and charges established by city council resolution.

In addition to the above, projects regulated under Section 2700, Chapter 8, Division 2 of the Public Resources Code of the ~~s~~State of California (state strong motion instrumentation program) shall pay an additional fee as set forth in Section 2705, Chapter 8, Division 2 of the Public Resources Code of the state of California.

~~The determination of value or valuation under any of the provisions of this code shall be made by the building official. The value to be used in computing the building permit and building plan review fees shall be the total value of all construction work for which the permit is issued as well as all finish work, painting, roofing, electrical, plumbing, heating, air conditioning, elevators, fire extinguishing systems and any other permanent equipment.~~

EXCEPTION: A single combined permit may be issued for the following:
1. The construction, addition or alteration of any building or structure of a ~~g~~Group ~~R, division 3~~R-3 or ~~group~~ U occupanc~~y~~ies, which includes all building, electrical, plumbing, heating, ventilating, and air conditioning work; or
2. The construction, addition or alteration of any sign or sign support structure, which includes all building and electrical work.

The total permit fee for the combined building permit shall be as set forth in the schedule of fees and charges established by city council resolution.

B. Grading ~~P~~permit ~~F~~fees. A grading permit shall be issued to each property or site upon which grading work is to be done thereunder when required pursuant to ~~Appendix Section 3306 of the California Building Code~~subsection B of Section 18.12.010, and for each such permit the applicant shall pay a filing fee as set forth in the schedule of fees and charges established by city council resolution plus a grading permit fee computed on the basis of the estimated total cubic yard of work proposed to be done as set forth in the schedule of fees and charges established by city council resolution.

In addition to the above, projects regulated under Chapter 18.95 of this code shall pay an additional fee as set forth in the schedule of fees and charges established by city

council resolution.

C. Sign ~~P~~permit ~~F~~fees. A ~~building~~sign permit shall be issued for each sign or sign support structure to be erected or upon which work is to be done thereunder, and for each such permit the applicant shall pay a filing fee as set forth in the schedule of fees and charges established by city council resolution plus a sign permit fee computed on the basis of the estimated total cost of the work proposed to be done as set forth in the schedule of fees and charges established by city council resolution.

D. Determining valuation. The determination of value or valuation under any of the provisions of this title shall be made by the building official. The value to be used in computing the permit and plan review fees shall be the total value of all construction work for which the permit is issued as well as all finish work, painting, roofing, electrical, plumbing, heating, air conditioning, elevators, fire extinguishing systems and any other permanent equipment.

No person shall willfully or negligently withhold from or misrepresent to the building official any information he or she may request relative to the estimated cost of any proposed work for which an application for a permit has been filed, or misrepresent the cost of any such work.

COMMENT: This administrative amendment is to be consistent with latest edition of the California Building Code and makes minor editorial changes to reflect revised Section references. In addition, language is added to reinforce the fact that the building official makes the final determination on the valuation of a project's cost.

Section [X]. Section 18.12.140 of the Long Beach Municipal Code is amended to read as follows:

18.12.140 Plan review fees.

A. Buildings and ~~S~~structures. Except as provided in this section, an applicant for a building permit shall, in addition to the fee prescribed therefor and at the time of making application for such building permit, pay a plan review fee as set forth in the schedule of fees and charges established by city council resolution, exclusive of the filing fee. The checking fee for a combined permit shall be as set forth in the schedule of fees and charges established by city council resolution for a building permit of the same valuation.

EXCEPTION: No plan review fee shall be required for the following:
1. Fences eight feet or less in height and not constructed with masonry or concrete;
2. Canvas awnings;
3. Building permits issued for the following single subtrades: plastering, reroofing, marble and tile;
4. When the building official has determined that the submittal of ~~plans~~ construction

documents and other data ~~is~~are not required ~~because of the relatively simple character or small cost of the work~~if it is found that the nature of the work applied for is such that the review of construction documents is not necessary to obtain compliance with this title.

B. Grading ~~W~~work. An applicant for a grading permit shall, in addition to the fee prescribed therefor and at the time of making application for such grading permit, pay a plan review fee to the city as set forth in the schedule of fees and charges established by city council resolution, exclusive of the filing fee.

C. Signs and ~~S~~sign ~~S~~support ~~S~~structures. An applicant for a sign permit shall, in addition to the fee prescribed therefor and at the time of making application for such sign permit, pay a plan review fee to the city as set forth in the schedule of fees and charges established by city council resolution, exclusive of the filing fee.

D. ~~Off-Hour Plan Review Fees~~Express plan review fees. At the request of the applicant, the department may, at its discretion, provide plan review services at other than normal working hours. An ~~off-hour~~ express plan review fee, in addition to the plan review fees charged elsewhere in this code, as set forth in the schedule of fees and charges established by city council resolution shall be collected at the time of the request.

E. Geologic ~~R~~review ~~F~~fees. A fee as set forth in the schedule of fees and charges established by city council resolution shall be charged for the review of geologic reports submitted as required by state law for proposed development in seismic hazard zones, including but not limited to, fault rupture, liquefaction and landslide hazard zones.

F. Expiration of ~~P~~plan ~~R~~review. If after a period of one year from date of application for ~~building~~ permit, any applicant has failed to pay for and obtain a ~~building~~ permit, such application and checking fee shall become invalid and no permit shall be issued unless a new application is submitted and a new checking fee paid. ~~Plans, specifications or other documents~~ Construction documents submitted at the time of application shall be destroyed if after a period of one year from date of application no permit has been paid for or issued.

COMMENT: This administrative amendment is to be consistent with latest edition of the California Building Code and makes minor editorial changes to reflect the term construction documents.

Section [X]. Section 18.12.150 of the Long Beach Municipal Code is amended to read as follows:

18.12.150 Rechecking fees.

A. Fees for ~~R~~rechecking ~~Plans~~ construction documents ~~P~~prior to ~~A~~approval. No

additional fee shall be charged for verification of the corrections required by the department or other departments. However, when ~~plans~~ construction documents have been checked and are subsequently so revised by the applicant for reasons other than plan check correction as to necessitate rechecking, the building official shall require the applicant to pay a rechecking fee as set forth in the schedule of fees and charges established by city council resolution which would be required for the cost of that portion of the construction or work which has been revised. However, no additional permit fee will be required unless the revision increases the total cost of the entire project. In that event, the building official shall require the applicant to pay an additional permit fee based on the additional cost.

B. Fees for ~~R~~rechecking ~~Plans~~ construction documents ~~A~~after ~~A~~approval. When ~~plans~~ construction documents are resubmitted for review of changes made to previously approved ~~plans~~construction documents, the plan review fee in the case of a building or sign permit shall be based on a rate as set forth in the schedule of fees and charges established by city council resolution and the plan review fee for a grading permit shall be as set forth in the schedule of fees and charges established by city council resolution for the number of cubic yards replaced, removed or omitted that were not previously approved.

COMMENT: This administrative amendment is to be consistent with latest edition of the California Building Code and makes minor editorial changes to reflect the term construction documents.

Section [X]. Amend Chapter 18.12 of the Long Beach Municipal Code by deleting Section 18.12.200 which read as follows:

~~18.12.200 Change of occupancy fee.~~

~~A. Before any application for a change of occupancy is accepted, a fee shall be paid by the applicant to cover the cost to the city of the inspection of the building for which a change of occupancy is desired.~~

~~B. The amount of fee shall be as set forth in the schedule of fees and charges established by city council resolution.~~

~~C. The above application fee shall be in addition to the regular building permit fee required by Sections 18.12.130 through 18.12.230, except that the building official may approve minor corrections or alterations involving work of a building, plumbing, mechanical or electrical nature with an aggregate total cost of two thousand dollars ($2,000.00) or less.~~

COMMENT: The removal of this provision reflects a change in the department's practice in reviewing the proposed change of occupancy through the plan check

process and not during a pre-inspection process.

Section [X]. Section 18.12.202 of the Long Beach Municipal Code is amended to read as follows:

18.12.202 Fees for ~~deputy~~special inspection and verification of structural observation reports.

A. To supervise the performance of registered ~~deputy~~special inspectors required to be employed for certain types of work as provided by Section 18.16.060 of this title, a fee as set forth in the schedule of fees and charges established by city council resolution for each type of work shall be paid at the time of permit issuance.

B. To verify that all structural observation reports have been received prior to the issuance of a certificate of occupancy, a fee as set forth in the schedule of fees and charges established by city council resolution shall be paid at the time of permit issuance.

COMMENT: This administrative amendment is to be consistent with latest edition of the California Building Code and makes minor editorial changes to replace the term deputy with special.

Section [X]. Amend Chapter 18.12 of the Long Beach Municipal Code by deleting Section 18.12.210 which read as follows:

~~18.12.210 Withholding information prohibited.~~

~~No person shall wilfully or negligently withhold from or misrepresent to the building official any information he or she may request relative to the estimated cost of any proposed work for which an application for a building permit has been filed, or misrepresent the cost of any such work.~~

COMMENT: This provision is relocated into Section 18.12.130.

Section [X]. Amend Chapter 18.12 of the Long Beach Municipal Code by deleting Section 18.12.220 which read as follows:

~~18.12.220 Fee exemption for fallout shelter.~~

~~Permit fees as required by this title shall be waived for permits involving fallout shelters. A "fallout shelter" for the purpose of exemption from building permit fees shall be any structure built for the sole purpose of protecting individuals from the hazard of~~

~~fallout radiation resulting from a nuclear explosion, which structure is capable of affording the occupants thereof a reduction of intensity of fallout radiation by one thousand (1,000) times.~~

COMMENT: The removal of this provision is due to the fact that fallout shelter has not been built for several decades within the city. A thorough review through the plan review process is necessary to ensure the design and life-safety of such a structure, if built, is adequate.

Section [X]. Section 18.12.230 of the Long Beach Municipal Code is amended to read as follows:

18.12.230 Reinspection fee.

A. A reinspection fee may be charged for each inspection or reinspection when the portion of work for which the inspection or reinspection is called is not complete or when the corrections called for are not made. This section is not to be interpreted as requiring reinspection fees the first time a job is rejected for failure to comply with the requirements of this title, but as controlling the practice of calling for inspections before the job is ready for such inspection or reinspection.

B. A reinspection fee may be assessed when the permit card is not properly posted on the work site, the approved ~~plans~~ construction documents are not readily available to the inspector, for failure to provide access on the date for which inspection is requested, or for deviating from ~~plans~~ the approved construction documents requiring the approval of the building official.

C. To obtain a reinspection the applicant shall file an application therefor in writing upon a form furnished for that purpose and pay a reinspection fee as set forth in the schedule of fees and charges established by city council resolution.

D. In instances where reinspection fees have been assessed, no additional inspection of the work will be performed until the required fees have been paid.

COMMENT: This administrative amendment is to be consistent with latest edition of the California Building Code and makes minor editorial changes to reflect the term construction documents.

Section [X]. Section 18.12.235 is added to the Long Beach Municipal Code which read as follows:

18.12.235 Waiver of fees.

The Director of Planning and Building may waive any application fee imposed on or

after October 1, 1996 pursuant to the provisions of this code if the Director first finds as follows:

A. A permit has been issued which does not fully conform to the provisions and requirements of law; and

B. There is no evidence that the applicant, in seeking the permit intentionally sought to avoid conformance to the provisions and requirements of law; and

C. Substantial construction commenced in good faith reliance on that permit; and

D. Stoppage has been ordered subsequent to such commencement as a result of the failure of the permit to conform to the provisions and requirements of law; and

E. The application or applications for which a fee waiver is requested and granted are necessary in order to authorize the issuance of the permit in a manner fully conforming to the provisions and requirements of law.

COMMENT: This waiver language is part of Resolution No. C-28494, Section 21 Page 11 and is being relocated to Title 18 ordinance. Fees identified in Resolution No. C-28494 was rescinded as part of the FY2007 Master Fee Resolution leaving the waiver language in the resolution. The waiver language is being relocated to Title 18 since it pertains to fees and permit issuance and thus rescinding Resolution C-28494 in its entirety.

Section [X]. Section 18.12.240 of the Long Beach Municipal Code is amended to read as follows:

18.12.240 Refunds.

A. No portion of any permit as required in this title shall be refunded to an applicant unless, prior to commencement of actual work thereunder, the proposal to do such work is abandoned, or it is discovered that such permit is void under provisions of any ordinance of the city. No portion of a checking fee shall be refunded to an applicant if any checking of the ~~plans~~ construction documents has been done in the office of the building official.

B. Refunds shall be made in the calculated amount so determined in this section and under the ~~following~~ conditions~~:~~

~~1. If the amount paid is five hundred dollars ($500.00) or less, and the superintendent of building and safety authorizes the refund in accordance with prior written authorization of, and subject to conditions imposed by, the city manager;~~

~~2. If the amount paid is five thousand dollars ($5,000.00) or less and the superintendent of building and safety, with the approval of the city attorney, authorizes the refund; provided, however, that refunds of five hundred dollars ($500.00) or less~~

~~made in accordance with the provisions of subsection B.1 of this section shall not require the approval of the city attorney;~~ set forth in Section 3.48.040 and 3.48.060 of this code.

~~3. If the amount paid is more than five thousand dollars ($5,000.00) and the superintendent of building and safety, with the approval of the council and the city attorney authorizes the refund.~~

C. Before any refund is made under this ~~title~~chapter, the ~~superintendent of building and safety~~building official shall deduct a percent as set forth in the schedule of fees and charges established by city council resolution of the fee paid to pay for expenses incurred by the city in connection with accepting the ~~plans~~construction documents, passing upon the application for or issuance of the permit, and the sum shall be deducted from the fee so paid and the balance paid to such person. If the person entitled to the refund is an individual and such person becomes deceased, the refund may be made to such person or persons entitled to receive the money.

D. Any application for refund must be filed by the person entitled to receive such refund within the prescribed expiration period.

COMMENT: This administrative amendment is to be consistent with latest edition of the California Building Code and makes minor editorial changes to reflect the term construction documents as well as to make appropriate reference to the City's refund ordinance found in Section 3.48.040 and 3.48.060 of the municipal code.

Section [X]. Section 18.16.010 of the Long Beach Municipal Code is amended to read as follows:

18.16.010 Duty of permittee~~—Expense liability~~.

A. General. All construction or work for which a permit is required shall be subject to inspection by the building official and such construction or work shall remain accessible and exposed for inspection purposes until approved. Neither the building official, authorized employee of the department, nor the city shall be liable for expense entailed in the removal or replacement of any material required to allow inspection.~~, and certain~~ Certain types of construction shall have ~~continuous~~ special inspections by registered special inspectors as specified in Sections 18.16.060 through 18.16.120 of this chapter and Section 1704 and 1707 of the California Building Code. Prior to the issuance of a Certificate of Occupancy as specified in Section 18.16.150, a final inspection in accordance with Section 18.16.040 shall be made by the department of all construction or work for which a permit has been issued.

B. Survey.~~A survey of the lot may be required by the building official to verify compliance of the structure with approved plans. It shall be the duty of the permittee to cause the work to be accessible and exposed for inspection purposes. Neither the building official nor the city shall be liable for expense entailed in the removal or~~

~~replacement of any material required to allow inspection.~~ In the absence of any designation of the proper location of the lot on which a building is to be erected, for which building a permit has been issued, the department may require the owner to have the lot surveyed and staked by a registered land surveyor or registered civil engineer so that the proper location of the building on the lot may be determined.

In addition, the department may require the owner to have a registered land surveyor or registered civil engineer to verify compliance of the building or structure with the approved construction documents.

C. Approval not a violation of code. Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of this ~~code~~ title or of any other laws or regulations applicable thereto~~ordinances of the jurisdiction~~. Inspections presuming to give authority to violate or cancel the provisions of this ~~code~~title or of any other ~~ordinances of the jurisdiction~~laws or regulations applicable thereto shall not be valid. No approval shall relieve or exonerate any person from the responsibility of complying with the provisions and intent of this title.

COMMENT: This administrative amendment is to be consistent with latest edition of the California Building Code.

Section [X]. Section 18.16.011 of the Long Beach Municipal Code is amended to read as follows:

18.16.011 Inspection requests.

~~It shall be the duty of the person doing the work authorized by a permit to notify the building official that such work is ready for inspection and to provide access to and means for proper inspection of such work.~~It shall be the duty of the holder of the building permit or their duly authorized agent to notify the building official when work is ready for inspection. It shall be the duty of the permit holder to provide access to and means for inspections of such work that are required by this code. The building official may require that every request for inspection be filed at least one working day before such inspection is desired. Such request may be in writing, by telephone or by other means at the option of the building official.

COMMENT: This administrative amendment is to be consistent with latest edition of the California Building Code.

Section [X]. Section 18.16.020 of the Long Beach Municipal Code is amended to read as follows:

18.16.020 Inspection record card.

A. Posting inspection card. The building official shall furnish with each permit an inspection record card to be posted in a conspicuous place on the front premises (or electric meter box) and in such position as to allow the building official to conveniently make the required entries thereon regarding inspection of the work. The inspection record shall show the location, nature of work to be done, the number of the permit and list the required inspections.

B. Required information. Prior to requesting final inspection of any building or project where the valuation of the permit issued is over ten thousand dollars ($10,000.00), the general contractor, or the owner if there is no general contractor, shall furnish the building official a list of the names and addresses of all subcontractors and specialty contractors, including city business license numbers, performing work or services on the building or project, other than those required to obtain separate permits. The information required to be furnished by the provisions of this section shall be on such forms provided by the department ~~of building and safety~~.

C. Required city license. The general contractor, or the owner if there is no general contractor, shall, at the time any subcontract is entered into for the performance of any work which is to be performed within the city, ascertain that such subcontractor possesses the required license from the city, and such general contractor or owner shall not permit any of the work contemplated by such subcontract until the subcontractor obtains the required license from the city.

COMMENT: This administrative amendment is to be consistent with latest edition of the California Building Code.

Section [X]. Section 18.16.030 of the Long Beach Municipal Code is amended to read as follows:

18.16.030 Inspection ~~A~~approvals required.

A. No work shall be done on any part of the building or structure beyond the point indicated in each successive inspection without first obtaining the written approval of the building official. The building official, upon notification, shall make the requested inspections and shall either indicate the portion of the construction that is satisfactory as completed, or notify the permit holder or his or her agent wherein the same fails to comply with this title. Any portions that do no comply shall be corrected and such portion shall not be covered or concealed until authorized by the building official. Such written approval shall be given only after an inspection has been made of each successive step in the construction as indicated by each of the inspections required in Section 18.16.040.

B. There shall be a final inspection and approval on all buildings when completed and ready for occupancy.

COMMENT: This administrative amendment is to be consistent with latest edition of the California Building Code.

Section [X]. Section 18.16.040 of the Long Beach Municipal Code is amended to read as follows:

18.16.040 RequiredCalled inspections.

A. General. No reinforcing steel or structural framework of any part of any building or structure shall be covered or concealed in any manner whatever without first obtaining the approval of the building official. Protection of joints and penetrations in fire resistive assemblies shall not be concealed from view until inspected and approved.The building official, upon notification, shall make the inspections set forth in subsection B.

B. Inspection type. The building official upon notification from the permit holder or his or her agent shall make the following inspections of buildings and shall either approve that portion of the construction as completed or shall notify the permit holder or his or her agent wherein the same fails to comply with the law:The following inspections are required, if applicable, to the building or portion thereof:

1. Foundation inspection, to be made after trenches are excavated and forms erected and when all materials for the foundation are delivered on the job; where concrete from a central mixing plant (commonly termed "transit mixed") is to be used, materials need not be on the job;Footing and foundation inspection. Footing and foundation inspections shall be made after excavations for footings are complete and any required reinforcing steel is in place. For concrete foundations, any required forms shall be in place prior to inspection. Materials for the foundation shall be on the job, except where concrete is ready mixed in accordance with ASTM C 94, the concrete need not be on the job.

2. Concrete slab orand under--floor inspection;. Concrete slab and under-floor inspections toshall be made after all in-slab or under-floor reinforcing steel and building service equipment, conduit, piping accessories and other ancillary equipment items are installedin place, but before any concrete is placed or floor sheathing installed, including the subfloor;.

3. Roofing inspection; Lowest floor elevation. In flood hazard areas, upon placement of the lowest floor, including the basement, and prior to further vertical construction, the elevation certification required in Chapter 21.62 Flood Damage Prevention or Section 1612.5 of the California Building Code shall be submitted to the building official.

4. Frame inspection;. Framing inspections to shall be made after the roof deck or sheathing, all framing, fire blocking and bracing are in place and all pipes, chimneys and vents to be concealed are complete and the rough electrical, plumbing, heating; wires, pipes and ducts are approved;.

5. Lath orand gypsum board inspection;. Lath and gypsum board inspections to be shall be made after all lathing and/or gypsum board, interior and exterior, are in place;.

but before any plastering is applied or ~~before~~ gypsum board joints and fasteners are taped and finished~~;~~.

6. Fire resistant penetrations. Protection of joints and penetrations in fire resistance-rated assemblies shall not be concealed from view until inspected and approved.

7. Energy efficiency inspections. Inspections shall be made to determine compliance with the California Energy Code, Title 24 Part 6 and shall include, but not be limited to, inspection for: envelope insulation R and U values, fenestration U value, duct system R value, and HVAC and water-heating equipment efficiency.

8. Reinforced masonry. In grouted masonry when vertical reinforcing steel is in place and other reinforcing steel distributed and ready for placing, but before any units are laid up.

9. Structural steel. When structural steel members are in place and required connections are complete, but before concealing any members or connection.

~~6~~10. Final inspection~~,~~. Final inspection ~~to~~ shall be made after all work required by the permit~~finish grading and the building~~ is completed and prior to occupancy.

COMMENT: The propose change adopts the latest edition of the California Building Code.

Section [X]. Section 18.16.060 of the Long Beach Municipal Code is amended to read as follows:

18.16.060 Special inspections—When required.

In addition to the inspections to be made by the employee of this department, as specified in this chapter, the owner or the ~~engineer or architect of record~~ registered design professional in responsible charge acting as the owner's agent shall employ one or more special inspectors who shall provide inspections during construction on the types of work listed ~~in~~under Section ~~1701.5~~1704 or 1707 of the California Building Code. The special inspector shall be qualified under Section 18.16.070 of this title. The special inspector may be employed either directly or through the architectural or engineering firm in charge of the design of the structure, or through the geologic or soils engineering firm providing technical design data for the project, or through an independent approved inspection/test firm. In any case, the special inspector shall be approved by and shall be responsible to the architectural or engineering firm in charge of the design of the structure, or the geologic or soils engineering firm providing technical design data for the project.

COMMENT: The propose change adopts the latest edition of the California Building Code. Minor editorial changes are made to reflect the correct section reference and who may employ a special inspector.

Section [X]. Section 18.16.070 of the Long Beach Municipal Code is

amended to read as follows:

18.16.070 Qualifications of special inspector.

The registered special inspector shall be a qualified person who shall demonstrate his or her competence, to the satisfaction of the building official, for inspection of the particular type of construction or operation requiring special inspection.

COMMENT: The propose change adopts the latest edition of the California Building Code and makes minor editorial changes.

Section [X]. Section 18.16.100 of the Long Beach Municipal Code is amended to read as follows:

18.16.100 Duties of special inspector.

A. The ~~special~~ registered special inspector shall be employed on the work, without expense or liability to the city, either on a full time or part time basis, depending upon the magnitude of the work as adjudged by the building official. The determination of the percentage of time necessary for the job shall be left to the discretion of the registered special inspector, subject to approval of the building official.

B. The registered special inspector shall bear a joint responsibility to the owner, or his or her agent, and the building official. He or she shall, for no purpose, be deemed an employee of the city, the contractor, a subcontractor or a material vendor. The assignments of the registered special inspector to each job shall be reported to the building official before commencing work.

C. In addition to required verification and inspection specified in Section 1704 and 1707 of the California Building Code, ~~T~~the registered special inspector shall observe the work assigned to be certain it conforms to the ~~design drawings and specifications~~ approved construction documents. On such building or structure it shall be the duty of every registered special inspector to inspect carefully all materials proposed to be used in connection with any work covered by any permit issued by the building official, and the registered special inspector shall obtain full information regarding the strength and durability of new types of materials where their use involves structural safety. He or she shall make such reports in writing as may be required by the building official regarding the progress of the work, and any deviations, defects, delays, materials, working conditions and other matters which may in any manner affect the structural safety and strength of the building. He or she shall be directly responsible for enforcing all other ordinances and laws applicable to the work to which he or she is assigned.

D. The registered special inspector shall furnish inspection reports to the building official, the ~~engineer or architect of record~~ registered design professional in responsible charge and other designated persons. All discrepancies shall be brought to the

immediate attention of the contractor for correction; then, if uncorrected, to the proper design authority and to the building official. He or she shall notify the building official of any attempt to cover, conceal, patch or repair any defect in materials or workmanship, and he or she shall report every infraction of any ruling of the building official. In furtherance of his or her aforesaid duties, he or she shall have the authority to compel the removal of defective materials and the correction of defective workmanship, or to suspend or stop further work pending a ruling of the building official.

E. The registered special inspector shall submit a final signed report stating whether the work requiring special inspection was, to the best of his or her knowledge, in conformance with the approved ~~plans and specifications~~ construction documents and the applicable workmanship provisions of this ~~code~~title.

COMMENT: The propose change adopts the latest edition of the California Building Code and makes minor editorial changes to reflect the term construction documents and registered design professional.

Section [X]. Section 18.16.150 of the Long Beach Municipal Code is amended to read as follows:

18.16.150 Certificate ~~R~~required for use or occupancy.

To safeguard life and limb, health, property and public welfare, ~~N~~no building~~,~~ or structure ~~or addition~~ shall be used or occupied, and no change in the existing occupancy classification of a building~~,~~ or structure or portion thereof shall be made until the building official has issued a certificate of occupancy therefor as provided in this chapter.

Issuance of a certificate of occupancy shall not be construed as an approval of a violation of the provisions of this ~~code~~ title or of other ordinances of the city. Certificates presuming to give authority to violate or cancel the provisions of this ~~code~~ title or of other ordinances of the jurisdiction shall not be valid.

EXCEPTIONS:
1. Unless it is specifically required by other provisions of this title, no existing building or portion thereof shall require a Certificate of Occupancy, provided the occupancy housed therein is the same for which the original building permit was issued and a final inspection approved.
2. No structure, the architecture of which inhibits occupancy, shall require a Certificate of Occupancy.

COMMENT: The propose change adopts the latest edition of the California Building Code and makes minor editorial changes to reflect when a certificate of occupancy would not be required.

Section [X]. Section 18.16.160 of the Long Beach Municipal Code is amended to read as follows:

18.16.160 Change in use or occupancy.

No ~~C~~changes ~~shall not be made~~ shall be made in the ~~character or~~ use or occupancy of any building except as specified in Section ~~3405~~3406 of the California Building Code.

COMMENT: The propose change adopts the latest edition of the California Building Code and makes minor editorial changes to reflect the correction section referenced.

Section [X]. Section 18.16.170 of the Long Beach Municipal Code is amended to read as follows:

18.16.170 Issuance of certificates.

~~If, after final inspection, it is found that the building or structure complies with the provisions of this title, the building official shall issue a certificate of occupancy which shall contain the following:~~After the building official inspects the building or structure and finds no violations of the provisions of this title or other laws that are enforced by the department or other departments within the city, the building official shall issue a certificate of occupancy that contains the following:

A. The building permit number~~;~~.

B. The address of the building~~;~~.

C. A description of that portion of the building for which the certificate is issued~~;~~.

D. A statement that the described portion of the building has been inspected for ~~complies~~compliance with the requirements of this code for group and division of occupancy and the use for which the proposed occupancy is classified~~;~~.

E. The name of the building official.

COMMENT: The propose change adopts the latest edition of the California Building Code and makes editorial changes to reflect the required information that should be on a certificate of occupancy.

Section [X]. Section 18.16.180 of the Long Beach Municipal Code is amended to read as follows:

18.16.180 Temporary certificate.

Notwithstanding the provisions of Section 18.16.170, ~~I~~if the building official finds that no substantial hazard will result from the occupancy of any building, or portion thereof, before the same is completed, ~~a temporary certificate of occupancy may be issued for the use of a portion or portions of a building or structure prior to the completion of the entire building or structure~~ and satisfactory evidence is submitted that the work could not have been completed prior to the time such occupancy is desired because of its magnitude or because of unusual construction difficulties, and where applicable the City Engineer or duly authorized representative has reported that all required public improvements have been completed, the building official may issue a temporary certificate of occupancy for any building or portion thereof.

The building official may issue a temporary Certificate of Occupancy notwithstanding the fact that all required public improvements have not been completed, if the building official finds that the failure to complete the public improvements was due to circumstances over which the person applying for the Certificate of Occupancy had no control.

In addition, the building official may issue a temporary Certificate of Occupancy for an existing building, or portion thereof, provided no substantial hazard will result and satisfactory evidence is submitted justifying the need for such temporary occupancy.

Applicants for this temporary certificate of occupancy shall pay an investigation fee as set forth in the schedule of fees and charges established by city council resolution for which approval of temporary occupancy is sought with the minimum fee as set forth in the schedule of fees and charges established by city council resolution. An additional investigation fee shall be paid to extend a temporary certificate of occupancy beyond thirty (30) days in an amount as set forth in the schedule of fees and charges established by city council resolution of the initial investigation fee as set forth in the schedule of fees and charges established by city council resolution for each additional thirty (30) day period or fraction thereof.

COMMENT: The propose change adopts the latest edition of the California Building Code and makes editorial changes to reflect the required information that should be considered before granting a temporary certificate of occupancy.

Section [X]. Section 18.24.010 of the Long Beach Municipal Code is amended to read as follows:

18.24.010 Adoption.

The City Council adopts and incorporates by reference as though set forth in full in this Chapter the following:

A. The California Building Code, ~~2001~~ 2007 Edition, Volumes I and II and Appendices, which is based on, and which amends the provisions of the ~~1997 Uniform Building Code~~ 2006 International Building Code (model code), as developed by the International ~~Conference of Building Officials~~Code Council;

B. The ~~1997~~ Uniform Housing Code, 1997 Edition, as developed by the International Conference of Building Officials.

The adoption of the codes are subject to the changes, amendments and modifications to them as adopted in this Chapter, and certain provisions of the Long Beach Municipal Code, which shall remain in full force and effect as provided in this ~~T~~title. Said codes and code provisions shall constitute and be known as the Long Beach Building Code. A copy of the California Building Code Volumes I and II and Appendices, and the Uniform Housing Code, printed as codes in book form, shall be on file in the office of the City Clerk.

COMMENT: Administrative amendment which adopts the latest edition of the California Building Code and makes minor editorial changes.

Section [X]. Section 18.24.020 of the Long Beach Municipal Code is amended to read as follows:

18.24.020 Amendments to codes.

The ~~2001~~2007 ~~e~~Edition of the California Building Code, Volumes I and II and Appendices, and the 1997 ~~e~~Edition of the Uniform Housing Code are amended and modified as set forth in Sections 18.24.030 through 18.24.~~7~~430.

COMMENT: Administrative amendment which adopts the latest edition of the California Building Code and makes minor editorial changes.

Section [X]. Section 18.24.030 of the Long Beach Municipal Code is amended to read as follows:

18.24.030 Application.

The provisions of the model code (the ~~Uniform~~ International Building Code), which are incorporated into the California Building Code, are applicable to all occupancy groups and uses regulated by the model code. The amendments made by the state agencies to the model code and incorporated into the California Building Code are

applicable only to those occupancies or uses which the state agency making the amendments is authorized to regulate, as listed in ~~Section 18.24.040~~ Chapter 1 of the California Building Code. The building and safety bureau shall only enforce those amendments made by the following state agencies:

A. The department of housing and community development (HCD) as specified in Section 108 of the 2007 California Building Code.

B. Division of the state architect, access compliance (DSA/AC) as specified in Section 109 of the 2007 California Building Code.

C. Office of the state fire marshal (SFM) as specified in Section 111 of the 2007 California Building Code.

D. Office of statewide health, planning and development (OSHPD 3) as specified in Section 110 of the 2007 California Building Code.

E. California energy commission (CEC) as specified in Section 105 of the 2007 California Building Code.

~~F. Department of water resources (DWR).~~

COMMENT: Administrative amendment which adopts the latest edition of the California Building Code and makes minor editorial changes to reflect the state agencies and the applicable referenced sections.

Section [X]. Delete Section 18.24.040 of the Long Beach Municipal Code and replace with the following:

~~18.24.040 Vesting authority.~~

~~Following is a list of the state agencies that adopt and make amendments to the model code, the specific occupancies or uses which the state agency making the amendments is authorized to regulate, entitled "application," and the authorized enforcing agency for these amendments.~~

~~A. AGR—department of food and agriculture.~~
~~Application—Dairies and places of meat inspection.~~
~~Enforcing agency—State Department of Food and Agriculture.~~
~~B. BOC—board of corrections.~~
~~Application—Local detention facilities.~~
~~Enforcing agency—State board of corrections.~~
~~C. BSC—California building standards commission.~~
~~Application—State buildings (all occupancies), including buildings constructed by the trustees of the California state universities and colleges and the regents of the University of California where no state agency has the authority to adopt building standards applicable to such buildings.~~
~~Enforcing agency—State agency specified by the applicable provisions of law.~~
~~D. CA—department of consumer affairs.~~
~~1. Board of barber examiners.~~
~~Application—Barbershops.~~
~~Enforcing agency—State agency specified by applicable provisions of law.~~
~~2. Board of cosmetology.~~

~~Application–School of cosmetology and electrology.~~
~~Enforcing agency–State agency specified by applicable provisions of law.~~
~~3. Medical board of California; acupuncture committee.~~
~~Application–Acupuncture offices.~~
~~Enforcing agency–State agency specified by applicable provisions of law.~~
~~4. Board of pharmacy.~~
~~Application–Pharmacies.~~
~~Enforcing Agency–State agency specified by applicable provisions of law.~~
~~5. Board of examiners in veterinary medicine.~~
~~Application–Veterinary facilities.~~
~~Enforcing agency–State agency specified by applicable provisions of law.~~
~~6. Structural pest control board.~~
~~Application–Structural pest control.~~
~~Enforcing agency–State structural pest control board.~~
~~E. CEC–California energy commission.~~
~~Application–All occupancies.~~
~~Enforcing agency–The planning and building department of the city of Long Beach or the California energy commission.~~
~~F. DHS–Department of health services.~~
~~Application–(1) section 305.5 applies to organized camps; (2) section 431A applies to organized camps; (3) section 432A applies to laboratory animal quarters; (4) chapter 31B applies to public swimming pools and organized camps; (5) chapter 31C applies to radiation protection; (6) chapter 31D applies to commissaries serving mobile food preparation vehicles; (7) section 433A applies to wild animal quarantine facilities.~~
~~Enforcing agency–The state department of health services and the local health officer.~~
~~G. DWR–Department of water resources.~~
~~Application–Single family residences that construct, install or alter gray water systems for landscape irrigation.~~
~~Enforcing agency–The planning and building department of the city of Long Beach or the state department of water resources.~~
~~H. HCD 1–Department of housing and community development.~~
~~Application–Hotels, motels, lodging houses, apartment houses, dwellings, dormitories, condominiums, shelters for homeless persons, congregate residences, employee housing, factory built housing and other types of dwellings containing sleeping accommodation with common toilet and cooking facilities.~~
~~Enforcing agency–The planning and building department of the city of Long Beach or the state department of housing and community development.~~
~~I. HCD 1A/C–Department of housing and community development.~~
~~Application–Multi-family dwelling units including, but not limited to, lodging houses, dormitories, time shares, condominiums, shelters for homeless persons, congregate residences, apartment houses, dwellings, employee housing, factory built housing and other types of dwellings containing sleeping accommodations with common toilet and cooking facilities which are not subject to DSA/AC requirements.~~
~~The provisions shall apply to group R occupancies which are newly constructed as defined in chapter 11A of the CBC, including, but not limited to, the following:~~
~~1. Apartment buildings with three (3) or more dwelling units.~~
~~2. Condominiums with four (4) or more dwelling units.~~

~~3. Lodging houses, as defined in chapter 2 of the CBC, when used as a residence with three (3) or more guest rooms.~~
~~4. Congregate residences, as defined in chapter 2 of the CBC.~~
~~5. Dwellings with three (3) or more efficiency units, as defined in chapter 2 of the CBC.~~
~~6. Shelters for the homeless, not otherwise subject to the disabled access provisions of DSA/AC.~~
~~7. Dormitories, as defined in chapter 2 of the CBC with three (3) or more guest rooms.~~
~~8. Time share dwellings with three (3) or more units, except for condominiums covered in item 2 above.~~
~~9. Other group R occupancies in covered multi-family dwellings which are regulated by the SFM.~~
~~Buildings or portions of buildings of the same or similar occupancies, or mixed occupancies, and buildings accessory thereto, may also be subject to the disabled access provisions adopted by DSA/AC. Buildings subject to the disabled access regulations of DSA/AC are identified in subsection K of this section.~~
~~The HCD 1/AC disabled access building standards do not apply to the alteration, repair, rehabilitation or additions to existing group R occupancies that were constructed for first occupancy after March 13, 1991. These standards generally do not apply to accommodations such as hotels and motels.~~
~~Enforcing agency–The planning and building department of the city of Long Beach or the state department of housing and community development.~~
~~J. HCD 2–Department of housing and community development.~~
~~Application–Permanent buildings and accessory buildings in mobile home parks, and special occupancy parks.~~
~~Enforcing agency–The state department of housing and community development.~~
~~K. DSA/AC–Access compliance, division of the state architect.~~
~~Application:~~
~~1. Publicly funded buildings, structures, sidewalks, curbs and related facilities shall be accessible to and usable by persons with disabilities as follows:~~
~~a. All buildings, structures, sidewalks, curbs and related facilities constructed in the state by the use of state, county or municipal funds, or the funds of any political subdivision of the state.~~
~~b. All buildings, structures and facilities, that are leased, rented, contracted, sublet or hired by any municipal county, or state division of government, or by a special district.~~
~~c. All publicly funded buildings used for congregate residences or for one- or two-family dwelling unit purposes shall conform to the provisions applicable to living accommodations.~~
~~d. All existing publicly funded buildings and facilities when alterations, structural repairs or additions are made to such buildings or facilities. For detailed requirements on existing buildings, see chapter 11B, division IV.~~
~~e. With respect to buildings, structures, sidewalks, curbs and related facilities not requiring a building permit, building standards published in the CBC relating to access for persons with disabilities and other regulations adopted pursuant to Government Code section 4450, and in effect at the time construction is commenced, shall be applicable.~~

2. All privately funded public accommodations, as defined, and commercial facilities, as defined, shall be accessible to persons with physical disabilities as follows:
EXCEPTION: Certain types of privately funded multistory buildings do not require installation of an elevator to provide access above and below the first floor. See chapter 11B.
a. Any building, structure, facility, complex, or improved area, or portions thereof, which are used by the general public.
b. Any sanitary facilities which are made available for the public, clients or employees in such accommodations or facilities.
c. Any curb or sidewalk intended for public use that is constructed in this state with private funds.
d. All existing privately funded public accommodations when alterations, structural repairs or additions are made to such public accommodations as set forth under chapter 11B.
3. Public housing and private housing available for public use.
Enforcing Agency–
a. The director of general services of the state of California where state funds are utilized for any project or where funds of the city are utilized for the construction of elementary, secondary or community college projects.
b. The planning and building department of the city of Long Beach when private funds are utilized.
L. DSA/SS–Division of the state architect, structural safety.
Application–Public elementary and secondary schools, community college buildings and state owned or state leased essential services buildings.
Enforcing agency–DSA/SS.
M. OSHPD–Office of statewide health planning and development.
1. OSHPD 1
Application–General acute care hospitals and acute psychiatric hospitals. For structural regulations: Skilled nursing facilities and/or intermediate care facilities except those skilled nursing facilities and intermediate care facilities of single-story, type V, wood or light steel frame construction.
Enforcing agency–OSHPD. The office shall enforce the division of the state architect access compliance regulations and the regulations of the office of the state fire marshal for the above stated facility types.
2. OSHPD 2
Application–Skilled nursing facilities and intermediate care facilities. For structural regulations: Single-story, type V skilled nursing and/or intermediate care facilities utilizing wood or light steel frame construction.
Enforcing agency–OSHPD. The office shall also enforce the division of the state architect access compliance regulations and the regulations of the office of the state fire marshal for the above stated facility types.
3. OSHPD 3
Application–Clinics.
Enforcing agency–The planning and building department of the city of Long Beach or OSHPD.
4. OSHPD 4
Application–Correctional treatment centers.

~~Enforcing agency–OSHPD. The office shall also enforce the division of the state architect access compliance regulations and the regulations of the office of the state fire marshal for the above stated facility types.~~
~~N. SFM–Office of the state fire marshal.~~
~~Application–~~
~~1. Any building or structure used or intended for use as an asylum, jail, mental hospital, hospital, sanitarium, home for the aged, children's nursery, children's home, school or any similar occupancy of any capacity.~~
~~2. Any theater, dancehall, skating rink, auditorium, assembly hall, meeting hall, nightclub, fair building, or similar place of assemblage where fifty (50) or more persons may gather together in a building, room or structure for the purpose of amusement, entertainment, instruction, deliberation, worship, drinking or dining, awaiting transportation, or education.~~
~~3. Small family daycare homes.~~
~~4. Large family daycare homes.~~
~~5. Residential facilities and residential facilities for the elderly.~~
~~6. Any state institution or other state owned or state occupied building.~~
~~7. High rise structures.~~
~~8. Motion picture production studios.~~
~~9. Organized camps.~~
~~10. All hotels, motels, lodging houses, apartment houses and dwellings, including congregate residences and buildings and structures accessory thereto.~~
~~11. Multiple story structures existing on January 1, 1975, let for human habitation, including, and limited to, hotels, motels, apartment houses, less than seventy five feet (75') (22 860 mm) above the lowest floor level having building access, wherein rooms used for sleeping are let above the ground floor.~~
~~12. Certified family care homes, out of home placement facilities, halfway houses, drug and/or alcohol rehabilitation facilities and any building or structure used or intended for use as a home or institution for the housing of any person of any age when such person is referred to or placed within such home or institution for protective social care and supervision services by any governmental agency.~~
~~13. Tents, awnings or other fabric enclosures used in connection with any occupancy.~~
~~14. Fire alarm devices, equipment and systems in connection with any occupancy.~~
~~15. Hazardous materials.~~
~~16. Flammable and combustible liquids.~~
~~Enforcing agency–The chief of the city fire department, or authorized representative.~~
~~O. SHB–State historical building code advisory board, division of the state architect.~~
~~Application–Qualified historical buildings and structures and their associated sites.~~
~~Enforcing agency–State agency specified by the applicable provisions of law.~~
~~P. SL–State librarian.~~
~~Application–Public library construction and renovation using funds from the California Library Construction and Renovation Bond Act of 1988.~~
~~Enforcing agency–State librarian.~~

18.24.040 Sections deleted from codes.

The following sections of the 2007 Edition of the California Building Code, Volumes I

and II, and Appendices, and the 1997 Edition of the Uniform Housing Code are deleted.

A. Section 1805.4.5 and 1805.4.6 of Chapter 18; Chapter 31B, 31C, 31D, 31F; Section 3407, 3408, 3409 and 3410 of Chapter 34; Appendix Chapter 1; Section H109.2, H110.3, H110.4, H110.5, H112.4, H113.3 and H113.4 of Appendix H; Appendix Chapter A, B, D, E, F and G of the California Building Code.

B. Chapters 1, 2, 3, 4, 10, 11, 12, 13, 14, 15, and 16 of the Uniform Housing Code.

COMMENT: Administrative amendment which adopts the latest edition of the California Building Code and the Los Angeles Regional Uniform Code Program set of amendments adopted by the cities and county of the Los Angeles region and makes minor editorial changes. Certain chapter, appendices, and/or sections deleted are non-mandatory provisions.

Section [X]. Delete Section 18.24.050 of the Long Beach Municipal Code and replace with the following:

~~18.24.050 CBC section 202 amended--Definition.~~

~~Section 202 of Chapter 2 of the California Building Code is revised by changing the reference "Section 101.17.9" in the definition of "Approved" to Sections 18.24.040H & I.~~

18.24.050 Certain municipal code provisions still in effect.

Notwithstanding the adoption of the 2007 Edition of the California Building Code, Volumes I and II, and Appendices, and the 1997 Edition of the Uniform Housing Code, the following chapters of this title shall remain in full force and effect, subject to any amendments to these chapters:

Chapter 18.04, "General Provisions";
Chapter 18.08, "Definitions";
Chapter 18.12, "Permits";
Chapter 18.16, "Inspections";
Chapter 18.17, "Transportation Improvement Fee";
Chapter 18.18, "Park and Recreation Facilities Fee";
Chapter 18.19, "Long Beach Airport Traffic Study Area Traffic Fee and Mitigation Requirements";
Chapter 18.20, "Administration and Enforcement";
Chapter 18.21, "Maintenance of Long Term Boarded and Vacated Buildings";
Chapter 18.24, "Building Codes";
Chapter 18.28, "Electrical Code";
Chapter 18.32, "Electrical Regulations";
Chapter 18.36, "Mechanical Code";
Chapter 18.40, "Plumbing Code";
Chapter 18.44, "Plumbing Regulations";

Chapter 18.52, "Moving Buildings";
Chapter 18.64, "Sandblasting";
Chapter 18.68, "Earthquake Hazard Regulations";
Chapter 18.69, "Voluntary Earthquake Hazard Reduction in Existing Wood Frame Residential Buildings with Weak Cripple Walls and Unbolted Sill Plates";
Chapter 18.70, "Voluntary Earthquake Hazard Reduction in Existing Wood Frame Residential Buildings with Soft, Weak or Open Front Walls";
Chapter 18.71, "Voluntary Earthquake Hazard Reduction in Existing Reinforced Concrete Buildings and Concrete Frame Buildings with Masonry Infills";
Chapter 18.72, "Voluntary Earthquake Hazard Reduction in Existing Reinforced Concrete and Reinforced Masonry Wall Buildings with Flexible Diaphragms";
Chapter 18.76, "Report on Available Off Street Parking Spaces Upon Resale";
Chapter 18.80, "Demolition of Historic Landmarks";
Chapter 18.90, "Alternative Building Regulations for Live/Work Uses";
Chapter 18.95, "NPDES and SUSMP Regulations";
Chapter 18.96, "Visitability of Dwelling Units";
Chapter 18.97, "Construction and Demolition Recycling Program"; and
Chapter 18.99, "Findings."

COMMENT: Administrative amendment which adopts the latest edition of the California Building Code and makes minor editorial changes to the title and provision of this section, previously known as Section 18.24.730. Chapter 18.56 Sign will no longer remain in effect with the adoption of Appendix H of the CBC that contains provisions for sign regulation. Existing administrative language in Chapter 18.56 will be moved into Section 18.12.010. Chapter 18.72 Gas Appliances will no longer be in effect as many of these provisions are incorporated in the Plumbing Code. New voluntary earthquake hazard reduction standards are proposed.

Section [X]. Delete Section 18.24.060 of the Long Beach Municipal Code and replace with the following:

~~18.24.060 CBC section 203 amended- Reference.~~

~~Section 203 of Chapter 2 of the California Building Code is revised by changing the reference "Section 101.17.9" to Sections 18.24.040H & I.~~

18.24.060 CBC Section 201.4 amended – Terms not defined.

Section 201.4 of the 2007 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.

COMMENT: Administrative amendment which adopts the latest edition of the California Building Code and makes minor editorial changes to include a reference to a dictionary to be used for words not defined in the code. Unlike the UBC, the IBC does not have such reference any longer.

Section [X]. Delete Section 18.24.070 of the Long Beach Municipal Code and replace with the following:

~~18.24.070 CBC section 203 amended- Definition.~~

~~Section 203 of Chapter 2 of the California Building Code is revised by changing the reference "Section 101.17.10" in the definition of "Building" to Section 18.24.040J.~~

18.24.070 CBC section 202 amended – Additional definition.

Section 202 of Chapter 2 of the California Building Code is amended by adding the definition of "building service equipment".

"Building service equipment" refers to the plumbing, mechanical, electrical and elevator equipment including piping, wiring, fixtures and other accessories which provide sanitation, lighting, heating, ventilation, cooling, refrigeration, fire-fighting and transportation facilities essential to the occupancy of the building or structure for its designated use.

COMMENT: Administrative amendment which adopts the latest edition of the California Building Code and makes minor editorial changes. This administrative amendment was previously Section 18.24.080.

Section [X]. Chapter 18.24.071 is added to the Long Beach Municipal Code to read as follows:

18.24.071 CBC section 202 amended – "High-rise structure" definition.

Subsection 2 of Section 202 of Chapter 2 of the California Building Code "High-rise structure" definition is amended by the addition of a sentence to read as follows:

"Refer to the Long Beach Fire Code (Chapter 18.48) for local fire code amendments."

COMMENT: Amendment due to local geological conditions. The inclusion of the language "lowest level of Fire Department vehicle access" is a more accurate reflection of Fire Department capability to address fire-safety issue in high-rise building. The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major

earthquakes, including but not limited to the recent 1994 Northridge Earthquake, and requires these extra margins of safety due to the necessity of providing on site fire protection in an emergency during seismic event when fire department resources could be greatly delayed and overwhelmed.

Section [X]. Chapter 18.24.072 is added to the Long Beach Municipal Code to read as follows:

18.24.072 CBC section 901.7 amended – Fire areas.

Section 901.7 of Chapter 9 of the California Building Code is amended by the addition of a sentence to read as follows:

"Refer to the Long Beach Fire Code (Chapter 18.48) for local fire code amendments."

COMMENT: Amendment due to local geological conditions. The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake, and requires these extra margins of safety due to the necessity of providing on site fire protection in an emergency during seismic event when fire department resources could be greatly delayed and overwhelmed.

Section [X]. Chapter 18.24.073 is added to the Long Beach Municipal Code to read as follows:

18.24.073 CBC section 903.1 amended – General.

Section 903.1 of Chapter 9 of the California Building Code is amended by the addition of a sentence to read as follows:

"Refer to the Long Beach Fire Code (Chapter 18.48) for local fire code amendments."

COMMENT: Amendment due to local geological conditions. The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake, and requires these extra margins of safety due to the necessity of providing on site fire protection in an emergency during seismic event when fire department resources could be greatly delayed and overwhelmed.

Section [X]. Chapter 18.24.074 is added to the Long Beach Municipal Code to read as follows:

18.24.074 CBC section 903.2 amended – Where required.

Section 903.2 of Chapter 9 of the California Building Code is amended by the addition of a sentence to read as follows:

"Refer to the Long Beach Fire Code (Chapter 18.48) for local fire code amendments."

COMMENT: Amendment due to local geological conditions. The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake, and requires these extra margins of safety due to the necessity of providing on site fire protection in an emergency during seismic event when fire department resources could be greatly delayed and overwhelmed.

Section [X]. Chapter 18.24.075 is added to the Long Beach Municipal Code to read as follows:

18.24.075 CBC section 903.4 amended – Sprinkler system monitoring and alarms.

Section 903.4 of Chapter 9 of the California Building Code is amended by the addition of a sentence to read as follows:

"Refer to the Long Beach Fire Code (Chapter 18.48) for local fire code amendments."

COMMENT: Amendment due to local geological conditions. The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake, and requires these extra margins of safety due to the necessity of providing on site fire protection in an emergency during seismic event when fire department resources could be greatly delayed and overwhelmed.

Section [X]. Chapter 18.24.076 is added to the Long Beach Municipal Code to read as follows:

18.24.076 CBC section 903.7 amended – Group R.

Section 903.7 of Chapter 9 of the California Building Code is amended by the addition of a sentence to read as follows:

"Refer to the Long Beach Fire Code (Chapter 18.48) for local fire code amendments."

COMMENT: Amendment due to local geological conditions. The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake, and requires these extra margins of safety due to the necessity of providing on site fire protection in an emergency during seismic event when fire department resources could be greatly delayed and overwhelmed.

Section [X]. Chapter 18.24.077 is added to the Long Beach Municipal Code to read as follows:

18.24.077 CBC section 907.2.7.1 amended – Occupant notification.

Section 907.2.7.1 of Chapter 9 of the California Building Code is amended by the addition of a sentence to read as follows:

"Refer to the Long Beach Fire Code (Chapter 18.48) for local fire code amendments."

COMMENT: Amendment due to local geological conditions. The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake, and requires these extra margins of safety due to the necessity of providing on site fire protection in an emergency during seismic event when fire department resources could be greatly delayed and overwhelmed.

Section [X]. Chapter 18.24.078 is added to the Long Beach Municipal Code to read as follows:

18.24.078 CBC section 1009.11.1 amended – Roof access.

Section 1009.11.1 of Chapter 10 of the California Building Code is amended by the addition of a sentence to read as follows:

"Refer to the Long Beach Fire Code (Chapter 18.48) for local fire code amendments."

COMMENT: Amendment due to local geological conditions. The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake, and requires these extra margins of safety due to the necessity of providing on site fire protection in an emergency during seismic event when fire department resources could be greatly delayed and overwhelmed.

Section [X]. Delete Section 18.24.080 of the Long Beach Municipal Code and replace with the following:

~~18.24.080 CBC section 203 amended - Additional definition.~~

~~Section 203 of Chapter 2 of the California Building Code is amended by adding the definition of "building service equipment".~~

~~"Building service equipment" refers to the plumbing, mechanical, electrical and elevator equipment including piping, wiring, fixtures and other accessories which provide sanitation, lighting, heating, ventilation, cooling, refrigeration, fire fighting and transportation facilities essential to the occupancy of the building or structure for its designated use.~~

18.24.080 CBC Section 1405.6 amended – Stone Veneer.

Delete Section 1405.6 of the 2007 California Building Code and replace with the following:

1405.6 Masonry or Stone veneer. Support of masonry and stone veneer shall be designed, unless the masonry or stone veneer complies with the following.

1405.6.1 Masonry and stone units [5 inches maximum in thickness]. Masonry and stone veneer not exceeding 5 inches in thickness may be anchored directly to structural masonry, concrete or studs in one of the following manners:

1. Wall ties shall be corrosion resistant, made of sheet metal, shall have a minimum thickness of 0.0785 inch (No. 14 galvanized sheet gage) by 1 inch and shall be attached to the backing, as the veneer is laid, by minimum #10 hex head galvanized screws with penetration of at least 2 inches into the framing member, placed not more than 1/4 inch above the extended leg of the angle tie. Wall ties shall be spaced so as to support not more than 2 square feet of wall area but shall not be more than 24 inches on center horizontally. In Seismic Design Category D, E or F, wall ties shall have a lip or hook on the extended leg that will engage or enclose a horizontal joint reinforcement wire having a diameter of 0.148 inch (No. 9 B.W. gage) or equivalent. The joint reinforcement shall

be continuous with butt splices between ties permitted.

When applied over wood stud construction, the studs shall be spaced a maximum of 16 inches on center and approved paper, a minimum 30# fiberglass felt, 4 inch minimum on horizontal laps and 6 inch minimum on end laps, shall first be applied over minimum 15/32 inch plywood sheathing except as otherwise provided in Section 1402, and an air space of at least 1 inch shall be maintained between the backing and the veneer. Spot bedding at all ties shall be of cement mortar.

2. Veneer may be applied with 1-inch-minimum grouted backing space which is reinforced by not less than 2-inch by 2-inch 0.065 inch (No. 16 B.W. gage) galvanized wire mesh placed over waterproof paper backing and anchored directly to stud construction. Such construction shall be allowed to a height not to exceed 4 feet above grade.

The stud spacing shall not exceed 16 inches on center. The galvanized wire mesh shall be anchored to wood studs by galvanized steel wire furring nails at 4 inches on center or by barbed galvanized nails at 6 inches on center with a 1-1/8-inch-minimum penetration. The galvanized wire mesh may be attached to steel studs by equivalent wire ties. If this method is applied over solid sheathing the mesh must be furred for embedment in grout. The wire mesh must be attached at the top and bottom with not less than 8–penny common wire nails. The grout fill shall be placed to fill the space intimately around the mesh and veneer facing.

1405.6.2 Stone units [10 inches maximum in thickness]. Stone veneer units not exceeding 10 inches in thickness may be anchored directly to structural masonry or concrete. Anchor ties shall not be less than 0.109 inch (No. 12 B.W. gage) galvanized wire, or approved equal, formed as an exposed eye and extending not less than 1/2 inch beyond the face of the backing. The legs of the loops shall not be less than 6 inches in length bent at right angles and laid in the masonry mortar joint and spaced so that the eyes or loops are 12 inches maximum on center in both directions. There shall be provided not less than a 0.109 inch (No. 12 B.W. gage) galvanized wire tie, or approved equal, threaded through the exposed loops for every 2 square feet of stone veneer. This tie shall be a loop having legs not less than 15 inches in length so bent that it will lie in the stone veneer mortar joint. The last 2 inches of each wire leg shall have a right angle bend. One inch of cement grout shall be placed between the backing and the stone veneer.

COMMENT: Amendment due to local geological conditions. Additional reinforcement for heavy veneer, stone and masonry veneer was needed after the 1994 Northridge Earthquake. There were numerous observations of veneer pulling away from wood stud framing following the Northridge Earthquake. Most of it was due to corrosion and weakness in the anchor ties and mesh connections to the framing. Where sheathing was beneath the veneer, nail attachments were often not attached to the wall framing below. Northridge SEAOSC/LA City Post Northridge Earthquake committee findings indicated significant loss of veneer from buildings due to inadequate design and

construction.

The Los Angeles/Long Beach region is a densely populated area that has buildings constructed over and near a vast and complex network of faults that are believed to be capable of producing future earthquakes similar or greater in size than the 1994 Northridge and the 1971 Sylmar earthquakes. Design provisions developed based on a detailed study of the 1994 Northridge Earthquake need to be incorporated into the local building codes to assure new buildings, and additions to existing buildings, are designed and constructed in accordance with the scope and objectives of the International Building Code.

Section [X]. Section 18.24.085 is added to the Long Beach Municipal Code to read as follows:

18.24.085 CBC section 1603.1.8 amended – Systems and components requiring special inspections for seismic resistance.

Section 1603.1.8 of Chapter 16 of the 2007 California Building Code is amended by amending the reference to "Sections 106.1, Appendix Chapter 1" to read "Section 18.12.050."

COMMENT: Administrative amendment which adopts the latest edition of the California Building Code and makes minor editorial changes to reflect the appropriate reference to the municipal code for submission of construction documents.

Section [X]. Delete Section 18.24.090 of the Long Beach Municipal Code and replace with the following:

~~18.24.090 CBC section 205 amended--Definition.~~

~~Section 205 of Chapter 2 of the California Building Code is amended by deleting the definition of "dangerous building code".~~

18.24.090 CBC Section 1612.3 amended – Establishment of flood hazard areas.

Section 1612.3 of the 2007 California Building Code is amended to read as follows:

1612.3 Establishment of flood hazard areas. To establish flood hazard areas, the governing body 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 ~~[INSERT NAME OF JURISDICTION]~~, the City of Long Beach" dated ~~[INSERT DATE OF ISSUANCE]~~ 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.

Exception: [OSHPD 2] The flood hazard map shall include, at a minimum, areas of special flood hazard as identified by the Federal Emergency Management Agency's Flood Insurance Study (FIS) adopted by the local authority having jurisdiction where the project is located.

COMMENT: Administrative amendment which adopts the latest edition of the California Building Code and makes minor editorial changes to reference the appropriate flood hazard information.

Section [X]. Section 18.24.095 is added to the Long Beach Municipal Code to read as follows:

18.24.095 CBC section 1612.5 amended – Flood hazard documentation.

Section 1612.5 of Chapter 16 of the 2007 California Building Code is amended by amending the reference to "Sections 109.3.3, Appendix Chapter 1" to read "Section 18.16.040.B.3."

COMMENT: Administrative amendment which adopts the latest edition of the California Building Code and makes minor editorial changes to reflect the appropriate reference to the municipal code for inspections.

Section [X]. Delete Section 18.24.100 of the Long Beach Municipal Code and replace with the following:

~~18.24.100 CBC section 206 amended- Definition.~~

~~Section 206 of Chapter 2 of the California Building Code is amended by deleting the definition of "elevator code".~~

18.24.100 CBC section 1613.6.1 amended – Assumption of flexible diaphragm.

Section 1613.6.1 of the 2007 California Building Code is amended to read as follows:

1613.6.1 Assumption of flexible diaphragm. Add the following text at the end of Section 12.3.1.1 of ASCE 7:

Diaphragms constructed of wood structural panels or untopped steel decking shall also be permitted to be idealized as flexible, provided all of the following conditions are met:

1. Toppings of concrete or similar materials are not placed over wood structural panel diaphragms except for nonstructural toppings no greater than 1 ½ inches (38 mm) thick.

2. Each line of vertical elements of the lateral-force-resisting system complies with the allowable story drift of Table 12.12-1.

3. Vertical elements of the lateral-force-resisting system are light-framed walls sheathed with wood structural panels rated for shear resistance or steel sheets.

4. Portions of wood structural panel diaphragms that cantilever beyond the vertical elements of the lateral-force-resisting system are designed in accordance with Section 2305.2.5 of the *California Building Code*.

Exception: In lieu of Section 2305.2.5, flexible diaphragm assumption is permitted to be used for buildings up to two stories in height provided cantilevered diaphragms supporting lateral-force-resisting elements from above does not exceed 15 percent of the distance between lines of lateral-force-resisting elements from which the diaphragm cantilevers nor one-fourth the diaphragm width perpendicular to the overhang.

COMMENT: Amendment due to local geological conditions. This section/amendment is consistent with the Los Angeles Regional Uniform Code Program set of amendments adopted by the cities and county of the Los Angeles region. This local amendment carries forward the previous 1999 and 2002 LARUCP structural amendment adopted by the cities and county of the Los Angeles region to limit the maximum span of cantilevered diaphragms supporting lateral-force-resisting elements from above, thereby addressing the problem of poor performance of diaphragms transmitting seismic loads to lateral-force-resisting elements below. 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 1994 Northridge Earthquake.

The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. The proposed modification to limit the maximum span of cantilevered diaphragms that supports lateral-force-resisting elements from above need to be incorporated into the code to assure that new buildings and additions to existing buildings are designed and constructed in accordance with the scope and objectives of the International Building Code.

Section [X]. Delete Section 18.24.110 of the Long Beach Municipal Code and replace with the following:

~~18.24.110 CBC section 220 amended--Definition.~~

~~Section 220 of Chapter 2 of the California Building Code is amended by amending the reference to Sections 108 and 1701 in the definition of "structural observation" to read Sections 18.16.010 and 18.16.060, respectively.~~

18.24.110 New CBC 1613.7 added – Suspended Ceiling..

Section 1613.7 is added to Chapter 16 of the 2007 California Building Code to read as follows:

1613.7 Suspended Ceilings. Minimum design and installation standards for suspended ceilings shall be determined in accordance with the requirements of Chapter 25 of this Code and this subsection.

1613.7.1 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 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 licensed engineer or architect.

1613.7.3 Design and Installation Requirements.

1613.7.3.1 Bracing at Discontinuity. Positive bracing to the structure shall be provided at changes in the ceiling plane elevation or at discontinuities in the ceiling grid system.

1613.7.3.2 Support for Appendages. Cable trays, electrical conduits and piping shall be independently supported and independently braced from the structure.

1613.7.3.3 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, in accordance with Section 13.5.6.2.2 (e) of ASCE 7 .

Sprinkler heads penetrating fire-resistance-rated floor/ceiling or roof/ceiling assemblies shall comply with Section 712 of this Code.

1613.7.3.4 Perimeter Members. A minimum wall angle size of at least a two inch (51 mm) horizontal leg shall be used at perimeter walls and interior full height partitions. The first ceiling tile shall maintain 3/4 inch (19 mm) clear from the finish wall surface. An equivalent alternative detail that will provide sufficient movement due to anticipated lateral building displacement may be used in lieu of the long leg angle subject to the approval of the Superintendent of Building.

1613.7.4 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 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 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 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 1006.3 of this Code.

1613.7.4.4 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.

COMMENT: Amendment due to local geological conditions. This section/amendment is consistent with the Los Angeles Regional Uniform Code Program set of amendments adopted by the cities and county of the Los Angeles region. The California Building Code has no information regarding the design requirements for ceiling suspension systems for seismic loads. It is through the experience of prior earthquakes, such as the 1994 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.

The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. The proposed modification requiring design requirements for ceiling suspension systems to resist seismic loads need to be incorporated into the code to assure that new buildings and additions to existing buildings are designed and constructed in accordance with the scope and objectives of the International Building Code.

Section [X]. Delete Section 18.24.120 of the Long Beach Municipal Code and replace with the following:

~~18.24.120 CBC section 310.1 amended--Group R occupancies.~~

~~Section 310.1 of Chapter 3 of the California Building Code is amended by~~

~~deleting the paragraph referencing Appendix Chapter 3, Division III.~~

18.24.120 New CBC section 1614 add – Modification to ASCE 7.

Section 1614 is added to Chapter 16 of the 2007 California Building Code to read as follows:

SECTION 1614
MODIFICATION TO ASCE 7.

1614.1 General. The text of ASCE 7 shall be modified as indicated in this Section.

1614.1.1 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.

1614.1.2 ASCE 7, 12.3.1.1. Modify ASCE 7 Section 12.3.1.1 to read as follows:

12.3.1.1 Flexible Diaphragm Condition. Diaphragm constructed of untopped steel decking or wood structural panels are permitted to be idealized as flexible in structures in which the vertical elements are steel or composite steel and concrete braced frames, or concrete, masonry, steel, or composite shear walls. Diaphragms of wood structural panels or untopped steel decks in one- and two-family residential buildings of light-frame construction shall also be permitted to be idealized as flexible.

Flexible diaphragm assumption is permitted to be used for buildings up to two stories in height provided cantilevered diaphragms supporting lateral-force-resisting elements from above does not exceed 15 percent of the distance between lines of lateral-force-resisting elements from which the diaphragm cantilevers nor one-fourth the diaphragm width perpendicular to the overhang.

1614.1.3 ASCE 7, Section 12.8.1.1. Modify ASCE 7 Section 12.8.1.1 by amending Equation 12.8-5 as follows:

C_s = ~~0.010~~0.044 S_{DS} I ≥ 0.01 (Eq. 12.8-5)

1614.1.4 ASCE 7, Table 12.8-2. Modify ASCE 7 Table 12.8-2 by adding the following:

Structure Type	C_t	x
Eccentrically braced steel frames and buckling-restrained braced frames	0.03 (0.0731)[a]	0.75

1614.1.5 ASCE 7, Section 12.8.7. Modify ASCE 7 Section 12.8.7 by amending Equation 12.8-16 as follows:

$$\theta = \frac{P_x \Delta \underline{I}}{V_x h_{sx} C_d}$$

(12.8-16)

1614.1.6 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 wood diaphragms supporting concrete or masonry walls, wood diaphragms 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.

1614.1.7 ASCE 7, Section 12.12.3. Replace ASCE 7 Section 12.12.3 as follows:

12.12.3 Minimum Building Separation. All structures shall be separated from adjoining structures. Separations shall allow for the maximum inelastic response displacement (Δ_M). Δ_M shall be determined at critical locations with consideration for both translational and torsional displacements of the structure as follows:

$$\Delta_M = C_d \delta_{max} \qquad \text{(Equation 16-45)}$$

where δ_{max} is the calculated maximum displacement at Level x as define in ASCE 7 Section 12.8.4.3.

Adjacent buildings on the same property shall be separated by at least a distance Δ_{MT}, where

$$\Delta_{MT} = \sqrt{(\Delta_{M1})^2 + (\Delta_{M2})^2} \qquad \text{(Equation 16-46)}$$

and Δ_{M1} and Δ_{M2} are the maximum inelastic response displacements of the adjacent buildings.

Where a structure adjoins a property line not common to a public way, the structure shall also be set back from the property line by at least the displacement, Δ_M, of that structure.

Exception: Smaller separations or property line setbacks shall be permitted when justified by rational analysis.

1614.1.8 ASCE 7, 12.12.4. Modify ASCE 7 Section 12.12.4 to read as follows:

12.12.4 Deformation Compatibility for Seismic Design Category D through F. For structures assigned to Seismic Design Category D, E, or F, every structural component not included in the seismic force-resisting system in the direction under consideration shall be designed to be adequate for the gravity load effects and the seismic forces resulting from displacement to the design story drift (Δ) as determined in accordance with Section 12.8.6 (see also Section 12.12.1).

Exception: Reinforced concrete frame members not designed as part of the seismic force-resisting system shall comply with Section 21.9 of ACI 318.

Where determining the moments and shears induced in components that are not included in the seismic force-resisting system in the direction under consideration, the stiffening effects of adjoining rigid structural and nonstructural elements shall be considered and a rational value of member and restraint stiffness shall be used.

When designing the diaphragm to comply with the requirements stated above, the return walls and fins/canopies at entrances shall be considered. Seismic compatibility with the diaphragm shall be provided by either seismically isolating the element or by attaching the element and integrating its load into the diaphragm.

COMMENT: Amendment due to local geological conditions. This section/amendment is consistent with the Los Angeles Regional Uniform Code Program set of amendments adopted by the cities and county of the Los Angeles region. The proposed modifications need to be incorporated into the code to assure that new buildings and additions to existing buildings are designed and constructed in accordance with the scope and objectives of the International Building Code.

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 7-05 Section 12.2.3.1 by limiting the number of stories and height of the structure to two stories will significantly minimize the impact of vertical irregularities and concentration of inelastic behavior from mixed structural systems.

This local amendment carries forward the previous 1999 and 2002 LARUCP amendment to limit the maximum span of cantilevered diaphragms supporting lateral-force-resisting elements from above, thereby addressing the problem of poor performance of diaphragms transmitting seismic loads to lateral-force-resisting elements below. 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 1994 Northridge Earthquake.

Results from the 75% Draft of ATC-63, Quantification of Building System Performance and Response Parameters, indicate that tall buildings may fail at an unacceptably too low of a seismic level unless the minimum base shear level is increased to the value used in ASCE 7-02. Thus it is recommended that the adoption of the minimum base shear is appropriate due to the recent research in PEER and the ATC 63 project. The conclusion suggested that the reduction of the base shear in the previous code led to a trend in which tall buildings had decreasing safety with increasing height. To minimize the potential increased fire-life safety associated with such a seismic failure of tall buildings, this proposed modification increases the minimum base shear level to be consistent with previous edition of the building codes. The propose amendment to the current ASCE 7 is very well supported by the engineering community. Both SEAOSC and other structural engineer organizations from the state level are in support of adopting the revised minimum base shear.

The Buckling Restrained Steel Frame (BRBF) system was first approved for the 2003 NEHRP Provisions. The values for the approximate period perimeters C_t and x were also approved as part of that original BSSC Proposal 6-6R (2003). It seems to be a simple oversight that these parameters were not carried forward into the 2005 edition of ASCE 7-05. Currently, these two factors can be found in Appendix R of AISC 341-05. There, they function only as a placeholder that will be removed in the next version upon approval by ASCE 7 Task Committee on Seismic. The SEAOSC Steel Committee supports the proposed modification.

Importance Factor, I, seems to have been dropped from equation 12.8-16 by mistake while transcribing it from NEHRP Recommended Provisions (2003) equation 5.2-16. For buildings with importance factor, I, higher than 1.0, stability coefficient should include the importance factor. The proposed modification is recommended and adopted by OSPHD and DSA-SS as reflected in Section 1614A1.8 to Chapter 16 of the 2007 California Building Code. Furthermore, the SEAOSC Steel Committee supports the proposed modification.

A joint Structural Engineers Association of Southern California (SEAOSC), Los Angeles County and Los Angeles City Task Force investigated the performance of concrete and masonry construction with flexible wood diaphragm failures after the Northridge earthquake. It was concluded at that time that continuous ties are needed at specified spacing to control cross grain tension in the interior of the diaphragm. Additionally, subdiaphragm shears need to be limited to control combined orthogonal stresses within the diaphragm. Recognizing the importance and need to continue the recommendation made by the task force, but also taking into consideration the improve

performance and standards for diaphragm construction today, a proposal to increase the continuous tie spacing limit to 40 ft in lieu of 25 ft and to use 75% of the allowable code diaphragm shear to determine the depth of the sub-diaphragm in lieu of the 300 plf is deemed appropriate and acceptable. These requirements are variations of Items 4 and 7 of Section 1633.2.9 from the previous 1999 and 2002 LARUCP structural provision that amended the California Building Code. The Los Angeles/Long Beach region is within a very active geological location. The various jurisdictions within this region have taken additional steps to prevent roof or floor diaphragms from pulling away from concrete or masonry walls. This decision was made due to the frequency of this type of failure during the past significant earthquakes. This section was portion of the previous code and has been adjusted to accommodate higher diaphragm shear allowable as noted above.

Section 12.12.3 of ASCE 7-05 including Supplement No. 1 does not provide requirements for separation distances between adjacent buildings. Requirements for separation distances between adjacent buildings, not structurally connected, were included in previous editions of the IBC and UBC. However, when ASCE 7-05 was adopted by reference for IBC 2006, these requirements were omitted. In addition, ASCE 7-05 defines (δx) in Section 12.8.6 to refer to the deflection of Level x at the center of mass. The actual displacement that needs to be used for building separation is the displacement at critical locations with consideration of both the translational and torsional displacements. These values can be significantly different. This code change fills the gap of this inadvertent oversight in establishing minimum separation distance between adjoining buildings that are not structurally connected. The purpose of seismic separation is to permit adjoining buildings, or parts thereof, to respond to earthquake ground motion independently and thus preclude possible structural and non-structural damage caused by pounding between buildings or other structures.

This local amendment carries forward the previous 1999 and 2002 LARUCP 16-5 amendment adopted by the cities and county of the Los Angeles region regulating return walls and fins/canopies at entrances to ensure the seismic compatibility of the diaphragm. 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 1994 Northridge Earthquake. The study concluded that stiffness incompatibility between entrance canopies need to be addressed. This decision was made due to the frequency of this type of failure during the past significant earthquakes.

Section [X]. Delete Section 18.24.130 of the Long Beach Municipal Code and replace with the following:

~~**Section [X]. Delete Section 18.24.130 of the Long Beach Municipal Code and replace with the following:**~~

~~18.24.130 CBC section 312.1 amended - Group U occupancies.~~

~~Section 312.1 of Chapter 3 of the California Building Code is revised by deleting the Exception to Division 1 and by amending Division 2 to read as follows:~~

~~Division 2. Fences over three feet high, tanks and towers.~~

18.24.130 CBC section 1702 amended – Definition.

Section 1702 of Chapter 2 of the 2007 California Building Code is amended by amending the reference to "Sections 109, Appendix Chapter 1" in the definition of "structural observation" to read "Chapter 18.16 Inspections".

COMMENT: Administrative amendment which adopts the latest edition of the California Building Code and makes minor editorial changes to reflect the appropriate reference to the municipal code for inspection regulation. This provision was previously Section 18.24.110.

Section [X]. Delete Section 18.24.140 of the Long Beach Municipal Code and replace with the following:

~~18.24.140 CBC chapter 11A amended--Housing accessibility.~~

~~Chapter 11A of the California Building Code is revised by changing the reference "Section 101.17.9", anywhere it occurs, to Section 18.24.040H & I, and "Section 101.17.11", anywhere it occurs, to Section 18.24.040K.~~

18.24.140 CBC section 1704.1 amended – Special inspections, general.

Section 1704.1 of the 2007 California Building Code is amended to read as follows:

1704.1 General. Where application is made for construction as described in this section, the owner or the registered design professional in responsible charge acting as the owner's agent shall employ one or more special inspectors to provide inspections during construction on the types of work listed under Section 1704. The special inspector shall be a qualified person who shall demonstrate competence, to the satisfaction of the building official, for inspection of the particular type of construction or operation requiring special inspection. These inspections are in addition to the inspections specified in ~~Section 109, Appendix Chapter 1~~ Chapter 18.16 Inspections.

Exceptions:

1. Special inspections are not required for work of a minor nature or as warranted by conditions in the jurisdiction as approved by the building official.
2. Special inspections are not required for building components unless the design involves the practice of professional engineering or architecture as defined by applicable state statutes and regulations governing the professional registration and certification of engineers or architects.

~~*3.Unless otherwise required by the building official, special inspections are not required for occupancies in Group R-3 as applicable in Section 101.2 and occupancies*~~

~~*in Group U that are accessory to a residential occupancy including, but not limited to, those listed in Section 312.1.*~~

~~4.~~3.[HCD 1] The provisions of Health and Safety Code Division 13, Part 6 and the California Code of Regulations, Title 25, Division 1, Chapter 3, commencing with Section 3000, shall apply to the construction and inspection of factory-built housing as defined in Health and Safety Code Section 19971.

COMMENT: Amendment due to local geological and topographic conditions. This section/amendment is consistent with the Los Angeles Regional Uniform Code Program set of amendments adopted by the cities and county of the Los Angeles region.

The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. One of the significant problems discovered from the studies after the Northridge Earthquake was the extent of poor quality in construction, especially for residential wood frame buildings and/or accessories structures. Requiring that special inspectors be provided for work listed under Section 1704 to observe the actual construction will ensure that acceptable standards of workmanship are provided. The proposed modification need to be incorporated into the code to assure that new buildings and additions to existing buildings are designed and constructed in accordance with the scope and objectives of the International Building Code.

Minor editorial changes to reflect the appropriate section reference from “Section 109, Appendix Chapter 1” to “Chapter 18.16 Inspection”.

Section [X]. Section 18.24.145 is added to the Long Beach Municipal Code to read as follows:

18.24.145 CBC section 1704.1.1 amended – Statement of special inspections.

Section 1704.1.1 of the 2007 California Building Code is amended by amending the reference to “Section 106.1, Appendix Chapter 1” to read “Section 18.12.050”.

COMMENT: This amendment is an administrative change to reflect the appropriate reference to the Long Beach Municipal Code for the proper statues regulating the submission of construction documents within the Long Beach jurisdiction.

Section [X]. Delete Section 18.24.150 of the Long Beach Municipal Code and replace with the following:

~~18.24.150 CBC chapter 11A amended--Housing accessibility--Reference.~~

~~Chapter 11A of the California Building Code is revised by changing the reference "Section 101.17.11, Item 4", anywhere it occurs, to Section 18.24.160.~~

18.24.150 CBC section 1704.4 amended – Concrete construction.

Section 1704.4 of the 2007 California Building Code is amended to read as follows:

1704.4 Concrete Construction. The special inspections and verifications for concrete construction shall be as required by this section and Table 1704.4.

Exceptions: Special inspection shall not be required for:

1. Isolated spread concrete footings of buildings three stories or less in height 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).

2. Continuous concrete footings supporting walls of buildings three stories or less in height 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 1805.4.2; 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 1805.5(5).~~Not adopted.

5. Concrete patios, driveways and sidewalks, on grade.

COMMENT: Amendment due to local geological and topographic conditions. This section/amendment is consistent with the Los Angeles Regional Uniform Code Program set of amendments adopted by the cities and county of the Los Angeles region.

The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. Results from studies after the 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. The proposed modification to improve quality control during construction need to be incorporated into the code to assure that new buildings and additions to existing buildings are designed and constructed in accordance with the scope and objectives of the International Building Code.

Section [X]. Delete Section 18.24.160 of the Long Beach Municipal Code and replace with the following:

~~18.24.160 Special conditions for persons with disabilities requiring appeals action ratification.~~

~~Whenever reference is made in this title to this section, the findings and determinations required to be rendered by the building official shall be subject to ratification through an appeals process by the disabled access appeals board.~~

18.24.160 CBC section 1704.8 amended – Connection grade beam.

Section 1704.8 of the 2007 California Building Code is amended to read as follows:

1704.8 Pile foundation and connecting grade beams. Special inspections shall be performed during installation and testing of pile foundations as required by Table 1704.8. The approved soils report, required by Section 1802.2, and the documents prepared by the registered design professional in responsible charge shall be used to determine compliance. Special inspections for connecting grade beams shall be in accordance with Section 1704.4.

COMMENT: Amendment due to local geological conditions. This section/amendment is consistent with the Los Angeles Regional Uniform Code Program set of amendments adopted by the cities and county of the Los Angeles region. The grade beams in the pile or caisson supported foundation system are designed to act like concrete beams and not like footings. Section 1704.4 requires concrete beams to have special inspection, but exempts the footings of buildings three stories or less in height. This amendment clarifies that the grade beams that connect piles or caissons are not exempt even though they are part of the foundation system. They are an essential part of the piles/caissons foundation system and should receive the same level of inspection. This amendment is for clarification purpose only. It does not change the intent of the code provisions.

The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. Studies after the Northridge Earthquake revealed that great confusion exist in the field over what is required by the code in the way of special inspection beyond just piles and caissons. Grade and tie beams are essential components of a pile/caisson foundation system, especially for how such a system responds to earthquake loads. Special inspection is needed to ensure that construction complies with code requirements. The

proposed modification need to be incorporated into the code to assure that new buildings and additions to existing buildings are designed and constructed in accordance with the scope and objectives of the International Building Code.

Section [X]. Delete Section 18.24.170 of the Long Beach Municipal Code and replace with the following:

~~18.24.170 CBC chapter 11B amended Accessibility to public buildings, public accommodations, commercial buildings and publicly funded housing.~~

~~Chapter 11B of the California Building Code is revised by changing the reference "Section 101.17", anywhere it occurs, to Section 18.24.040, and "Section 101.17.11", anywhere it occurs, to Section 18.24.040K.~~

18.24.170 CBC section 1709.1 amended – Structural observations, general.

Section 1709.1 of the 2007 California Building Code is amended to read as follows:

1709.1 General. Where required by the provisions of Section 1709.2 or 1709.3 the owner shall employ ~~a~~ the registered design professional in responsible charge for the structural design, or another registered design professional designated by the registered design professional in responsible charge for the structural design to perform structural observations as defined in Section 1702.

~~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 representative shall coordinate and call a preconstruction meeting between the registered design professional in responsible charge for the structural design, structural observer, contractor, 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'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.

COMMENT: Amendment due to local geological and topographic conditions. This section/amendment is consistent with the Los Angeles Regional Uniform Code

Program set of amendments adopted by the cities and county of the Los Angeles region.

The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. This local amendment expands the California Building Code requirements for structural observation of the construction of certain types of buildings by the registered design professional in responsible charge for the structural design. One of the significant problems discovered from the studies after the Northridge Earthquake was the extent of poor quality in construction, especially for wood frame buildings. By requiring that the registered design professional in responsible charge for the structural design observe the actual construction to ensure acceptable standards of workmanship, the quality will be greatly increased. The proposed modification need to be incorporated into the code to assure that new buildings and additions to existing buildings are designed and constructed in accordance with the scope and objectives of the International Building Code.

Section [X]. Delete Section 18.24.180 of the Long Beach Municipal Code and replace with the following:

~~18.24.180 CBC chapter 11B amended Accessibility to public buildings, public accommodations, commercial buildings and publicly funded housing Reference.~~

~~Chapter 11B of the California Building Code is revised by changing the reference "Section 101.17.11, Item 4", anywhere it occurs, to Section 18.24.160.~~

18.24.180 CBC section 1709.2 amended – Structural observations, exception.

Section 1709.2 of the 2007 California Building Code is amended to read as follows:

1709.2 Structural observations for seismic resistance. Structural observations shall be provided for those structures included in Seismic Design Category D, E or F, as determined in Section 1613, where one or more of the following conditions exist:

1. The structure is classified as Occupancy Category III or IV in accordance with Section 1604.5.

2. The height of the structure is greater than 75 feet (22860 mm) above the base.

3. The structure ~~is assigned to Seismic Design Category E,~~ is classified as Occupancy Category I or II in accordance with Section 1604.5 and ~~is greater than two stories one story in height~~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 2000 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.

4. When so designated by the registered design professional in responsible charge of the design.

5. When such observation is specifically required by the building official.

COMMENT: Amendment due to local geological and topographic conditions. This section/amendment is consistent with the Los Angeles Regional Uniform Code Program set of amendments adopted by the cities and county of the Los Angeles region.

The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. This local amendment expands the California Building Code requirements for structural observation of the construction of certain types of buildings by the registered design professional in responsible charge for the structural design. One of the significant problems discovered from the studies after the Northridge Earthquake was the extent of poor quality in construction, especially for wood frame buildings. By requiring that the registered design professional in responsible charge for the structural design observe the actual construction to ensure acceptable standards of workmanship, the quality will be greatly increased. The proposed modification need to be incorporated into the code to assure that new buildings and additions to existing buildings are designed and constructed in accordance with the scope and objectives of the International Building Code.

Section [X]. Section 18.24.185 is added to the Long Beach Municipal Code to read as follows:

18.24.185 CBC section 1711.1 amended – Alternative test procedure, general.

Section 1711.1 of Chapter 17 of the 2007 California Building Code is amended by amending the reference to “Sections 104.11, Appendix Chapter 1” to read “Section 18.04.090.”

COMMENT: Administrative amendment which adopts the latest edition of the California Building Code and makes minor editorial changes to reflect the appropriate reference to the municipal code for alternative material and design.

Section [X]. Delete Section 18.24.190 of the Long Beach Municipal Code

and replace with the following:

~~18.24.190 New CBC section 1101B.1.1.~~

~~New Section 1101B.1.1 is added to Chapter 11B of the California Building Code as follows:~~

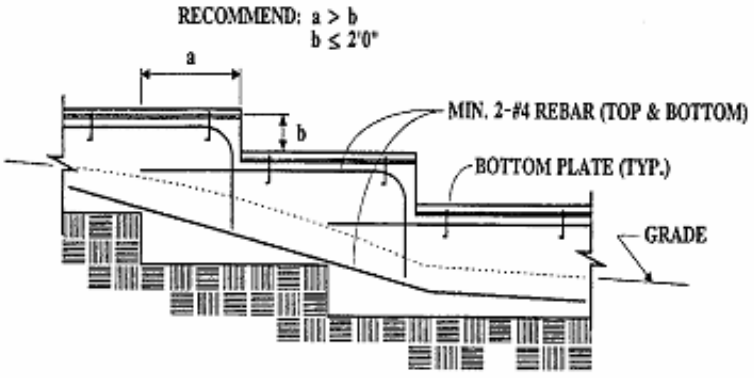
~~To assure that barrier free design is incorporated in all buildings, facilities, site work and other improvements to which these provisions apply, in compliance with state law, to assure that these improvements are accessible to and usable by persons with disabilities. Additions, alterations and structural repairs in all buildings and facilities shall comply with these provisions for new buildings, except as otherwise provided and specified herein.~~

18.24.190 CBC section 1805.1 amended – Footings and foundations, general.

Section 1805.1 of the 2007 California Building Code is amended to read as follows:

1805.1 General. Footings and foundations shall be designed and constructed in accordance with Sections 1805.1 through 1805.9. Footings and foundations shall be built on undisturbed soil, compacted fill material or controlled low-strength material (CLSM). Compacted fill material shall be placed in accordance with Section 1803.5. CLSM shall be placed in accordance with Section 1803.6.

The top surface of footings shall be level. The bottom surface of footings is 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). This 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 place at the top and bottom of the footings as shown in Figure 1805.1.



STEPPED FOUNDATIONS

Figure 1805.1

COMMENT: Amendment due to local geological and topographic conditions. This section/amendment is consistent with the Los Angeles Regional Uniform Code Program set of amendments adopted by the cities and county of the Los Angeles region. After the Northridge Earthquake, it was discovered that footings on sloping lots suffered severe damages and it was important to provide stronger footings in these situations by providing a detail of the stepped footing.

The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. The proposed modification need to be incorporated into the code to assure that new buildings and additions to existing buildings are designed and constructed in accordance with the scope and objectives of the International Building Code.

Section [X]. Delete Section 18.24.200 of the Long Beach Municipal Code and replace with the following:

~~18.24.200 CBC table 15-D-1 amended - Roofing tile application.~~

~~Table 15-D-1 of Chapter 15 of the California Building Code is amended to read as follows:~~

18.24.200 CBC table 1805.4.2 amended – Footings supporting walls of light-framed construction.

Table 1805.4.2 of the 2007 California Building Code is amended to read as follows:

TABLE 1805.4.2
FOOTINGS SUPPORTING WALLS OF LIGHT-FRAMED CONSTRUCTION [a, b, c, d, e]

NUMBER OF FLOORS SUPPORTED BY THE FOOTING[f]	WIDTH OF FOOTING (inches)	THICKNESS OF FOOTING (inches)
1	12	6
2	15	6
3	18	8~~g~~

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

a. Depth of footings shall be in accordance with Section 91.1805.2
b. The ground under the floor is permitted to be excavated to the elevation of the top of the footing.
c. ~~Interior stud-bearing walls are permitted to be supported by isolated footings. The footing width and length shall be twice the width shown in this table, can footings shall be spaced not more than 6 feet on center.~~ *Not adopted.*
d. See Section 1908 for additional requirements for footings of structures assigned to Seismic Design Category C, D, E or F.
e. For thickness of foundation walls, see Section 91.1805.5
f. Footings are permitted to support a roof in 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 are permitted to be 6 inches thick.~~

COMMENT: Amendment due to local geological and topographic conditions. This section/amendment is consistent with the Los Angeles Regional Uniform Code Program set of amendments adopted by the cities and county of the Los Angeles region. Footnote c regarding interior stud bearing walls that are not continuous was not adopted. The Long Beach region has varying geologic and topographic conditions that make it difficult to ensure uniformity in soil conditions over time. Additionally, due to the

extremely high seismic nature in the region, structures perform better when continuous footings are provided for all bearing walls.

The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. The proposed modification need to be incorporated into the code to assure that new buildings and additions to existing buildings are designed and constructed in accordance with the scope and objectives of the International Building Code.

Section [X]. Section 18.24.201 is added to the Long Beach Municipal Code to read as follows:

18.24.201 CBC section 1805.4.5 amended – Timber footings.

Delete Section 1805.4.5 of the 2007 California Building code and replace with the following:

1805.4.5 Timber footings. Not adopted.

COMMENT: Amendment due to local geological and climatic conditions. This section/amendment is consistent with the Los Angeles Regional Uniform Code Program set of amendments adopted by the cities and county of the Los Angeles region. Wood foundations without proper protection have proven to be ineffective in supporting structures and buildings due to deterioration caused by presence of water in the soil as well as other material detrimental to wood foundations. Most contractors are typically accustomed to construction in dry weather in the Southern California region and are not generally familiar with the necessary precautions and treatment of wood that makes it suitable for wet applications.

The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. This region is especially susceptible to more active termite activity and wood attacking insects and microorganisms. The proposed modification to prohibit the use of wood for foundation support need to be incorporated into the code to assure that new buildings and additions to existing buildings are designed and constructed in accordance with the scope and objectives of the International Building Code.

Section [X]. Section 18.24.202 is added to the Long Beach Municipal Code to read as follows:

18.24.202 CBC section 1805.4.6 amended – Wood foundations.

Delete Section 1805.4.6 of the 2007 California Building code and replace with the following:

1805.4.6 Wood foundations. Not adopted.

COMMENT: Amendment due to local geological and climatic conditions. This section/amendment is consistent with the Los Angeles Regional Uniform Code Program set of amendments adopted by the cities and county of the Los Angeles region. Wood foundations without proper protection have proven to be ineffective in supporting structures and buildings due to deterioration caused by presence of water in the soil as well as other material detrimental to wood foundations. Most contractors are typically accustomed to construction in dry weather in the Southern California region and are not generally familiar with the necessary precautions and treatment of wood that makes it suitable for wet applications.

The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. This region is especially susceptible to more active termite activity and wood attacking insects and microorganisms. The proposed modification to prohibit the use of wood for foundation support need to be incorporated into the code to assure that new buildings and additions to existing buildings are designed and constructed in accordance with the scope and objectives of the International Building Code.

Section [X]. Delete Section 18.24.210 of the Long Beach Municipal Code and replace with the following:

~~18.24.210 CBC table 15-D-2 amended--Interlocking roof tile application.~~

~~Table 15-D-2 of Chapter 15 of the California Building Code is amended to read as follows:~~

18.24.210 CBC section 1805.5 amended – Foundation walls.

Delete Section 1805.5 of the 2007 California Building code and replace with the following:

1805.5 Foundation walls. Concrete and masonry foundation walls shall be designed in accordance with Chapter 19 or 21.

COMMENT: Amendment due to local geological and topographic conditions. This section/amendment is consistent with the Los Angeles Regional Uniform Code Program set of amendments adopted by the cities and county of the Los Angeles region. With the higher seismic demand placed on buildings and structures in this region, coupled with the geologic and topographic conditions here as oppose to the

northern and eastern part of the country, it is deemed necessary to take precautionary steps to reduce or eliminate potential problems that may result by following prescriptive design provision that does not take into consideration the surround environment. It was important that the benefit and expertise of a registered design professional be obtained to properly analysis the structure and takes these issues into consideration.

The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. The proposed modification to limit prescriptive design provisions that does not take into consideration the surround environment need to be incorporated into the code to assure that new buildings and additions to existing buildings are designed and constructed in accordance with the scope and objectives of the International Building Code.

Section [X]. Delete Section 18.24.220 of the Long Beach Municipal Code and replace with the following:

~~18.24.220 CBC section 1612.2.1 amended - Basic load combinations.~~

~~Section 1612.2.1 of Chapter 16 of the California Building Code is amended to read as follows:~~

~~1612.2.1 Basic load combinations. Where Load and Resistance Factor Design (Strength Design) is used, structures and all portions thereof shall resist the most critical effects from the following combinations of factored loads:~~

~~1.4D (12-1)~~
~~1.2D + 1.6L + 0.5 (Lr or S) (12-2)~~
~~1.2D + 1.6 (Lr or S) + (f1 L or 0.8 W) (12-3)~~
~~1.2D + 1.3W + (f1 L + 0.5 (Lr or S) (12-4)~~
~~1.2D + 1.0E + (f1 L + f2 S) (12-5)~~
~~0.9D ± (1.0E or 1.3W) (12-6)~~
~~0.9D ± (1.0ρEh or 1.3W) (12-6)~~

~~WHERE:~~
~~E = load effects of earthquake, or related internal moments and forces.~~
~~E_h = the earthquake load due to the base shear, V, as set forth in Section 1630.2 or the design lateral force, Fp, as set forth in Section 1632.~~
~~f_1 = 1.0 for floors in places of public assembly, for live loads in excess of 100 psf (4.9 kN/m2), and for garage live load.~~
~~= 0.5 for other live loads.~~
~~f_2 = 0.7 for roof configurations (such as saw tooth) that do not shed snow off the structure.~~
~~= 0.2 for other roof configurations.~~

~~EXCEPTIONS: 1. Factored load combinations for concrete per Section 1909.2~~

~~where load combinations do not include seismic forces.~~

~~2. Factored load combinations of this section multiplied by 1.1 for concrete and masonry where load combinations include seismic forces.~~

~~3. Where other factored load combinations are specifically required by the provisions of this code.~~

18.24.220 CBC section 1908.1 amended – Modification to ACI 318.

Section 1908.1 of the 2007 California Building Code is amended to read as follows:

1908.1 General. The text of ACI 318 shall be modified as indicated in Sections 1908.1.1 through ~~1908.1.16~~1908.1.21.

1908.1.15 ACI 318, Section 22.10. Delete ACI 318, Section 22.10, and replace with the following:

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

22.10.1 – 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 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 7½ 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 22.6.6.5.~~ Concrete used for fill with a minimum cement content of two (2) sacks of Portland cement 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 detached one- and two-family dwellings three stories or less in height and constructed with stud-bearing walls, plain concrete footings ~~without longitudinal reinforcement supporting walls are permitted~~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.~~

1908.1.17 ACI 318, Section 14.8. Modify ACI 318 Section 14.8.3 and 14.8.4 replacing equation (14-7), (14-8) and (14-9).

1. Modify equation (14-7) of ACI 318 Section 14.8.3 as follows:

   I_{cr} shall be calculated by Equation (14-7), and M_a shall be obtained by iteration of deflections.

$$I_{cr} = \frac{E_s}{E_c}\left(A_s + \frac{P_u}{f_y}\frac{h}{2d}\right)(d-c)^2 + \frac{l_w c^3}{3} \qquad (14\text{-}7)$$

   and the value E_s/E_c shall not be taken less than 6.

2. Modify ACI 318 Sec, 14.8.4 as follows:

   14.8.4 – Maximum out-of-plane deflection, Δ_s, due to service loads, including PΔ effects, shall not exceed $l_c/150$.

   If M_a, maximum moment at mid-height of wall due to service lateral and eccentric loads, including PΔ effects, exceed $(^2/_3)\,M_{cr}$, Δ_s shall be calculated by Equation (14-8):

$$\Delta_s = \frac{2}{3}\Delta_{cr} + \frac{M_a - \frac{2}{3}M_{cr}}{M_n - \frac{2}{3}M_{cr}}\left(\Delta_n - \frac{2}{3}\Delta_{cr}\right) \qquad (14\text{-}8)$$

   If M_a does not exceed $(^2/_3)\,M_{cr}$, Δ_s shall be calculated by Equation (14-9):

$$\Delta_s = \left(\frac{M_a}{M_{cr}}\right)\Delta_{cr} \qquad (14\text{-}9)$$

where:

$$\Delta_{cr} = \frac{5 M_{cr} l_c^2}{48 E_c I_g}$$

$$\Delta_n = \frac{5 M_n l_c^2}{48 E_c I_{cr}}$$

1908.1.18 ACI 318, Section 21.4.4.1. Modify ACI 318 Section 21.4.4.1 as follows:

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 21.4.4.1, Items (a) through (c), over the full height of the member.

1908.1.19 ACI 318, Section 21.4.4. Modify ACI 318 by adding Section 21.4.4.7 as follows:

21.4.4.7 – At any section where the design strength, φP_n, of the column is less than the sum of the shears V_e computed in accordance with ACI 318 Sections 21.3.4.1 and 21.4.5.1 for all the beams framing into the column above the level under consideration, transverse reinforcement as specified in ACI 318 Sections 21.4.4.1 through 21.4.4.3 shall be provided. For beams framing into opposite sides of the column, the moment components may be assumed to be of opposite sign. For the determination of the design strength, φP_n, of the column, these moments may be assumed to result from the deformation of the frame in any one principal axis.

1908.1.20 ACI 318, Section 21.7.4. Modify ACI 318 by adding Section 21.7.4.6 as follows:

21.7.4.6 – Walls and portions of walls with $P_u > 0.35P_o$ shall not be considered to contribute to the calculated strength of the structure for resisting earthquake-induced forces. Such walls shall conform to the requirements of Section 1631.2, Item 4 ACI 318 Section 21.11.

1908.1.21 ACI 318, Section 21.9.4. Modify ACI 318 section 21.9.4 by adding the following:

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 thick, where d_b is the diameter of the largest reinforcement in the topping slab.

COMMENT: Amendment due to local geological conditions. This section/amendment is consistent with the Los Angeles Regional Uniform Code Program set of amendments adopted by the cities and county of the Los Angeles region.

This local amendment carries forward the previous 1999 and 2002 LARUCP amendment to require minimum reinforcement in continuous footings, thereby addressing 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 Task Force that investigated the poor performance observed in 1994 Northridge Earthquake.

Section 14.8 was introduced in ACI 318-99 based on requirements of the Uniform Building Code and experimental research and on the basis that design of slender wall must satisfy both strength and serviceability requirements. ACI 318-05 provision was found to grossly under-estimate service load deflection. This update reduces the differences in serviceability provisions. The revision will essentially replace equations (14-8) and (14-9) with two new equations to reflect the UBC procedure for service load out-of-pane deflection. The proposed revision will be included in ACI 318-08.

This amendment is intended to carry over critical provisions for the design of concrete columns in moment frames from the UBC. Increased confinement is critical to the integrity of such columns and these modifications ensure that is provided for when certain thresholds are exceeded.

In addition, this amendment carries over from the UBC a critical provision for the design of concrete shear walls. It essentially limits the use of very highly gravity-loaded walls 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 Northridge earthquake. Rebar placed in a very thin concrete topping slab in some instances popped out of the slab due to insufficient concrete coverage. The modification ensures that critical boundary and collector rebars are placed in sufficiently thick slab to prevent buckling of such reinforcement.

The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. The proposed modification need to be incorporated into the code to assure that new buildings and additions to existing buildings are designed and constructed in accordance with the scope and objectives of the International Building Code.

Section [X]. Delete Section 18.24.230 of the Long Beach Municipal Code and replace with the following:

~~18.24.230 CBC section 1629.4.2 amended - Seismic zone 4 near source factor.~~

~~Section 1629.4.2 of Chapter 16 of the California Building Code is amended to read as follows:~~

~~Section 1629.4.2. Seismic Zone 4 near-source factor. In Seismic Zone 4, each site shall be assigned a near-source factor in accordance with Table 16-S and the Seismic Source Type set forth in Table 16-U. The value of Na used in determine Ca need not exceed 1.1 for structures complying with all the following conditions:~~

~~1. The soil profile type is S_A, S_B, S_C or S_D.~~
~~2. $\rho = 1.0$.~~
~~3. Except in single-story structures, Group R, Division 3 and Group U, Division 1 Occupancies, moment frame systems designated as part of the lateral-force-resisting system shall be special moment-resisting frames.~~
~~4. The provisions in Sections 9.6a and 9.6b of AISC -- Seismic Part I shall not apply, except for columns in one-story buildings or columns at the top story of multistory buildings.~~
~~5. None of the following structural irregularities is present: Type 1, 4 or 5 of Table 16-L, and Type 1 or 4 of Table 16-M.~~

18.24.230 New CBC section 2205.4 – Modifications to AISC 341.

Section 2205.4 is added to Chapter 22 of the 2007 California Building Code to read as follows:

2205.4 Modifications to AISC 341.

2205.4.1 Part I, Structural Steel Building Provisions Modifications.

2205.4.1.1 Part I, Section 13, Special Concentrically Braced Frames (SCBF) Modifications.

2205.4.1.1.1 AISC 341, Part I, 13, Members. Add a new section as follows:

AISC 341, 13.2f – Member Types
The use of rectangular HSS are not permitted for bracing members, unless filled solid with cement grout having a minimum compressive strength of 3000 psi (20.7 MPa) at 28 days. The effects of composite action in the filled composite brace shall be considered in the sectional properties of the system where it results in the more severe loading condition or detailing.

COMMENT: Amendment due to local geological conditions. This section/amendment is consistent with the Los Angeles Regional Uniform Code Program set of amendments adopted by the cities and county of the Los Angeles region. Recent test results on braces used in steel concentrically braced frames (SCBF) indicate that many commonly used sections and brace configurations do not meet seismic performance expectations. Specific parameters that were shown to affect the ductility of braces included net-section, section type, width-thickness ratio of the cross section and member slenderness. Square and rectangular cross-section HSS were shown to be particularly susceptible to fracture due to local buckling behavior of the cross section and, therefore, are not recommended by SEAOSC Seismology and Steel Committee for special concentric braced frame applications. Grout-filled HSS members exhibit more favorable local buckling characteristics, significantly altering the post-yield behavior of these sections. Both SEAOSC Seismology and Steel Committee recommend the proposed modification. Furthermore, OSPHD and DSA-SS has taken the same position and added Section 2205A.4.1.5.1 to Chapter 22 of the 2007 California Building Code to reflect this recommendation.

The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. Recent test studies regarding rectangular and square brace frame members need to be incorporated into the code to assure that new buildings and additions to existing buildings are designed and constructed in accordance with the scope and objectives of the International Building Code.

Section [X]. Delete Section 18.24.240 of the Long Beach Municipal Code and replace with the following:

~~18.24.240 CBC section 1630.8.2.2 amended--Detailing requirements in seismic zones 3 and 4.~~

~~Section 1630.8.2.2 of Chapter 16 of the California Building Code is amended to read as follows:~~

~~1630.8.2.2 Detailing requirements in Seismic Zones 3 and 4. In Seismic Zones 3 and 4, elements supporting discontinuous systems shall meet the following detailing or member limitations:~~

~~1. Reinforced concrete or reinforced masonry elements designed primarily as axial-load members shall comply with Section 1921.4.4.5.~~

~~2. Reinforced concrete elements designed primarily as flexural members and supporting other than light-frame wood shear wall systems or light-frame steel and wood structural panel shear wall systems shall comply with Sections 1921.3.2 and 1921.3.3. Strength computations for portions of slabs designed as supporting elements shall include only those portions of the slab that comply with the requirements of these sections.~~

~~3. Masonry elements designed primarily as axial load carrying members shall~~

~~comply with Sections 2106.1.12.4, Item 1, and 2108.2.6.2.6.~~

~~4. Masonry elements designed primarily as flexural members shall comply with Section 2108.2.6.2.5.~~

~~5. Not Adopted.~~

~~6. Steel elements designed primarily as flexural members or trusses shall have bracing for both top and bottom beam flanges or chords at the location of the support of the discontinuous system and shall comply with the requirements of AISC Seismic Part I, Section 9.4b.~~

~~7. Wood elements designed primarily as flexural members shall be provided with lateral bracing or solid blocking at each end of the element and at the connection location(s) of the discontinuous system.~~

18.24.240 CBC section 2305.2.5 amended – Rigid diaphragms.

Section 2305.2.5 of the 2007 California Building Code is amended to read as follows:

2305.2.5 Rigid Diaphragms. Design of structures with rigid diaphragms shall conform to the structure configuration requirements of Section 12.3.2 of ASCE 7 and the horizontal shear distribution requirements of Section 12.8.4 of ASCE 7.

Wood structural panel diaphragms shall not be considered as transmitting lateral forces by rotation.

~~Open-front structures with rigid wood diaphragms resulting in torsional force distribution are permitted, provided the length, l, of the diaphragm normal to the open side does not exceed 25 feet (7620 mm), the diaphragm sheathing conforms to Section 2305.2.4 and the l/w ratio [as shown in Figure 2305.2.5(1)] is less than 1 for one-story structures or 0.67 for structures over one story in height.~~

~~Exception: Where calculations show that diaphragm deflections can be tolerated, the length, l, normal to the open end is permitted to be increased to a l/w ratio not greater than 1.5 where sheathed in compliance with Section 2305.2.4 or to 1 where sheathed in compliance with Section 2306.3.4 or 2306.3.5.~~

Rigid wood diaphragms are permitted to cantilever past the outermost supporting shear wall (or other vertical resisting element) a length, l, of not more than 25 feet (7620 mm) or two-thirds of the diaphragm width, w, whichever is smaller. Figure 2305.2.5(2) illustrates the dimensions of l and w for a cantilevered diaphragm.

~~Structures with rigid wood diaphragms having a torsional irregularity in accordance with Table 12.3-1, Item 1, of ASCE 7 shall meet the following requirements: the l/w ratio shall not exceed 1 for one-story structures or 0.67 for structures over one story in height, where l is the dimension parallel to the load direction for which the irregularity exists.~~

~~Exception: Where calculations demonstrate that the diaphragm deflections can be tolerated, the width is permitted to be increased and the l/w ratio is permitted to be~~

~~increased to 1.5 where sheathed in compliance with Section 2305.2.4 or 1 where sheathed in compliance with Section 2306.3.4 or 2306.3.5.~~

COMMENT: Amendment due to local geological conditions. This section/amendment is consistent with the Los Angeles Regional Uniform Code Program set of amendments adopted by the cities and county of the Los Angeles region. The proposed amendment continues the application of previous existing amendment by prohibiting the use of wood diaphragms in rotation based on numerous failures observed in the 1994 Northridge Earthquake.

The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. The proposed modification to place limits on design of buildings based on rotation of wood diaphragm, which will reduce potential soft-story designs and excessive deflections in buildings, need to be incorporated into the code to assure that new buildings and additions to existing buildings are designed and constructed in accordance with the scope and objectives of the International Building Code.

Section [X]. Delete Section 18.24.250 of the Long Beach Municipal Code and replace with the following:

~~18.24.250 CBC section 1630.10.2 amended--Calculated.~~

~~Section 1630.10.2 of Chapter 16 of the California Building Code is to amended read as follows:~~

~~1630.10.2 Calculated. Calculated story drift using ΔM shall not exceed 0.025 times the story height for structures having a fundamental period of less than 0.5 second. For structures having a fundamental period of 0.5 second or greater, the calculated story drift shall not exceed 0.020/T 1/3 times the story height.~~

~~EXCEPTIONS:~~

~~1. These drift limits may be exceeded when it is demonstrated that greater drift can be tolerated by both structural elements and nonstructural elements that could affect life safety. The drift used in this assessment shall be based upon the Maximum Inelastic Response Displacement, ΔM.~~

~~2. There shall be no drift limit in single-story steel-framed structures classified as Groups B, F and S Occupancies or Group H, Division 4 or 5 Occupancies. In Groups B, F and S Occupancies, the primary use shall be limited to storage, factories or workshops. Minor accessory uses shall be allowed in accordance with the provisions of Section 302. Structures on which this exception is used shall not have equipment attached to the structural frame or shall have such equipment detailed to accommodate the additional drift. Walls that are laterally supported by the steel frame shall~~

~~be designed to accommodate the drift in accordance with Section 1633.2.4~~

18.24.250 New CBC section 2305.3.7.1 – Hold-down connectors.

Section 2305.3.7.1 is added to Chapter 23 of the 2007 California Building Code to read as follows:

2305.3.7.1 Hold-down connectors. Hold-down connectors shall be designed to resist shear wall overturning moments using approved cyclic load values or 75 percent of the allowable earthquake load values that do not consider cyclic loading of the product. Connector bolts into wood framing 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-downs shall be re-tightened just prior to covering the wall framing.

COMMENT: Amendment due to local geological conditions. This section/amendment is consistent with the Los Angeles Regional Uniform Code Program set of amendments adopted by the cities and county of the Los Angeles region. This was previous section 18.24.420. Many of the hold-down devices currently used still does not have any acceptance report based on dynamic testing protocol. The amendment continues limiting the allowable capacity to 75% of the evaluation report to provide additional factor of safety for statically tested anchorage devices. Since the IBC now specify the minimum size of steel plate washer, this proposed amendment, for purpose of consistency and uniformity of requirement, revised the size of the steel plate washer used in hold-down connectors to match that in IBC Section 2305.3.11 from the previous 1999 and 2002 LARUCP amendments.

The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. The proposed modification to establish certain performance requirements for hold-down connectors, which is essential to preventing failure of a shear wall due to excessive deflection, need to be incorporated into the code to assure that new buildings and additions to existing buildings are designed and constructed in accordance with the scope and objectives of the International Building Code.

Section [X]. Delete Section 18.24.260 of the Long Beach Municipal Code and replace with the following:

~~18.24.260 CBC section 1633.2.9 amended - Diaphragms.~~

~~Section 1633.2.9 of Chapter 16 of the California Building Code is amended to read as follows:~~

~~1633.2.9 Diaphragms.~~

1. The deflection in the plane of the diaphragm shall not exceed the permissible deflection of the attached elements. Permissible deflection shall be that deflection which will permit the attached element to maintain its structural integrity under the individual loading and continue to support the prescribed loads.

2. Floor and roof diaphragms shall be designed to resist the forces determined in accordance with the following formula:

(33-1)

The force F_{px} determined from Formula (33-1) need not exceed 1.0 $Calw_{px}$ but shall not be less than 0.5 $Calw_{px}$.

When the diaphragm is required to transfer lateral forces from the vertical resisting elements above the diaphragm to other vertical resisting elements below the diaphragm due to offset in the placement of the elements or to changes in stiffness in the vertical elements, these forces shall be added to those determined from Formula (33-1).

3. Design seismic forces for flexible diaphragms, and their connections providing lateral supports for walls or frames of masonry or concrete, shall be calculated using an R not to exceed 4.

4. Diaphragms supporting concrete or masonry walls shall have continuous ties or struts between diaphragm chords to distribute the anchorage forces specified in Section 1633.2.8. The spacing of continuous ties shall not exceed 25 feet (7620 mm). Added chords of subdiaphragms may be used to form subdiaphragms to transmit the anchorage forces to the main continuous crossties. The maximum allowable diaphragm shear used to determine the depth of the subdiaphragm shall not exceed 300 pounds per foot (.38 kN/m). The maximum length-to-width ratio of the wood structural subdiaphragm shall be 2-1/2:1.

5. Where wood diaphragms are used to laterally support concrete or masonry walls, the anchorage shall conform to Section 1633.2.8. In Seismic Zones 2, 3 and 4, 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, and the continuous ties required by Item C above shall be in addition to the diaphragm sheathing.

6. Connections of diaphragms to the vertical elements and to collectors and connections of collectors to the vertical elements in structures in Seismic Zones 3 and 4, having a plan irregularity of Type 1, 2, 3 or 4 in Table 16-M, shall be designed without considering one-third increase usually permitted in allowable stresses for elements resisting earthquake forces.

7. In structures in Seismic Zones 3 and 4 having a plan irregularity of Type 2 in Table 16-M, diaphragm chords and drag members shall be designed considering independent movement of the projecting wings of the structure. Each of these diaphragm elements shall be designed for the more severe of the following two assumptions:

Motion of the projecting wings in the same direction.

Motion of the projecting wings in opposing directions.

EXCEPTION: This requirement may be deemed satisfied if the procedures of Section 1631 in conjunction with a three-dimensional model have been used to

~~determine the lateral seismic forces for design.~~

~~When designing the diaphragm to comply with the requirements stated above, the return walls and fins/canopies at entrances shall be considered. Seismic compatibility with the diaphragm shall be provided by either seismically isolating the element or by attaching the element and integrating its loads into the diaphragm.~~

18.24.260 New CBC section 2305.3.12 – Quality of nails.

Section 2305.3.12 is added to Chapter 23 of the 2007 California Building Code to read as follows:

2305.3.12 Quality of Nails. 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. No clipped head or box nails 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.

COMMENT: Amendment due to local geological conditions. This section/amendment is consistent with the Los Angeles Regional Uniform Code Program set of amendments adopted by the cities and county of the Los Angeles region. This amendment was previously Section 18.24.490. In addition, this amendment continues the application of an existing LARUCP 23-7 amendment.

The word “tolerances” is too broad a term. It is to be replaced with “dimensions”, including diameter, minimum length and minimum head diameter. The overdriving of nails into the structural wood panel still remains a concern when pneumatic nail guns are used for shear wall nailing. Box nails were observed to cause massive and multiple failures of the typical 3/8-inch thick plywood during the Northridge Earthquake.

The use of clipped head nails continues to be restricted from being used in shear wall panels 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 shear wall construction were found to perform much less in previous wood shear wall panel testing done at UCI. The existing test results indicated that, under cyclic loading, the shear panels 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.

The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. The proposed modification to require mechanically driven nails to have the same dimension as hand driven nail resulting in improve quality of construction and performance of shear wall panels need to be incorporated into the code to assure that new buildings and additions to existing buildings are designed and constructed in

accordance with the scope and objectives of the International Building Code.

Section [X]. Delete Section 18.24.270 of the Long Beach Municipal Code and replace with the following:

~~18.24.270 CBC table 16-N amended - Structural systems.~~

~~Table 16-N in Chapter 16 of the California Building Code is amended to read as follows:~~

~~TABLE 16-N – STRUCTURAL SYSTEMS [1]~~

~~BASIC STRUCTURAL SYSTEM [2]~~	~~LATERAL-FORCE-RESISTING SYSTEM DESCRIPTION~~	~~R~~	~~Ω~~	~~HEIGHT~~
				~~x 304.8 for~~

1. Bearing wall system	1. Light-framed walls with shear panels			
	a. Wood structural panel walls for structures three stories or less	5.5	2.8	65
	b. All other light-framed walls	4.5	2.8	65
	2. Shear walls			
	a. Concrete	4.5	2.8	160
	b. Masonry	4.5	2.8	160
	3. Light steel-framed bearing walls with tension-only bracing	2.8	2.2	65
	4. Braced frames where bracing carries gravity load			
	a. Steel	4.4	2.2	160
	b. Concrete[3]	2.8	2.2	-
	c. Heavy timber	2.8	2.2	65
2. Building frame system	1. Steel eccentrically braced frame (EBF)	7.0	2.8	240
	2. Light-framed walls with shear panels.			
	a. Wood structural panel walls for structures three stories or less	6.5	2.8	65
	b. All other light-framed walls	5.0	2.8	65
	3. Shear walls			
	a. Concrete	5.5	2.8	240
	b. Masonry	5.5	2.8	160
	4. Ordinary braced frames			
	a. Steel[6]	5	2	35[6]
	b. Concrete[3]	5.6	2.2	-
	c. Heavy timber	5.6	2.2	65
	5. Special concentrically braced frames			
	a. Steel	6.4	2.2	240
3. Moment-resisting frame system	1. Special moment-resisting frame (SMRF)			
	a. Steel	8.5	2.8	N.L.
	b. Concrete[4]	8.5	2.8	N.L.
	2. Masonry moment-resisting wall frame (MMRWF)	6.5	2.8	160
	3. Intermediate moment-resisting frame (IMRF)[5]			
	a. Steel[6]	4.5	2.8	35[6]
	b. Concrete[5]	5.5	2.8	-
	4. Ordinary moment-resisting frame (OMRF)			
	a. Steel[6]	3.5	2.8	[6]
	b. Concrete[7,8]	3.5	2.8	-
	5. Special truss moment frames of steel (STMF)	6.5	2.8	240
4. Dual systems	1. Shear walls			
	a. Concrete with SMRF	8.5	2.8	N.L.
	b. Concrete with steel OMRF (Not Permitted)	4.2	2.8	160
	c. Concrete with concrete IMRF[5]	6.5	2.8	160
	d. Masonry with SMRF	5.5	2.8	160
	e. Masonry with steel OMRF (Not Permitted)	4.2	2.8	160
	f. Masonry with concrete IMRF[3]	4.2	2.8	-
	g. Masonry with masonry MMRWF	6.0	2.8	160
	2. Steel EBF			
	a. With steel SMRF	8.5	2.8	N.L.
	b. With steel OMRF (Not Permitted)	4.2	2.8	160
	3. Ordinary braced frames (Not Permitted)			
	a. Steel with steel SMRF	6.5	2.8	N.L.
	b. Steel with steel OMRF	4.2	2.8	160
	c. Concrete with concrete SMRF[3]	6.5	2.8	-
	d. Concrete with concrete IMRF[3]	4.2	2.8	-
	4. Special concentrically braced frames			
	a. Steel with steel SMRF	7.5	2.8	N.L.
	b. Steel with steel OMRF (Not Permitted)	4.2	2.8	160
	5. Steel IMRF (Not permitted)			
5. Cantilevered column building systems	1. Cantilevered column elements	2.2	2.0	35[7]
6. Shear wall-frame interaction systems	1. Concrete[8]	5.5	2.8	160
7. Undefined systems	See Section 1629.6.7 and 1629.9.2	-	-	-

N.L.= no limit

[1] See Section 1630.4 for combination of structural systems.
[2] Basic structural systems are defined in Section 1629.6.
[3] Prohibited in Seismic Zones 3 and 4.
[4] Includes precast concrete conforming to Section 1921.2.7.
[5] Prohibited in Seismic Zones 3 and 4, except as permitted in Section 1634.2.
[6] In Seismic Zone 4 **steel IMRF, OMRF and Ordinary Braced Frames** are permitted as follows:
[a] **Steel IMRF** are permitted for buildings 35 feet or less in height and the dead load of the roof, walls or floors not exceeding 35 psf each; or for single-story buildings 60 feet or less in height with the dead load of the roof not exceeding 15 psf each and where the moment joints of field connections are constructed of bolted end plates.
[b] **Steel OMRF** are permitted for buildings 35 ft or less in height with the dead load of the roof, walls or floors not exceeding 15 psf each; or single-story buildings 60 ft or less in height with the dead load of the roof or walls not exceeding 15 psf each and where the moment joints of field connections are constructed of bolted end plates; or single-family dwellings using light frame construction with $R = 3.0$ and $\Omega_o = 2.2$.
[e] **Steel Ordinary Braced Frames** are permitted for structural systems 35 ft or less in height; or penthouse structures; or single-story buildings 60 ft or less in height with the dead load of the roof or walls not exceeding 15 psf each.
[7] Total height of the building including cantilevered columns.
[8] Prohibited in Seismic Zones 2A, 2B, 3 and 4. See Section 1633.2.7.

18.24.270 CBC section 2306.3.1 amended – Wood structural panel diaphragms.

Sections 2306.3.1 of the 2007 California Building Code are amended to read as follows:

2306.3.1 Wood structural panel diaphragms. Wood structural panel diaphragms are permitted to resist horizontal forces using the allowable shear capacities set forth in Table 2306.3.1 or 2306.3.2. The allowable shear capacities are permitted to be calculated by principles of mechanics without limitations by using values for fastener strength in the AF&PA NDS, structural design properties for wood structural panels based on DOC PS-1 and DOC PS-2 or wood structural panel design properties given in the APA Panel Design Specification (PDS).

Wood structural panel diaphragms using staples as fasteners shall not be permitted for structures assigned to Seismic Design Category D, E, or F.

Exception: Staples may be used for wood structural panel diaphragm when the allowable shear values are substantiated by cyclic testing and approved by the building official.

COMMENT: Amendment due to local geological conditions. This section/amendment is consistent with the Los Angeles Regional Uniform Code Program set of amendments adopted by the cities and county of the Los Angeles region. This amendment was previously section 18.24.440.

This local amendment puts additional restrictions on the design of wood structural panel diaphragms. The amendment continues the application of the previous 1999 and 2002 LARUCP 23-3 amendment by allowing shear value capacities based on testing only and not calculations alone. By deleting the words that allow calculation of shear wall values, it will no longer be possible to circumvent the reductions in allowable shear capacities established in the Table.

In September 2007, limited cyclic testing data was provided to the ICC Structural Code Committee showing that stapled wood structural shear panels do not exhibit the

same behavior as the nailed wood structural shear panels. As a matter of fact, the test results of the stapled wood structural shear panels appeared much lower in strength and drift than the nailed wood structural shear panel test results. Therefore, the use of staples as fasteners for structural shear wall panels or diaphragms shall not be permitted without being substantiated by cyclic testing.

The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. The proposed modification to place certain design and construction limits on structural wood panel diaphragms thus resulting in improved quality of construction and performance of structures need to be incorporated into the code to assure that new buildings and additions to existing buildings are designed and constructed in accordance with the scope and objectives of the International Building Code.

Section [X]. Section 18.24.275 is added to the Long Beach Municipal Code to read as follows:

18.24.275 New CBC Table 2306.3.1 and Table 2306.3.2 – Allowable shear for wood structural panel diaphragms.

Delete Table 2306.3.1 and Table 2306.3.2 of the 2007 California Building Code and replace with the following:

TABLE 2306.3.1
ALLOWABLE SHEAR (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL DIAPHRAGMS WITH FRAMING OF DOUGLAS FIR-LARCH OR SOUTHERN PINE[a] FOR WIND OR SEISMIC LOADING[h]

PANEL GRADE	COMMON NAIL SIZE	MINIMUM FASTENER PENETRATION IN FRAMING (inches)	MINIMUM NOMINAL PANEL THICKNESS (inch)	MINIMUM NOMINAL WIDTH OF FRAMING MEMBERS AT ADJOINING PANEL EDGES AND BOUNDARIES [g] (inches)	BLOCKED DIAPHRAGMS				UNBLOCKED DIAPHRAGMS	
					Fastener spacing (inches) at diaphragm boundaries (all cases) at continuous panel edges parallel to load (Cases 3,4), and at all panel edges (Cases 5, 6)[b]				Fastener spaced 6" max. at supported edges[b]	
					6	4	2 ½ [c]	2[c]		
					Fastener spacing (inches) at other panel edges (Cases 1,2,3 and 4)[b]					
					6	6	4	3	Case 1 (No unblocked edges or continuous joints parallel to load)	All other configurations (Cases 2, 3, 4, 5 and 6)
Structural I Grades	6d[e] (2" x 0.113")	1-1/4	5/16	2	185	250	375	420	165	125
				3	210	280	420	475	185	140
	8d (2 ½" x 0.131")	1-3/8	3/8	2	270	360	530	600	240	180
				3	300	400	600	675	265	200
	10d[d] (3" x 0.148")	1-1/2	15/32	2	320	425	640	730	285	215
				3	360	480	720	820	320	240
Sheathing, single floor and other grades covered in DOC PS1 and PS2	6d[e] (2" x 0.113")	1-1/4	5/16	2	170	225	335	380	150	110
				3	190	250	380	430	170	125
	6d[e] (2" x 0.113")	1-1/4	3/8	2	185	250	375	420	165	125
				3	210	280	420	475	185	140
	8d (2 ½" x 0.131")	1 3/8		2	240	320	480	545	215	160
				3	270	360	540	610	240	180
	8d (2 ½" x 0.131")	1 3/8	7/16	2	255	340	505	575	230	170
				3	285	380	570	645	255	190
	8d (2 ½" x 0.131")	1 3/8	15/32	2	270	360	530	600	240	180
				3	300	400	600	675	265	200
	10d[d] (3" x 0.148")	1 1/2		2	290	385	575	655	255	190
				3	324	430	650	735	290	215
	10d[d] (3" x 0.148")	1 1/2	19/32	2	320	425	640	730	285	215
				3	360	480	720	820	320	240

For SI: 1 inch = 25.4 mm, 1 pound per foot = 14.5939 N/m.

a. For framing of other species: (1) Find specific gravity for species of lumber in AF&PA NDS. ~~(2) For staples find shear value from table above for Structural I panels (regardless of actual grade) and multiply value by 0.82 for species with specific gravity of 0.42 or greater, or 0.65 for all other species.~~ (3) For nails find shear value from table above for nail size for actual grade and multiply value by the following adjustment factor: Specific Gravity Adjustment Factor = [1-(0.5-SG)], where SG = Specific Gravity of the framing lumber. This adjustment factor shall not be greater than 1.

b. Space fasteners maximum 12 inches o.c. along intermediate framing members (6 inches o.c. where supports are spaced 48 inches o.c.).

c. Framing at adjoining panel edges shall be 3 inches nominal or ~~wider~~*thicker*, and nails shall be staggered where nails are spaced 2 inches o.c. or 2 ½ inches o.c.

d. Framing at adjoining panel edges shall be 3 inches nominal or ~~wider~~*thicker*, and nails shall be staggered where both of the following conditions are met: (1) 10d nails having penetration into framing of more than 1 ½ inches and (2) nails are spaced 3 inches o.c. or less.

e. 8d is recommended minimum for roofs due to negative pressures of high winds.

f. ~~Staples shall have a minimum crown width of 7/16 inch and shall be installed with their crowns parallel to the long dimension of the framing members.~~ *Not adopted.*

g. The minimum nominal width of framing members not located at boundaries or adjoining panel edges shall be 2 inches.

h. For shear loads of normal or permanent load duration as defined by the AF&PA NDS, the values in the table above shall be multiplied by 0.63 or 0.56, respectively.

TABLE 2306.3.2
ALLOWABLE SHEAR (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL BLOCKED DIAPHRAGMS UTILIZING MULTIPLE ROWS OF FASTENERS (HIGHT LOAD DIAPHRAGMS) WITH FRAMING OF DOUGLAS FIR-LARCH OR SOUTHERN PINE[a] FOR WIND OR SEISMIC LOADING[b,g,h]

PANEL GRADE[c]	COMMON NAIL SIZE	MINIMUM FASTENER PENETRATION IN FRAMING (inches)	MINIMUM NOMINAL PANEL THICKNESS (inch)	MINIMUM NOMINAL WIDTH OF FRAMING MEMBERS AT ADJOINING PANEL EDGES AND BOUNDARIES[e] (inches)	LINES OF FASTENERS	BLOCKED DIAPHRAGMS			
						Cases 1 and 2[d]			
						Fastener Spacing Per Line at Boundaries (inches)			
						4		2-1/2	
						Fastener Spacing Per Line at Other Panel Edges (inches)			
						6	4	4	3
Structural I Grades	10d common nails	1-1/2	5/16	3	2	605	815	875	1150
				4	2	700	915	1005	1290
				4	3	875	1220	1285	1395
			3/8	3	2	670	880	965	1255
				4	2	780	990	1110	1440
				4	3	965	1320	1405	1790
			15/32	3	2	730	955	1050	1365
				4	2	855	1070	1210	1565
				4	3	1050	1430	1525	1800
Sheathing, single floor and other grades covered in DOC PS1 and PS2	10d common nails	1-1/2	15/32	3	2	525	725	765	1010
				4	2	605	815	875	1105
				4	3	765	1085	1130	1195
			19/32	3	2	650	860	935	1225
				4	2	755	965	1080	1370
				4	3	935	1290	1365	1485
			23/32	3	2	710	935	1020	1335
				4	2	825	1050	1175	1445
				4	3	1020	1400	1480	1565

For SI: 1 inch = 25.4 mm, 1 pound per foot = 14.5939 N/m.

a. For framing of other species: (1) Find specific gravity for species of lumber in AF&PA NDS. ~~(2) For staples find shear value from table above for Structural I panels (regardless of actual grade) and multiply value by 0.82 for species with specific gravity of 0.42 or greater, or 0.65 for all other species.~~ (3) For nails find shear value from table above for nail size for actual grade and multiply value by the following adjustment factor: Specific Gravity Adjustment Factor = [1-(0.5-SG)], where SG = Specific Gravity of the framing lumber. This adjustment factor shall not be greater than 1.
b. Fastening along intermediate framing members: Space fasteners maximum 12 inches on center, except 6 inches on center for spans greater than 32 inches.
c. Panels conforming to PS1 or PS 2.
d. This table gives shear values for Cases 1 and 2 as shown in Table 2306.3.1. The values shown are applicable to Cases 3, 4, 5 and 6 as shown in Table 2306.3.1, providing fasteners at all continuous panels edges are spaced in accordance with the boundary fastener spacing.
e. The minimum nominal depth of framing members shall be 3 inches nominal. The minimum nominal width of framing members not located at boundaries or adjoining panel edges shall be 2 inches.
f. ~~Staples shall have a minimum crown width of 7/16 inch and shall be installed with their crowns parallel to the long dimension of the framing members.~~ *Not adopted.*
g. High load diaphragms shall be subject to special inspection in accordance with Section 1704.6.1.
h. For shear loads of normal or permanent load duration as defined by the AF&PA NDS, the values in the table above shall be multiplied by 0.63 or 0.56, respectively.

COMMENT: Amendment due to local geological conditions. This section/amendment is consistent with the Los Angeles Regional Uniform Code Program set of amendments adopted by the cities and county of the Los Angeles region. This amendment was previously section 18.24.440.

This local amendment puts additional restrictions on the design of wood structural panel diaphragms. The amendment continues the application of the previous 1999 and 2002 LARUCP 23-3 amendment by allowing shear value capacities based on testing only and not calculations alone. By deleting the words that allow calculation of shear wall values, it will no longer be possible to circumvent the reductions in allowable shear capacities established in the Table.

In September 2007, limited cyclic testing data was provided to the ICC Structural Code Committee showing that stapled wood structural shear panels do not exhibit the same behavior as the nailed wood structural shear panels. As a matter of fact, the test results of the stapled wood structural shear panels appeared much lower in strength and drift than the nailed wood structural shear panel test results. Therefore, the use of staples as fasteners for structural shear wall panels or diaphragms shall not be permitted without being substantiated by cyclic testing.

The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. The proposed modification to place certain design and construction limits on structural wood panel diaphragms thus resulting in improved quality of construction and performance of structures need to be incorporated into the code to assure that new buildings and additions to existing buildings are designed and constructed in accordance with the scope and objectives of the International Building Code.

Section [X]. Delete Section 18.24.280 of the Long Beach Municipal Code and replace with the following:

~~18.24.280 CBC section 1701.5 amended Special inspections, special moment resisting frames.~~

~~Item 5.2 of Section 1701.5 of Chapter 17 of the California Building Code is amended to read as follows:~~

~~5.2 Lateral Force Resisting Frames. During the welding of lateral force resisting steel frames. In addition to Item 5.1 requirements, nondestructive testing as required by Section 1703 of this code.~~

18.24.280 CBC section 2306.4.1 amended – Wood structural panel shear walls.

Sections 2306.4.1 of the 2007 California Building Code are amended to read as follows:

2306.4.1. Wood structural panel shear walls. The allowable shear capacities for wood structural panel shear walls shall be in accordance with Table 2306.4.1. These capacities are permitted to be increased 40 percent for wind design. ~~Shear walls are permitted to be calculated by principles of mechanics without limitations by using values for nail strength given in the AF&PA NDS and wood structural panel design properties given in the APA Panel Design Specification.~~ Wood shear walls shall be constructed of wood structural panels and not less than 4 feet by 8 feet (1219 mm by 2438 mm), except at boundaries and at changes in framing. 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.

The maximum allowable shear value for three-ply plywood resisting seismic forces is 200 pounds per foot (2.92 kn/m). Nails shall be placed not less than 1/2 inch (12.7 mm) in from the panel edges and not less than 3/8 inch (9.5mm) from the edge of the connecting members for shear greater than 350 pounds per foot (5.11kN/m). Nails shall be placed not less than 3/8 inch (9.5 mm) from panel edges and not less than 1/4 inch (6.4 mm) from the edge of the connecting members for shears of 350 pounds per foot (5.11kN/m) or less.

Wood structural panel shear walls using staples as fasteners shall not be permitted for structures assigned to Seismic Design Category D, E, or F.

Exception: Staples may be used for wood structural panel shear walls when the allowable shear values are substantiated by cyclic testing and approved by the building official.

Any wood structural panel sheathing used for diaphragms and shear walls that are part of the seismic-force-resisting system shall be applied directly to framing members.

Exception: Wood structural panel sheathing in a horizontal diaphragm is 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.

COMMENT: Amendment due to local geological conditions. This section/amendment is consistent with the Los Angeles Regional Uniform Code Program set of amendments adopted by the cities and county of the Los Angeles region. This amendment was previously Section 18.24.450.

This local amendment carries forward the previous LARUCP amendment to limit the maximum shear capacity for 3-ply plywood along with requiring greater edge distance for nails in shear walls resisting high loads, thereby addressing the problem of nails pulling out of the edges of the plywood under seismic loading. In addition, by deleting the words that allow calculation of shear wall values, it will no longer be possible to circumvent the reductions in allowable shear capacities established in the Table. 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 1994 Northridge Earthquake.

Furthermore, the cities and county of the Los Angeles region has taken extra measures to maintain the structural integrity of the framing of the shear walls when designed for high levels of seismic loads by requiring wood sheathing be applied directly over framing members, thereby prohibiting the use of the second portion of Table 2306.4.1, which provides allowable values for panels placed over gypsum sheathing. This amendment is intended to prevent the undesirable performance of nails when gypsum board softens due to cyclic earthquake displacements and the nail ultimately does not have any engagement in a solid material within the thickness of the gypsum board.

In September 2007, limited cyclic testing data was provided to the structural code committee showing that stapled wood structural shear panels do not exhibit the same behavior as the nailed wood structural shear panels. As a matter of fact, the test results of the stapled wood structural shear panels appeared much lower in strength and drift than the nailed wood structural shear panel test results.

The allowable shear values for wood structural panel shear walls with stapled nails are based on monotonic testing. Earthquakes load shear walls in a repeating fully reversible manner. The Structural Engineers Association of Southern California (SEAOSC) and the Los Angeles City Task Force previously investigated, documented damages, and reviewed existing test reports. The proposed amendment to omit the allowable shear capacity of shear wall with stapled nail is consistent with the Task Force previous recommendations made after the 1994 Northridge Earthquake. At that time, the report to the Governor from the Seismic Safety Commission of the State of California recommended that code requirements be "more thoroughly substantiated with testing."

Therefore, the use of staples as fasteners for structural shear wall panels or diaphragms shall not be permitted without being substantiated by cyclic testing. Wood structural shear panels fastened with nails (common and galvanized box) have been tested using various cyclic testing protocols that substantiate their design values in Table 2306.4.1.

The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. The proposed modification to place certain design and construction limits on structural wood panel shear walls thus resulting in improved quality of construction and performance of structures need to be incorporated into the code to assure that new buildings and additions to existing buildings are designed and constructed in accordance with the scope and objectives of the International Building Code.

Section [X]. Delete Section 18.24.290 of the Long Beach Municipal Code and replace with the following:

~~18.24.290 CBC section 1701.5 amended--Grade beams and tie beams.~~

~~Item 11 of Section 1701.5 of Chapter 17 of the California Building Code is amended to read as follows:~~

~~11. Piling, drilled piers, caissons and connecting grade beams and tie beams. During driving and testing of piles and construction of cast-in-place drilled piles or caissons and connecting grade beams and tie beams. See Items 1 and 4 for concrete and reinforcing steel inspection.~~

18.24.290 New CBC Table 2306.4.1 – Allowable shear for wood structural panel shear walls.

Delete Table 2306.4.1 of the 2007 California Building Code and replace with the following:

TABLE 2306.4.1
ALLOWABLE SHEAR (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL SHEAR WALLS WITH FRAMING OF DOUGLAS FIR-LARCH OR SOUTHERN PINE[a] FOR WIND OR SEISMIC LOADING[b, h, i, j, l, m, n]

PANEL GRADE	MINIMUM NOMINAL PANEL THICKNESS (inch)	MINIMUM FASTENER PENETRATION IN FRAMING (inches)	ALLOWABLE SHEAR VALUE FOR SEISMIC FORCES PANELS APPLIED DIRECTLY TO FRAMING					ALLOWABLE SHEAR VALUE FOR WIND FORCES PANELS APPLIED DIRECTLY TO FRAMING				
			NAIL (common) size	Fastener spacing at panel edges (inches)				NAIL (common) size	Fastener spacing at panel edges (inches)			
				6	4	3	2[e]		6	4	3	2[e]
Structural I Sheathing	3/8	1-3/8	8d (2½"x0.131" common)	200	200	200	200	8d (2½"x0.131" common)	230[d]	360[d]	460[d]	610[d]
	7/16	1-3/8	8d (2½"x0.131" common)	255	395	505	670	8d (2½"x0.131" common)	255[d]	395[d]	505[d]	670[d]
	15/32	1-3/8	8d (2½"x0.131" common)	280	430	550	730	8d (2½"x0.131" common)	280	430	550	730
		1-1/2	10d (3"x0.148" common)	340	510	665[f]	870	10d (3"x0.148" common)	340	510	665[f]	870
Sheathing, plywood siding[g] except Group 5 Species	3/8	1-1/4	6d (2"x0.113" common)	200	200	200	200	6d (2"x0.113" common)	200	300	390	510
		1-3/8	8d (2½"x0.131" common)	200	200	200	200	8d (2½"x0.131" common)	220[d]	320[d]	410[d]	530[d]
	7/16	1-3/8	8d (2½"x0.131" common)	240	350	450	585	8d (2½"x0.131" common)	240[d]	350[d]	450[d]	585[d]
	15/32	1-3/8	8d (2½"x0.131" common)	260	380	490	640	8d (2½"x0.131" common)	260	380	490	640
		1-1/2	10d (3"x0.148" common)	310	460	600[f]	770	10d (3"x0.148" common)	310	460	600[f]	770
	19/32	1-1/2	10d (3"x0.148" common)	340	510	665[f]	870	10d (3"x0.148" common)	340	510	665[f]	870
			Nail Size (galvanized casing)					Nail Size (galvanized casing)				
	3/8	1-3/8	8d (2½"x0.113")	160	200	200	200	8d (2½"x0.113")	160	240	310	410

For SI: 1 inch = 25.4 mm, 1 foot = 25.4 mm, 1 pound per foot = 14.5939 N/m.

a. For framing of other species: (1) Find specific gravity for species of lumber in AF&PA NDS. ~~(2) For staples find shear value from table above for Structural I panels (regardless of actual grade) and multiply value by 0.82 for species with specific gravity of 0.42 or greater, or 0.65 for all other species.~~ (3) For nails find shear value from table above for nail size for actual grade and multiply value by the following adjustment factor: Specific Gravity Adjustment Factor = [1-(0.5-SG)], where SG = Specific Gravity of the framing lumber. This adjustment factor shall not be greater than 1.

b. Panel edges backed with 2-inch nominal or ~~wider~~ thicker framing. Install panels either horizontally or vertically. Space fasteners maximum 6 inches on center along intermediate framing members for 3/8-inch and 7/16-inch panels installed on studs spaced 24 inches on center. For other conditions and panel thickness, space fasteners maximum 12 inches on center on intermediate supports.

c. 3/8-inch panel thickness or siding with a span rating of 16 inches on center is the minimum recommended where applied direct to framing as exterior siding.

d. Allowable shear values are permitted to be increased to values shown for 15/32-inch sheathing with same nailing provided (a) studs are spaced a maximum of 16 inches on center, or (b) panels are applied with long dimension across studs.

e. Framing at adjoining panel edges shall be 3 inches nominal or ~~wider~~ thicker, and nails shall be staggered where nails are spaced 2 inches on center.

f. Framing at adjoining panel edges shall be 3 inches nominal or ~~wider~~ thicker, and nails shall be staggered where both of the following conditions are met: (1) 10d (3"x0.148") nails having penetration into framing of more than 1-1/2 inches and (2) nails are spaced 3 inches on center.

g. Values apply to all-veneer plywood. Thickness at point of fastening on panel edges governs shear values.

h. Where panels applied on both faces of a wall and nail spacing is less than 6 inches o.c. on either side, panel joints shall be offset to fall on different framing members, or framing shall be 3-inch nominal or thicker at adjoining panel edges and nails on each side shall be staggered.

i. In Seismic Design Category D, E or F, where shear design values exceed 350 pounds per linear foot, all framing members receiving edge nailing from abutting panels shall not be less than a single 3-inch nominal member, or two 2-inch nominal members fastened together in accordance with Section 2306.1 to transfer the design shear value between framing members. Wood structural panel joint and sill plate nailing shall be staggered in all cases. See Section 2305.3.11 for sill plate size and anchorage requirements.

j. Galvanized nails shall be hot dipped or tumbled.

k. ~~Staples shall have a minimum crown width of 7/16 inch and shall be installed with their crowns parallel to the long dimension of the framing members.~~ *Not adopted.*

l. For shear loads of normal or permanent load duration as defined by the AF&PA NDS, the values in the table above shall be multiplied by 0.63 or 0.56, respectively.

m. [DSA-SS & OSHPD 1, 2 and 4] Refer to Section 2305.2.4.2, which requires any wood structural panel sheathing used for diaphragms and shear walls that are part of the seismic-force-resisting system to be applied directly to framing members.

n. The maximum allowable shear value for three-ply plywood resisting seismic forces is 200 pounds per foot (2.92 kn/m).

COMMENT: Amendment due to local geological conditions. This section/amendment is consistent with the Los Angeles Regional Uniform Code Program set of amendments adopted by the cities and county of the Los Angeles region. This amendment was previously Section 18.24.450.

This local amendment carries forward the previous LARUCP amendment to limit the maximum shear capacity for 3-ply plywood along with requiring greater edge distance for nails in shear walls resisting high loads, thereby addressing the problem of nails pulling out of the edges of the plywood under seismic loading. In addition, by deleting the words that allow calculation of shear wall values, it will no longer be possible to circumvent the reductions in allowable shear capacities established in the Table. 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 1994 Northridge Earthquake.

Furthermore, the cities and county of the Los Angeles region has taken extra measures to maintain the structural integrity of the framing of the shear walls when designed for high levels of seismic loads by requiring wood sheathing be applied directly over framing members, thereby prohibiting the use of the second portion of Table 2306.4.1, which provides allowable values for panels placed over gypsum

sheathing. This amendment is intended to prevent the undesirable performance of nails when gypsum board softens due to cyclic earthquake displacements and the nail ultimately does not have any engagement in a solid material within the thickness of the gypsum board.

In September 2007, limited cyclic testing data was provided to the structural code committee showing that stapled wood structural shear panels do not exhibit the same behavior as the nailed wood structural shear panels. As a matter of fact, the test results of the stapled wood structural shear panels appeared much lower in strength and drift than the nailed wood structural shear panel test results.

The allowable shear values for wood structural panel shear walls with stapled nails are based on monotonic testing. Earthquakes load shear walls in a repeating fully reversible manner. The Structural Engineers Association of Southern California (SEAOSC) and the Los Angeles City Task Force previously investigated, documented damages, and reviewed existing test reports. The proposed amendment to omit the allowable shear capacity of shear wall with stapled nail is consistent with the Task Force previous recommendations made after the 1994 Northridge Earthquake. At that time, the report to the Governor from the Seismic Safety Commission of the State of California recommended that code requirements be "more thoroughly substantiated with testing."

Therefore, the use of staples as fasteners for structural shear wall panels or diaphragms shall not be permitted without being substantiated by cyclic testing. Wood structural shear panels fastened with nails (common and galvanized box) have been tested using various cyclic testing protocols that substantiate their design values in Table 2306.4.1.

The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. The proposed modification to place certain design and construction limits on structural wood panel shear walls thus resulting in improved quality of construction and performance of structures need to be incorporated into the code to assure that new buildings and additions to existing buildings are designed and constructed in accordance with the scope and objectives of the International Building Code.

Section [X]. Delete Section 18.24.300 of the Long Beach Municipal Code and replace with the following:

~~18.24.300 CBC section 1702 amended - Structural observation.~~

~~Section 1702 of Chapter 17 of the California Building Code is amended to read as follows:~~

~~SECTION 1702. STRUCTURAL OBSERVATION.~~

~~Structural observation shall be provided in Seismic Zone 3 or 4 when one of the following conditions exists:~~

~~1. The structure is defined in Table 16-K as Occupancy Category 1, 2 or 3;~~

~~2. The structure is required to comply with Section 403;~~

~~3. The structure is in Seismic Zone 4 and a lateral design is required for the entire structure.~~

~~EXCEPTION: One- and two-story wood-framed Group R, Division 3 and Group U Occupancies less than 1500 square feet, and one- and two-story Groups B, F, M and S Occupancies with an occupant load less than 10, provided the adjacent grade is not steeper than 1 unit vertical in 10 units horizontal (10% sloped).~~

~~4. When so designated by the architect or engineer of record, or~~

~~5. When such observation is specifically required by the building official.~~

~~The owner shall employ the engineer or architect responsible for the structural design, or another engineer or architect designated by the engineer or architect responsible for the structural design to perform structural observation as defined in Section 220.~~

~~The owner or owner's representative shall coordinate and call a preconstruction meeting between the engineer or architect responsible for the structural design, structural observer, contractor, affected subcontractors and deputy 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 systems of the structure and to review scheduling of the required observations. A record of the meeting shall be included in the first report submitted to the building official.~~

~~Observed deficiencies shall be reported in writing to the 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.~~

18.24.300 CBC section 2306.4.5 amended – Shear walls sheathed with other materials.

Section 2306.4.5 of the 2007 California Building Code is amended to read as follows:

2306.4.5 Shear walls sheathed with other materials. Shear wall capacities for walls sheathed with lath, plaster or gypsum board shall be in accordance with Table 2306.4.5. Shear walls sheathed with lath, plaster or gypsum board shall be constructed in accordance with Chapter 25 and Section 2306.4.5.1. Walls resisting seismic loads shall be subject to the limitations in Section 12.2.1 of ASCE 7. The allowable shear values shown in Table 2306.4.5 for material in Category 1 is limited to 90 pound per foot (1.31 kN/m); materials in Category 2 thru 4 are limited to 30 pound per foot (438 N/m). Shear walls sheathed with lath, plaster or gypsum board shall not be used below the top level in a multi-level building.

Shear walls sheathed with other materials using staples as fasteners shall not be permitted for structures assigned to Seismic Design Category D, E, or F.

Exception: Staples may be used for shear walls sheathed with other materials when the allowable shear values are substantiated by cyclic testing and approved by the building official.

COMMENT: Amendment due to local geological conditions. This section/amendment is consistent with the Los Angeles Regional Uniform Code Program set of amendments adopted by the cities and county of the Los Angeles region. This amendment was previously Section 18.24.630.

This amendment is consistent with the previous 1999 and 2002 LARUCP 25-2 amendment adopted by the cities and county of the Los Angeles region that reduced allowable shear values. Due to the high geologic activities in the Southern California area and the expected higher level of performance on buildings and structures, this local amendment continues to reduce the allowable shear values for shear walls sheathed with lath, plaster or gypsum board. The poor performance of such shear walls sheathed with other materials in the 1994 Northridge Earthquake was investigated by the Structural Engineers Association of Southern California (SEAOSC) and the Los Angeles City Task Force. The cities and county of the Los Angeles region has taken extra measures to maintain the structural integrity of the framing of the shear walls when designed for high levels of seismic loads.

In September 2007, limited cyclic testing data was provided to the structural code committee showing that stapled wood structural shear panels do not exhibit the same behavior as the nailed wood structural shear panels. As a matter of fact, the test results of the stapled wood structural shear panels appeared much lower in strength and drift than the nailed wood structural shear panel test results. Therefore, the use of staples as fasteners for shear walls sheathed with other materials shall not be permitted without being substantiated by cyclic testing.

The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. The proposed modification need to be incorporated into the code to assure that new buildings and additions to existing buildings are designed and constructed in accordance with the scope and objectives of the International Building Code.

Section [X]. Delete Section 18.24.310 of the Long Beach Municipal Code and replace with the following:

~~18.24.310 CBC section 1703 amended--Nondestructive testing.~~

~~The first paragraph of Section 1703 of Chapter 17 of the California Building Code is amended to read as follows:~~

~~In Seismic Zones 3 and 4, welded fully restrained connections between the primary members of moment resisting frames, which are subject to net tensile forces as part of the Lateral Force Resisting System shall be tested by nondestructive methods in accordance with AISC Seismic Part I Section 16. This testing shall be a part of the special inspection requirements of Section 1701.5. A program for this testing shall be established by the person responsible for structural design and as shown on plans and specifications.~~

18.24.310 New CBC table 2306.4.5 – Allowable shear for shear walls of lath and plaster or gypsum board.

Delete Table 2306.4.5 of the 2007 California Building Code and replace with the following:

TABLE 2306.4.5
ALLOWABLE SHEAR FOR WIND OR SEISMIC FORCES FOR SHEAR WALLS OF LATH AND PLASTER OR GYPSUM BOARD WOOD FRAMED WALL ASSEMBLIES

TYPE OF MATERIAL	THICKNESS OF MATERIAL	WALL CONSTRUCTION	FASTENER SPACING[b] MAXIMUM (inches)	SHEAR VALUE[a,e] (plf)		MINIMUM FASTENER SIZE[c,d,j,k,l]
				Seismic[l]	Wind	
1. Expanded metal, or woven wire lath and portland cement plaster	7/8"	Unblocked	6	90	180	No. 11 gage, 1-1/2" long, 7/16" head
2. Gypsum lath, plain or perforated	3/8" lath and 1/2" plaster	Unblocked	5	30	100	No. 13 gage, 1-1/8" long, 19/64" head, plasterboard nail 0.120" Nail, min. 3/8" head, 1-1/4" long
3. Gypsum sheathing	1/2" x 2' x 8'	Unblocked	4	30	75	No. 11 gage, 1-3/4" long, 7/16" head, diamond-point, galvanized
	1/2" x 4'	Blocked[f]	4	30	175	
		Unblocked	7	30	100	
	5/8" x 4'	Blocked	4" edge/ 7" field	30	200	6d galvanized 0.120" Nail, min. 3/8" head, 1-3/4" long
4. Gypsum board, gypsum veneer base or water-resistant gypsum backing board	1/2"	Unblocked[f]	7	30	75	5d cooler (1-5/8" lx 0.086") or wallboard 0.120" Nail, min. 3/8" head, 1-1/2" long
		Unblocked[f]	4	30	110	
		Unblocked	7	30	100	
		Unblocked	4	30	125	
		Blocked[g]	7	30	125	
		Blocked[g]	4	30	150	
		Unblocked	8/12[h]	30	60	No. 6- 1-1/4" screws[i]
		Blocked[g]	4/16[h]	30	160	
		Blocked[g]	4/12[h]	30	155	
		Blocked[f, g]	8/12[h]	30	70	
		Blocked[g]	6/12[h]	30	90	
	5/8"	Unblocked[f]	7	30	115	6d cooler (1-7/8" x 0.092") or wallboard 0.120" Nail, min. 3/8" head, 1-3/4" long
			4	30	145	
		Blocked[g]	7	30	145	
			4	30	175	
		Blocked[g] Two ply	Base ply: 9 Face ply: 7	30	250	Base ply-6d cooler (1-7/8" x 0.092") or wallboard 1-3/4" x 0.120" Nail, min. 3/8" head Face ply-8d cooler (2-3/8" x 0.113") or wallboard 0.120" Nail, min. 3/8" head, 2-3/8" long
		Unblocked	8/12[h]	30	70	No. 6- 1-1/4" screws[i]
		Blocked[g]	8/12[h]	30	90	

For SI: 1 inch = 25.4 mm, 1 foot = 25.4 mm, 1 pound per foot = 14.5939 N/m.

a. These shear walls shall not be used to resist loads imposed by masonry or concrete construction (see Section 2305.1.5). Values shown are for short-term loading due to wind or seismic loading. Walls resisting seismic loads shall be subject to the limitations in Section 12.2.1 of ASCE 7. Values shown shall be reduced 25 percent for normal loading.
b. Applies to fastening at studs, top and bottom plates and blocking.
c. Alternate fasteners are permitted to be used if their dimensions are not less than the specified dimensions. Drywall screws are permitted to substitute for the 5d (1-5/8" x 0.086"), and 6d (1-7/8" x 0.092")(cooler) nails listed above, and No. 6 1-1/4 inch Type S or W screws for 6d (1-7/8" x 0.092")(cooler) nails.
d. For properties of cooler nails, see ASTM C 514.
e. Except as noted, shear values are based on maximum framing spacing of 16 inches on center.
f. Maximum framing spacing of 24 inches on center.
g. All edges are blocked, and edge fastening is provided at all supports and all panel edges.
h. First number denotes fastener spacing at the edges; second number denotes fastener spacing at intermediate framing members.
i. Screws are Type W or S.
j. ~~Staples shall have a minimum crown width of 7/16 inch, measure outside the legs, and shall be installed with their crowns parallel to the long dimension of the framing members.~~ *Not adopted.*
k. ~~Staples for the attachment of gypsum loath and woven wire lath shall have a minimum crown width of ¾ inch, measured outside the legs.~~ *Not adopted.*
l. This construction shall not be used below the top level of wood construction in a multi-level building.

COMMENT: Amendment due to local geological conditions. This section/amendment is consistent with the Los Angeles Regional Uniform Code Program set of amendments adopted by the cities and county of the Los Angeles region. This amendment was previously Section 18.24.630.

This amendment is consistent with the previous 1999 and 2002 LARUCP 25-2 amendment adopted by the cities and county of the Los Angeles region that reduced allowable shear values. Due to the high geologic activities in the Southern California area and the expected higher level of performance on buildings and structures, this local amendment continues to reduce the allowable shear values for shear walls sheathed with lath, plaster or gypsum board. The poor performance of such shear walls sheathed with other materials in the 1994 Northridge Earthquake was investigated by the Structural Engineers Association of Southern California (SEAOSC) and the Los Angeles City Task Force. The cities and county of the Los Angeles region has taken extra measures to maintain the structural integrity of the framing of the shear walls when designed for high levels of seismic loads.

In September 2007, limited cyclic testing data was provided to the structural code committee showing that stapled wood structural shear panels do not exhibit the same behavior as the nailed wood structural shear panels. As a matter of fact, the test results of the stapled wood structural shear panels appeared much lower in strength and drift than the nailed wood structural shear panel test results. Therefore, the use of staples as fasteners for shear walls sheathed with other materials shall not be permitted without being substantiated by cyclic testing.

The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. The proposed modification need to be incorporated into the code to assure that new buildings and additions to existing buildings are designed and constructed in accordance with the scope and objectives of the International Building Code.

Section [X]. Delete Section 18.24.320 of the Long Beach Municipal Code and replace with the following:

~~18.24.320 CBC section 1704.1.2 amended - Prefabricated construction.~~

~~Section 1704.1.2 of Chapter 17 of the California Building Code is amended to read as follows:~~

~~1704.1.2 Scope. Unless otherwise specifically stated in this Chapter, all prefabricated construction and all materials used therein shall conform to all the requirements of this Code.~~

18.24.320 CBC section 2308.3.4 amended – Braced wall line support.

Section 2308.3.4 of the 2007 California Building Code is amended to read as follows:

2308.3.4 Braced wall line support. 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.~~

COMMENT: Amendment due to local geological conditions. This section/amendment is consistent with the Los Angeles Regional Uniform Code Program set of amendments adopted by the cities and county of the Los Angeles region. This amendment was previously Section 18.24.560.

The propose amendment continues the previous 1999 and 2002 LARUCP amendment to require that interior braced walls be supported by continuous foundations. Interior walls can easily be called upon to resist over half of the seismic loading imposed on simple structure. Without a continuous foundation, earthquake loads would be transferred through a non-structural concrete slab floor or by a wood floor. Raised wood floor diaphragms and bolting of the perimeter walls can become inadequate to resist the imposed horizontal shear.

The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. Conventional framing does not address the need for a continuous load path, critical shear transfer mechanisms, connection ties, irregular and flexible portions of complex shaped structures. Unless designed by a registered design professional, such buildings built by conventional framing requirements will be prone to serious damage in future large earthquakes. The proposed modification need to be incorporated into the code to assure that new buildings and additions to existing buildings are designed and constructed in accordance with the scope and objectives of the International Building Code.

Section [X]. Delete Section 18.24.330 of the Long Beach Municipal Code and replace with the following:

~~18.24.330 CBC section 1806.1 amended--General.~~

~~Section 1806.1 of Chapter 18 of the California Building Code is amended to read as follows:~~

~~1806.1 General. Footing and foundations other than treated wood piles shall be constructed of masonry or concrete, shall be supported on native undisturbed materials or approved certified fill, and shall extend below the frost line. Footings of concrete and masonry shall be of solid material. Foundations supporting wood shall extend at least 6 inches (152 mm) above the adjacent finish grade. Footings shall have a minimum depth as indicate/d in Table 18-I-C, unless another depth is recommended by a foundation investigation.~~

~~The provisions of this section do not apply to building and foundation systems in those areas subject to scour and water pressure by wind and wave action. Buildings and foundations subject to such loads shall be designed in accordance with approved national standards. See Section 3302 for subsoil preparation and wood form removal.~~

18.24.330 CBC section 2308.12.1 amended – Number of stories.

Section 2308.12.1 of the 2007 California Building Code is amended to read as follows:

2308.12.1 Number of stories. Structures of conventional light-frame construction shall not exceed one story in height in Seismic Design Category D or E.

~~Exception: [HCD 1] Detached one- and two-family dwellings are permitted to be two stories high in Seismic Design Category D or E.~~

COMMENT: Amendment due to local geological conditions. This section/amendment is consistent with the Los Angeles Regional Uniform Code Program set of amendments adopted by the cities and county of the Los Angeles region. This amendment was previously Section 18.24.530.

The propose amendment continues the previous 1999 and 2002 LARUCP amendment to limit the use of conventional wood frame construction to simple one story residential buildings when using conventional framing design.

The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. Conventional framing does not address the need for a continuous load path, critical shear transfer mechanisms, connection ties, irregular and flexible portions of complex

shaped structures. Unless designed by a registered design professional, such buildings built by conventional framing requirements will be prone to serious damage in future large earthquakes. The proposed modification need to be incorporated into the code to assure that new buildings and additions to existing buildings are designed and constructed in accordance with the scope and objectives of the International Building Code.

Section [X]. Delete Section 18.24.340 of the Long Beach Municipal Code and replace with the following:

~~18.24.340 CBC section 1806.6.1 amended - Additional requirements in seismic zones 3 and 4.~~

~~Section 1806.6.1 of Chapter 18 of the California Building Code is amended to read as follows:~~

~~1806.6.1 Additional requirements in Seismic Zones 3 and 4. The following additional requirements shall apply in Seismic Zones 3 and 4:~~
~~1. Sill bolt diameter and spacing for three-story raised wood floor buildings shall be specifically designed.~~
~~2. Steel plate washers of minimum size and thickness as specified in Table 23 II L shall be used on each bolt.~~

18.24.340 CBC section 2308.12.2 amended – Concrete or masonry.

Section 2308.12.2 of the 2007 California Building Code is amended to read as follows:

2308.12.2 Concrete or masonry. Concrete or masonry walls or masonry veneer shall not extend above the basement.

Exception: Masonry veneer is permitted to be used in the first story above grade plane in Seismic Design Category D, provided the following criteria are met:

1. Type of brace in accordance with Section 2308.9.3 shall be Method 3 and the allowable shear capacity in accordance with Table 2306.4.1 shall be a minimum of 350 plf (5108 N/m).

2. The bracing of the first story shall be located at each end and at least every 25 feet (7620 mm) o.c. but not less than 45 percent of the braced wall line.

3. Hold-down connectors shall be provided at the ends of braced walls for the first floor to foundation with an allowable design of 2,100 pounds (9341 N).

4. Cripple walls shall not be permitted.

5. Anchored masonry and stone wall veneer shall not exceed 5 inches (127 mm) in thickness, shall conform to the requirements of Division 14 and shall not extend more than 5 feet (1524 mm) above the first story finished floor.

COMMENT: Amendment due to local geological conditions. This section/amendment is consistent with the Los Angeles Regional Uniform Code Program set of amendments adopted by the cities and county of the Los Angeles region. This amendment was previously Section 18.24.430.

The propose amendment continues the previous 1999 and 2002 LARUCP amendment to limit the additional weight attributed to the use of heavy veneer substantially increases loads to conventionally braced walls in an earthquake. Moreover, normal to wall loads that occur in an earthquake can seriously overstress wood bearing walls in combined seismic/gravity load combinations. Numerous conventionally framed veneer covered structures sustained serious damages in the Northridge Earthquake as a result of the heavy weight of the veneer.

The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. Conventional framing does not address the need for a continuous load path, critical shear transfer mechanisms, connection ties, irregular and flexible portions of complex shaped structures. Unless designed by a registered design professional, such buildings built by conventional framing requirements will be prone to serious damage in future large earthquakes. The proposed modification need to be incorporated into the code to assure that new buildings and additions to existing buildings are designed and constructed in accordance with the scope and objectives of the International Building Code.

Section [X]. Delete Section 18.24.350 of the Long Beach Municipal Code and replace with the following:

~~18.24.350 CBC section 1928.1.2.3 amended--Basic combinations.~~

~~Section 1928.1.2.3 of Chapter 19 of the California Building Code is amended to read as follows:~~

~~1928.1.2.3 Basic combinations. When permitted by Section 1928.1, structures, components and foundations shall be designed so that their design strength exceeds the effects of the factored loads in the following combinations:~~

~~1. 1.4D~~
~~2. 1.2D + 1.6L + 0.5(Lr or S or R)~~
~~3. 1.2D + 1.6(Lr or S or R) + (0.5L or 0.8W)~~
~~4. 1.2D + 1.3W + 0.5L + 0.5(Lr or S or R)~~

~~5. 1.2D + 1.0ρEh 5E + (0.5L or 0.2S)~~
~~6. 0.9D – (1.3W or 1.0 ρEh 5)~~
~~EXCEPTIONS: 1. The load factor on L in combinations 3, 4 and 5 shall equal 1.0 for garages, areas occupied and places of public assembly, and all areas where the live load is greater than 100 lb./ft.2 (pounds force per square foot) (4.79 kPa).~~
~~2. Each relevant strength limit state shall be considered. The most unfavorable effect may occur when one or more of the contributing loads are not acting.~~

18.24.350 CBC section 2308.12.4 – Braced wall line sheathing.

Section 2308.12.4 of the 2007 California Building Code is amended to read as follows:

2308.12.4 Braced wall line sheathing. Braced wall lines shall be braced by one of the types of sheathing prescribed by Table 2308.12.4 as shown in Figure 2308.9.3. The sum of lengths of braced wall panels at each braced wall line shall conform to Table 2308.12.4. Braced wall panels shall be distributed along the length of the braced wall line and start at not more than 8 feet (2438 mm) from each end of the braced wall line. Panel sheathing joints shall occur over studs or blocking. Sheathing shall be fastened to studs, top and bottom plates and at panel edges occurring over blocking. 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, spaced a maximum of 16 inches on center. Nailing shall be minimum 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.

~~Cripple walls having a stud height exceeding 14 inches (356 mm) shall be considered a story for the purpose of this section and shall be braced as required for braced wall lines in accordance with Table 2309.12.4. Where interior braced wall lines occur without a continuous foundation below, the length of parallel exterior cripple wall bracing shall be one and one-half times the lengths required by Table 2308.12.4. Where the cripple wall sheathing type used is Type S-W and this additional length of bracing cannot be provided, the capacity of Type S-W sheathing shall be increased by reducing the spacing of fasteners along the perimeter of each piece of sheathing to 4 inches (102 mm) o.c.~~

Braced wall panel construction types shall not be mixed within a braced wall line.

Braced wall panels required by Section 2308.12.4 may be eliminated when all of the following requirements are met:

1. One story detached Group U occupancies not more than 25 feet in depth or length.

2. The roof and three enclosing walls are solid sheathed with ½-inch nominal thickness wood structural panels with 8d common nails placed 3/8 inches from panel edges and spaced not more than 6 inches on center along all panel edges and 12

inches on center along intermediate framing members. Wall openings for doors or windows are permitted provided a minimum 4 foot wide wood structural braced panel with minimum height to length ratio of 2 to 1 is provided at each end of the wall line and that the wall line be sheathed for 50% of its length.

COMMENT: Amendment due to local geological conditions. This section/amendment is consistent with the Los Angeles Regional Uniform Code Program set of amendments adopted by the cities and county of the Los Angeles region. This amendment was previously Section 18.24.540.

The propose amendment continues the previous 1999 and 2002 LARUCP amendment to limit the use of conventional wood frame construction to 25 feet maximum spacing when using conventional framing design.

The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. Conventional framing does not address the need for a continuous load path, critical shear transfer mechanisms, connection ties, irregular and flexible portions of complex shaped structures. Unless designed by a registered design professional, such buildings built by conventional framing requirements will be prone to serious damage in future large earthquakes. The proposed modification need to be incorporated into the code to assure that new buildings and additions to existing buildings are designed and constructed in accordance with the scope and objectives of the International Building Code.

Section [X]. Delete Section 18.24.360 of the Long Beach Municipal Code and replace with the following:

~~18.24.360 CBC section 2104.6.2 amended--Construction requirements.~~

~~Section 2104.6.2 of Chapter 21 of the California Building Code is amended to read as follows:~~

~~2104.6.2 Construction Requirements. Reinforcement shall be placed prior to grouting. Bolts shall be accurately set with templates or by approved equivalent means and held in place to prevent dislocation during grouting.~~

~~Segregation of the grout materials and damage to the masonry shall be avoided during the grouting process.~~

~~Grout shall be consolidated by mechanical vibration during placement before loss of plasticity in a manner to fill the grout space. Grout pours greater than 12 inches (300 mm) in height shall be reconsolidated by mechanical vibration to minimize voids due to water loss. Grout pours 12 inches (300 mm) or less in height shall be mechanically vibrated or puddled.~~

~~In one-story buildings having wood-frame exterior walls, foundations not over 24~~

~~inches (600 mm) high measured from the top of the footing may be constructed of hollow-masonry units laid in running bond without mortared head joints. Any standard shape unit may be used, provided the masonry units permit horizontal flow of grout to adjacent units. Grout shall be solidly poured to the full height in one lift and shall be puddled or mechanically vibrated.~~

~~In nonstructural elements which do not exceed 8 feet (2440 mm) in height above the highest point of lateral support, mortar of pouring consistency may be substituted for grout when the masonry is constructed and grouted in pours of 12 inches (300 mm) or less in height.~~

~~In multiwythe grouted masonry, vertical barriers of masonry shall be built across the grout space the entire height of the grout pour and spaced not more than 30 feet (9144 mm) horizontally. The grouting of any section of wall between barriers shall be completed in one day with no interruption longer than one hour.~~

18.24.360 CBC table 2308.12.4 amended – Wall bracing in seismic design categories D and E.

Table 2308.12.4 of the 2007 California Building Code is amended to read as follows:

TABLE 2308.12.4
WALL BRACING IN SEISMIC DESIGN CATEGORIES D AND E
(Minimum Length of Wall Bracing per each 25 Linear Feet of Braced Wall Line [a])

CONDITION	SHEATHING TYPE[b]	S_{DS} < 0.50	0.50 ≤ S_{DS} < 0.75	0.75 ≤ S_{DS} ≤ 1.00	S_{DS} > 1.00
One Story	G-P[c]	10 feet 8 inches	14 feet 8 inches	18 feet 8 inches	25 feet 0 inches
	S-W	5 feet 4 inches	8 feet 0 inches	9 feet 4 inches	12 feet 0 inches
~~*Story Below top story [HCD 1]*~~	~~*G-P[c,d]*~~	~~*18 feet 8 inches[d]*~~	~~*NP*~~	~~*NP*~~	~~*Np*~~
	~~*S-W[d]*~~	~~*10 feet 8 inches[d]*~~	~~*13 feet 4 inches[d]*~~	~~*17 feet 4 inches[d]*~~	~~*21 feet 4 inches[d]*~~
~~*Bottom story of three stories [HCD 1]*~~	~~*G-P*~~	~~*Conventional construction not permited; conformance with Section 2301.2, Item 1 or 2 is required.*~~			
	~~*S-W*~~				

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

a. Minimum length of panel bracing of one face of the wall for S-W sheathing shall be at least 4'-0" long or both faces of the wall for G-P sheathing shall be at least 8'-0" long; h/w ratio shall not exceed 2:1. For S-W panel bracing of the same material on two faces of the wall, the minimum length is permitted to be one-half the tabulated value but the h/w ratio shall not exceed 2:1 and design for uplift is required.

b. G-P = gypsum board, ~~fiberboard, particleboard, lath and~~ portland cement plaster or gypsum sheathing boards; S-W = wood structural panels ~~and diagonal wood sheathing. *NP=not permitted*~~.

c. Nailing as specified below shall occur at all panel edges at studs, at top and bottom plates and, where occurring, at blocking:
For 1/2-inch gypsum board, 5d (0.113 inch diameter) cooler nails at 7 inches on center;
For 5/8-inch gypsum board, No 11 gage (0.120 inch diameter) cooler nails at 7 inches on center;
For gypsum sheathing board, 1-3/4 inches long by 7/16-inch head, diamond point galvanized nails at 4 inches on center;
For gypsum lath, No. 13 gage (0.092 inch) by 1-1/8 inches long, 19/64-inch head, plasterboard at 5 inches on center;
For Portland cement plaster, No. 11 gage (0.120 inch) by $1^1/_2$ inches long, $^7/_{16}$- inch head at 6 inches on center;
~~For fiberboard and particleboard, No. 11 gage (0.120 inch) by $1^1/_2$ inches long, $^7/_{16}$- inch head, galvanized nails at 3 inches on center.~~

~~d. [HCD 1] Applies to detached one- and two-family dwellings only.~~

~~e.~~ d. S-W sheathing shall be 15/32" thick nailed with 8d nails, at 6:6:12.

COMMENT: Amendment due to local geological conditions. This section/amendment is consistent with the Los Angeles Regional Uniform Code Program set of amendments adopted by the cities and county of the Los Angeles region. This amendment was previously Section 18.24.530, 18.24.540, 18.24.580, 18.24.590, and 18.24.620.

The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. Conventional framing does not address the need for a continuous load path, critical shear transfer mechanisms, connection ties, irregular and flexible portions of complex shaped structures. Unless designed by a registered design professional, such buildings built by conventional framing requirements will be prone to serious damage in future large earthquakes. The proposed modification need to be incorporated into the code to assure that new buildings and additions to existing buildings are designed and constructed in accordance with the scope and objectives of the International Building Code.

Section [X]. Delete Section 18.24.370 of the Long Beach Municipal Code and replace with the following:

~~18.24.370 CBC chapter 22, division IV amended- Seismic provisions for structural steel buildings.~~

~~Division IV of Chapter 22 of the California Building Code is amended to read as follows:~~

~~Division IV--SEISMIC PROVISIONS~~
~~FOR STRUCTURAL STEEL BUILDINGS~~
~~Based on Seismic Provisions for Structural Steel Buildings, of the American Institute of Steel Construction, Part I and III, dated April 15, 1997 and Supplement No. 2, dated November 10, 2000.~~

18.24.370 CBC section 2308.12.5 amended – Attachment of sheathing.

Section 2308.12.5 of the 2007 California Building Code is amended to read as follows:

2308.12.5 Attachment of sheathing. Fastening of braced wall panel sheathing shall not be less than that prescribed in Table 2308.12.4 or Table 2304.9.1. Wall sheathing shall not be attached to framing members by adhesives.

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 inch (6096 mm) intervals along the top plate of discontinuous vertical framing.

COMMENT: Amendment due to local geological conditions. This section/amendment is consistent with the Los Angeles Regional Uniform Code Program set of amendments adopted by the cities and county of the Los Angeles region.

The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. Conventional framing does not address the need for a continuous load path, critical shear transfer mechanisms, connection ties, irregular and flexible portions of complex shaped structures. Unless designed by a registered design professional, such buildings built by conventional framing requirements will be prone to serious damage in future large earthquakes. The proposed modification need to be incorporated into the code to assure that new buildings and additions to existing buildings are designed and constructed in accordance with the scope and objectives of the International Building Code.

Section [X]. Delete Section 18.24.380 of the Long Beach Municipal Code and replace with the following:

~~18.24.380 CBC section 2204 amended--Design methods.~~

~~Section 2204 of Chapter 22 of the California Building Code is amended to read as follows:~~

~~SECTION 2204 -- DESIGN METHODS.~~
~~Design shall be by one of the following methods.~~
~~2204.1 Load and Resistance Factor Design. Steel design based on load and resistance factor design methods shall resist the factored load combinations of Section 1612.2 in accordance with the applicable requirements of Section 2205.~~
~~2204.2 Allowable Stress Design. Steel design based on allowable stress design methods shall resist the factored load combinations of Section 1612.3 in accordance with the applicable requirements of Section 2205.~~

18.24.380 CBC section 2503.1 amended – Inspection.

Section 2503.1 of Chapter 25 of the 2007 California Building Code is amended by amending the reference to “Sections 109.3.5, Appendix Chapter 1” to read “Section 18.16.040.B.5.”

COMMENT: Administrative amendment which adopts the latest edition of the California Building Code and makes minor editorial changes to reflect the appropriate reference to the municipal code for inspections.

Section [X]. Section 18.24.389 is added to the Long Beach Municipal Code to read as follows:

18.24.389 CBC section H101.2 of appendix H amended – Signs exempt from permits.

Section H101.2 of Appendix H of the 2007 California Building Code is amended by deleting Item 4.

COMMENT: Administrative amendment which adopts the latest edition of the California Building Code and makes minor editorial changes to be consistent with the City's zoning regulations.

Section [X]. Delete Section 18.24.390 of the Long Beach Municipal Code and replace with the following:

~~18.24.390 CBC section 2205.3 amended--Seismic design provisions for structural steel.~~

~~Section 2205.3 of Chapter 22 of the California Building Code is amended to read as follows:~~

~~2205.3 Seismic Design Provisions for Structural Steel. Steel structural elements that resist seismic forces shall, in addition to the requirements of Section 2205.2 be designed in accordance with Division IV.~~

18.24.390 CBC section H105.2 of appendix H amended – Permits, drawings and specifications.

Section H105.2 of Appendix H of the 2007 California Building Code is amended to read as follows:

H105.2 Permits, drawings and specifications. Where a permit is required, as provided in ~~Chapter 1~~Section 18.12.010, construction documents shall be required. These documents shall show the dimensions, material and required details of construction, including loads, stresses and anchors.

COMMENT: Administrative amendment which adopts the latest edition of the California Building Code and makes minor editorial changes to reference the appropriate section.

Section [X]. Section 18.24.391 is added to the Long Beach Municipal Code

to read as follows:

18.24.391 CBC section H110.1 of appendix H amended – General.

Section H110.1 of Appendix H of the 2007 California Building Code is amended by deleting the last two sentences.

COMMENT: Administrative amendment which adopts the latest edition of the California Building Code and makes minor editorial changes to be consistent with the City's zoning regulations.

Section [X]. Delete Section 18.24.400 of the Long Beach Municipal Code and replace with the following:

~~18.24.400 CBC section 2210 amended - Adoption of seismic provisions for structural steel buildings.~~

~~Section 2210 of Chapter 22 of the California Building Code is amended to read as follows:~~

~~2210 – ADOPTION~~

~~Except for the modifications as set forth in Section 2211 and 2212 of this division and the requirements of the building code, the seismic design, fabrication, and erection of structural steel shall be in accordance with the Seismic Provisions for Structural Steel Buildings, April 15, 1997, published by the American Institute of Steel Construction, 1 East Wacker Drive, Suite 3100, Chicago, IL 60601, as if set out at length herein. The adoption of Seismic Provisions for Structural Steel Buildings in this Division, hereinafter referred to as AISC-Seismic, shall include Part I (LRFD), and Part III (ASD) and Supplement No. 2 dated November 10, 2000.~~

~~Where other codes, standards, or specifications are referred to in this specification, they are to be considered as only an indication of an acceptable method or material that can be used with the approval of the building official.~~

18.24.400 CBC section J104.1 of appendix J amended – Submittal requirements.

Section J104.1 of Appendix J of the 2007 California Building Code is amended by amending the reference to "Sections 105.3, Appendix Chapter 1" to read "Section 18.12.020."

COMMENT: Administrative amendment which adopts the latest edition of the California Building Code and makes minor editorial changes to reflect the appropriate reference to the municipal code for application information.

Section [X]. Delete Section 18.24.410 of the Long Beach Municipal Code and replace with the following:

~~18.24.410 CBC section 2211 amended--Design methods for structural steel buildings.~~

~~Section 2211 of Chapter 22 of the California Building Code is amended to read as follows:~~

~~SECTION 2211 -- DESIGN METHODS~~
~~When the load combinations from Section 1612.2 for LRFD are used, structural steel buildings shall be designed in accordance with Chapter 22, Division II (AISC-LRFD) and Part I of AISC Seismic as modified by this Division.~~
~~When the load combinations from Section 1612.3 for ASD are used, structural steel buildings shall be designed in accordance with Chapter 22, Division III (AISC-ASD) and Part III of AISC Seismic as modified by this Division.~~

18.24.410 CBC section J104.2 of appendix J amended – Site plan requirements.

Section J104.1 of Appendix J of the 2007 California Building Code is amended by amending the reference to "Sections 106, Appendix Chapter 1" to read "Section 18.12.050."

COMMENT: Administrative amendment which adopts the latest edition of the California Building Code and makes minor editorial changes to reflect the appropriate reference to the municipal code for submittal requirements for construction documents.

Section [X]. Delete Section 18.24.420 of the Long Beach Municipal Code and replace with the following:

~~18.24.420 CBC section 2212 amended--Amendments to allowable stress design for structural steel buildings.~~

~~Section 2212 of Chapter 22 of the California Building Code is amended to read as follows:~~

~~SECTION 2212 -- Amendments~~
~~The AISC Seismic Provisions adopted by this Division applies to the seismic design of structural steel members except as modified by this section.~~
~~The following terms that appear in AISC Seismic Provisions shall be taken as indicated in the 1997 Uniform Building Code.~~

~~AISC-Seismic~~	~~2001 California Building Code~~
~~Seismic Force Resisting System~~	~~Lateral Force Resisting System~~
~~Design Earthquake~~	~~Design Basis Ground Motion~~
~~Load Combinations Eqs. (4-1) and (4-2)~~	~~Chapter 16 Eqs. (12-17) and (12-18)~~

	respectively
LRFD Specification Section Eqs. (A4-1) through (A4-6)	Chapter 16 Eqs. (12-1) through (12-6) respectively
$\Sigma_e Q_E$	E_m

The AISC Seismic Provisions are modified as follows:

PART I

1. SCOPE.

These Provisions are intended for the design and construction of structural steel members and connections in the Seismic Force Resisting Systems in buildings for which the design forces resulting from earthquake motions have been determined on the basis of various levels of energy dissipation in the inelastic range of response. These Provisions shall apply to buildings in Seismic Zone 2 with an importance factor I greater than one, in Seismic Zone 3 and 4 or when required by the Engineer of Record.

These Provisions shall be applied in conjunction with Chapter 22 Div. II, hereinafter referred to as the LRFD Specification. All members and connections in the Lateral Force Resisting System shall have a design strength as provided in the LRFD Specification to resist Load Combinations 12-1 through 12-6 (in Chapter 16) and shall meet the requirements in these Provisions.

Part I includes a glossary, which is specifically applicable to this Part, and Appendix S.

4.1 Loads and Load Combinations

The loads and load combinations shall be those in Section 1612.2 except as modified throughout these Provisions.

18.24.420 CBC section J105.1 of appendix J amended – General.

Section J105.1 of Appendix J of the 2007 California Building Code is amended by amending the reference to “Sections 109, Appendix Chapter 1” to read “Chapter 18.16 Inspections.”

COMMENT: Administrative amendment which adopts the latest edition of the California Building Code and makes minor editorial changes to reflect the appropriate reference to the municipal code for inspections.

Section [X]. Amend Chapter 18.24 of the Long Beach Municipal Code by deleting Section 18.24.430 which read as follows:

18.24.430 CBC section 2307 amended--Wood supporting masonry or concrete.

Section 2307 of Chapter 23 of the California Building Code is amended to read as follows:

2307 WOOD SUPPORTING MASONRY OR CONCRETE

Wood members shall not be used to permanently support the dead load of any

~~masonry or concrete.~~

~~EXCEPTIONS:~~

~~1. Masonry or concrete nonstructural floor or roof surfacing not more than 4 inches (102 mm) thick may be supported by wood members.~~

~~2. Any structure may rest upon wood piles constructed in accordance with the requirements of Chapter 18.~~

~~3. Veneer used as an interior wall finish may be supported on wood floors that are designed to support the additional load and designed to limit the deflection and shrinkage to 1/600 of the span of the supporting members.~~

~~4. Glass block masonry having an installed weight of 20 pounds per square foot (97.6 kg/m2) or less and installed with the provisions of Section 2109.5. When glass block is supported on wood floors, the floors shall be designed to limit deflection and shrinkage to 1/600 of the span of the supporting members and the allowable stresses for the framing members shall be reduced in accordance with Division III, Part I.~~

~~See Division II, Part II for wood members resisting horizontal forces contributed by masonry or concrete.~~

COMMENT: This administrative amendment is no longer necessary. The latest edition of the California Building Code adequately addresses this provision.

Section [X]. Amend Chapter 18.24 of the Long Beach Municipal Code by deleting Section 18.24.440 which read as follows:

~~18.24.440 CBC section 2315.1 amended--General, wood shear walls and diaphragms.~~

~~Section 2315.1 of Chapter 23 of the California Building Code is amended to read as follows:~~

~~2315.1 General. Lumber and wood structural panel horizontal and vertical diaphragms may be used to resist horizontal forces in horizontal and vertical distributing or resisting elements, provided the deflection in the plane of the diaphragm, as determined by calculations, tests or analogies drawn therefrom, does not exceed the permissible deflection of attached distributing or resisting elements. See UBC Standard 23-2 for a method of calculating the deflection of a blocked wood structural panel diaphragm.~~

~~Permissible deflection shall be that deflection up to which the diaphragm and any attached distributing or resisting element will maintain it structural integrity under assumed load conditions, i.e., continue to support assumed loads without danger to occupants of the structure.~~

~~Connections and anchorages capable of resisting the design forces shall be provided between the diaphragms and the resisting elements. Openings in diaphragms that materially affect their strength shall be fully detailed on the plans and shall have their edges adequately reinforced to transfer all shearing stresses.~~

~~Size and shape of each horizontal diaphragm and shear wall shall be limited as set~~

~~forth in Table 12-II-G. The height of a shear wall shall be defined as:~~

~~1. The maximum clear height from foundation to bottom of diaphragm framing above, or~~

~~2. The maximum clear height from top of diaphragm to bottom of diaphragm framing above.~~

~~The width of a shear wall shall be defined as the width of sheathing. See figure 23-II-1, Section (a).~~

~~Where shear walls with openings are designed for force transfer around the openings, the limitations of Table 23-II-G shall apply to the overall shear wall including openings and to each wall pier at the side of an opening. The height of a wall pier shall be defined as the clear height of the pier at the side of an opening. The width of a wall pier shall be defined as the sheathed width of the pier at the side of an opening. Design for force transfer shall be based on a rational analysis. Detailing of boundary members around the opening shall be provided in accordance with Section 2315. See figure 23-II-1, Section (b). Vertical diaphragms shall also meet the story drift limitations of Section 1630.10 of this code.~~

~~In all buildings in Seismic Zone 4, lumber, and wood structural panel diaphragms shall not be considered as transmitting lateral forces by rotation.~~

~~EXCEPTION: One-story, attached or detached residential garages or similar Group U, Division 1 woodframed structures with a maximum depth normal to the open side of 25 feet (7260 mm) and a maximum width of 25 feet (7260 mm) provided the diaphragm is not constructed of straight sheathing.~~

~~In masonry or concrete buildings, lumber or wood structural diaphragms shall not be considered as transmitting lateral forces by rotation.~~

~~Diaphragm sheathing nails or other approved sheathing connectors shall be driven flush but shall not fracture the surface of the sheathing.~~

~~Cantilevered diaphragms supporting floors or roofs above shall not exceed 15 percent of the distance between lines of lateral load resisting elements from which the diaphragm cantilevers. The depth to width ratio of the cantilevered portion of the diaphragm shall not be less than 4:1.~~

COMMENT: This administrative amendment is no longer necessary. The latest edition of the California Building Code adequately addresses this provision.

Section [X]. Amend Chapter 18.24 of the Long Beach Municipal Code by deleting Section 18.24.450 which read as follows:

~~18.24.450 CBC section 2315.3.3 amended--Wood structural panel diaphragms.~~

~~Section 2315.3.3 of Chapter 23 of the California Building Code is amended to read as follows:~~

~~2315.3.3 Wood structural panel diaphragms. Horizontal and vertical diaphragms sheathed with wood structural panels may be used to resist horizontal forces not exceeding those set forth in Table 23-II-H for horizontal diaphragms and Table 23-II-I-1 for vertical diaphragms. Wood structural panels for horizontal diaphragms shall be as~~

~~set forth in Tables 23-II-E-1 and 23-II-E-2 for corresponding joist spacing and loads. Wood structural panels in shear walls shall be at least 3/8 inch (9.5 mm) thick and studs spaced no more than 16 inches (406 mm) on center.~~

~~Maximum spans for wood structural panel subfloor underlayment shall be as set forth in Table 23-II-F-1. Wood structural panels used for horizontal and vertical diaphragms shall conform to Uniform Building Code Standard 23-2 or 23-3.~~

~~All boundary members shall be proportioned and spliced where necessary to transmit direct stresses. Framing members shall be at least 2-inch (51 mm) nominal in the dimension to which the wood structural panel is attached. In general, panel edges shall bear on the framing members and butt along their center lines. Nails shall be placed not less than 1/2 inch (12.7 mm) in from the panel edges and not less than 3/8 inch (9.5 mm) from the edge of the connecting members for shear greater than 300 pounds per foot (4.38kN/m). Nails shall be placed not less than 3/8 inch (9.5 mm) from panel edges and not less than 1/4 inch (6.4 mm) from the edge of the connecting members for shears of 300 pounds per foot or less. Nails shall be spaced not more than 6 inches (152 mm) on center along panel edge bearings, and shall be firmly driven into the framing members. No unblocked panels less than 12 inches (305 mm) wide shall be used.~~

~~Diaphragms with panel edges supported in accordance with Tables 23-II-E-1, 23-II-E-2 and 23-II-F-1 shall not be considered as blocked diaphragms unless blocking or other means of shear transfer is provided.~~

COMMENT: This existing provision was updated and relocated to section 18.24.270 and 18.24.280.

Section [X]. Amend Chapter 18.24 of the Long Beach Municipal Code by deleting Section 18.24.460 which read as follows:

~~18.24.460 CBC section 2315.5.5 and table 23-II-I-2 deleted--Particleboard.~~

~~Section 2315.5.5 and Table 23-II-I-2 of Chapter 23 of the California Building Code are deleted.~~

COMMENT: This administrative amendment is no longer necessary. The latest edition of the California Building Code adequately addresses this provision.

Section [X]. Amend Chapter 18.24 of the Long Beach Municipal Code by deleting Section 18.24.470 which read as follows:

~~18.24.470 New CBC section 2315.5.6--Hold down connectors.~~

~~New Section 2315.5.6 is added to Chapter 23 of the California Building Code as follows:~~

~~2315.5.6 Hold-down connectors. Hold-down connectors shall be designed to resist shear wall overturning moments using approved cyclic load values or 75 percent of the allowable earthquake load values that do not consider cyclic loading of the product. Connector bolts into wood framing require steel plate washers in accordance with Table 23-II-L. Hold-downs shall be retightened just prior to covering the wall framing.~~

COMMENT: This existing provision was updated and relocated to section 18.24.250.

Section [X]. Amend Chapter 18.24 of the Long Beach Municipal Code by deleting Section 18.24.480 which read as follows:

~~18.24.480 New CBC section 2315.5.7--Shear wall displacement analysis.~~

~~New Section 2315.5.7 is added to Chapter 23 of the California Building Code as follows:~~

~~2315.5.7 Shear Wall Displacement Analysis. Wood structural panel shear walls shall meet the story drift limitation of Section 1630.10 of this code. Conformance to the story drift limitation shall be determined by approved testing or calculation or analogies drawn therefrom and not the use of an aspect ratio. Calculated deflection shall be determined according to U.B.C. Standard 23-2, Section 23.223 "Calculation of Shear Wall Deflection," and shall be increased 25 percent to account for inelastic action and repetitive loading. Contribution to the deflection from the anchor or tie down slippage shall also be included. The slippage contribution shall include the vertical elongation of the metal, the vertical slippage of the fasteners and compression or shrinkage of the wood elements. The total vertical slippage shall be multiplied by the aspect ratio and added to the total horizontal deflection.~~

COMMENT: This administrative amendment is no longer necessary. The latest edition of the California Building Code adequately addresses this provision.

Section [X]. Amend Chapter 18.24 of the Long Beach Municipal Code by deleting Section 18.24.490 which read as follows:

~~18.24.490 New CBC section 2315.5.8--Quality of nails.~~

~~Section 2315.5.8 is added to Chapter 23 of the California Building Code as follows:~~

~~2315.5.8 Quality of Nails. Mechanically driven nails used in shear wall panel construction shall meet the same tolerances as that required for hand driven nails. The allowable design value for clipped 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.~~

COMMENT: This existing provision was updated and relocated to section 18.24.260.

Section [X]. Amend Chapter 18.24 of the Long Beach Municipal Code by deleting Section 18.24.500 which read as follows:

~~18.24.500 CBC section 2315.6 deleted--Fiberboard sheathing diaphragms.~~

~~Section 2315.6 of Chapter 23 of the California Building Code is deleted.~~

COMMENT: This administrative amendment is no longer necessary. The latest edition of the California Building Code adequately addresses this provision.

Section [X]. Amend Chapter 18.24 of the Long Beach Municipal Code by deleting Section 18.24.510 which read as follows:

~~18.24.510 New CBC table 23-II-L--Minimum size for square plate washers.~~

~~Table 23-II-L is added to Chapter 23 of the California Building Code as follows:~~

~~Table 23-II-L~~
~~MINIMUM SIZE STEEL PLATE WASHERS~~

~~**Bolt Size**~~	~~**Plate Size**~~
~~x 25.4 for mm~~	~~x 25.4 for mm~~
~~1/2 in~~	~~3/16" x 2" x 2"~~
~~5/8 in~~	~~1/4" x 2-1/2" x 2-1/2"~~
~~3/4 in~~	~~5/16" x 2-3/4" x 2-3/4"~~
~~7/8 in~~	~~5/16" x 3" x 3"~~
~~1 in~~	~~3/8" x 3-1/2" x 3-1/2"~~

COMMENT: This existing provision was updated and relocated to section 18.24.250.

Section [X]. Amend Chapter 18.24 of the Long Beach Municipal Code by deleting Section 18.24.520 which read as follows:

~~18.24.520 CBC table 23-II-I-1 amended--Allowable shear for wood structural shear panels.~~

~~Table 23-II-I-1 of Chapter 23 of the California Building Code is amended to read as follows:~~

TABLE 23-II-I-1 ALLOWABLE SHEAR FOR WIND OR SEISMIC FORCES IN POUNDS PER FOOT FOR WOOD STRUCTURAL PANEL SHEAR WALLS WITH FRAMING OF DOUGLAS FIR-LARCH OR SOUTHERN PINE [1, 2]

PANEL GRADE	MINIMUM NOMINAL PANEL THICKNESS (inches) x 25.4 for mm	MINIMUM NAIL PENETRATION IN FRAMING (inches) x 25.4 for mm	ALLOWABLE SHEAR SEISMIC FORCES [3, 6, 7] PANELS APPLIED DIRECTLY TO FRAMING: NAIL SIZE (Common or Galvanized Box)[5]	Nail Spacing at Plywood Panel Edges (In.) x 25.4 for mm: 6	4	3	2 (x 0.0146 for N/mm)	ALLOWABLE SHEAR WIND FORCES PANELS APPLIED DIRECTLY TO FRAMING: NAIL SIZE (Common or Galvanized Box)[5]	Nail Spacing at Plywood Panel Edges (In.) x 25.4 for mm: 6	4	3	2 (x 0.0146 for N/mm)
STRUCTURAL I	5/16	1 1/4	6d	150	200	200	200	6d	200	300	390	510
	3/8	1 1/2	8d	175	200	200	200	8d	230[4]	360[4]	460[4]	610[4]
	7/16			190	295	380	500		255[4]	395[4]	505[4]	670[4]
	15/32			210	320	410	550		280	430	550	730
	15/32	1 5/8	10d	255	380	500	650	10d	340	510	665	870
C-D, C-C Sheathing, plywood panel siding and other grades covered in U.B.C. Standard 23-2 or 23-3	5/16	1 1/4	6d	130	200	200	200	6d	180	270	350	450
	3/8			150	200	200	200		200	300	390	510
	3/8	1 1/2	8d	165	200	200	200	8d	220[4]	320[4]	410[4]	530[4]
	7/16			180	260	335	435		240[4]	350[4]	450[4]	585[4]
	15/32			200	285	370	480		260	380	490	640
	15/32	1 5/8	10d	230	345	450	580	10d	310	460	600	770
	19/32			255	380	500	650		340	510	665	870
			NAIL SIZE (Galvanized Casing)					NAIL SIZE (Galvanized Casing)				
Plywood panel siding in grades covered in U.B.C. Standard 23-2	5/16	1 1/4	6d	100	150	200	200	6d	140	210	275	360
	3/8	1 1/2	8d	120	180	200	200	8d	160	240	310	410

~~1 All panel edges backed with 2 inch (51 mm) nominal or thicker framing. Panels installed either horizontally or vertically. Space nails at 6 inches (152 mm) on center along intermediate framing members for 3/8 inch (9.5 mm) and 7/16 inch (11 mm) panels installed on studs spaced 24 inches (610 mm) on center and 12 inches (305 mm) on center for other conditions and panel thicknesses. These values are for short time loads due to wind or earthquake and must be reduced 25 percent for normal loading. Allowable shear values for nails in framing members of other species set forth in Division III, Part III, shall be calculated for all other grades by multiplying the shear capacities for nails in STRUCTURAL I by the following factors: 0.82 for species with specific gravity greater than or equal to 0.42 but less than 0.49, and 0.65 for species with a specific gravity of less than 0.42.~~
~~2 Where panels are applied on both faces of a wall and nail spacing is less than 6 inches (152 mm) on center on either side, panel joints shall be offset to fall on different framing members or framing shall be 3 inch (76 mm) nominal or thicker and nails on each side shall be staggered.~~
~~3 Where allowable shear values exceed 300 pounds per foot (4.38 N/mm) foundation sill plates and all framing members receiving edge nailing from abutting panels shall not be less than a single 3 inch (76 mm) nominal member. In shear walls where total wall design shear does not exceed 450 pounds per foot (6.94 N/mm), a single 2-inch (51 mm) nominal sill plate may be used, provided anchor bolts are designed for a load capacity of 50 percent or less of the allowable capacity and bolts have a minimum of 2 inch by 2 inch by 3/16 inch (51 mm by 51 mm by 5 mm) thick plate washers. Plywood joint and sill plate nailing shall be staggered.~~
~~4 (Not adopted)~~
~~5 Galvanized nails shall be hot dipped or tumbled.~~
~~6 The maximum allowable shear for three ply plywood resisting seismic forces is 200 pounds per foot (2.92 kN/m).~~
~~7 Framing at adjoining panel edges shall be 3 inch (76 mm) nominal or thicker and nails shall be staggered where nails are spaced 2 inches (51 mm) on center.~~

COMMENT: This existing provision was updated and relocated to section 18.24.270, 18.24.280 and 18.24.290.

Section [X]. Amend Chapter 18.24 of the Long Beach Municipal Code by deleting Section 18.24.530 which read as follows:

~~18.24.530 CBC section 2320 amended General, light frame construction design provisions.~~

~~Section 2320 of Chapter 23 of the California Building Code is amended as follows:~~

~~2320.1 General. The requirements in this section are intended for conventional light-frame construction. Other methods may be used provided a satisfactory design is submitted showing compliance with other provisions of this code.~~

~~Only the following occupancies may be constructed in accordance with this division:~~

~~1. One-story buildings housing Group R Occupancies. Cripple walls shall be considered as a story.~~

~~2. One-story Occupancy Category 4 buildings, as defined in Table 16-K, when constructed on a slab-on-grade floor.~~

~~3. Group U Occupancies.~~

~~4. (Not Adopted)~~

~~5. For all occupancies, interior nonload-bearing partitions, 8 feet (2438 mm) or higher shall be laterally braced at the top at 8 feet (2438 mm) maximum on center.~~

~~When total loads exceed those specified in Tables 23-IV-J-1, 23-IV-J-3, 23-IV-R-1, 23-IV-R-2, 23-IV-R-3, 23-IV-R-4, 23-IV-R-7, and 23-IV-R-8, 23-IV-R-9, 23-IV-R-10, 23-IV-R-11, 23-IV-R-12; 23-VII-R-1, 23-VII-R-3, 23-VII-R-7, 23-VII-R-9, 23-VIII-A, 23-VIII-B, 23-VIII-C, 23-VIII-D, an engineering system shall be provided for the gravity load system.~~

~~Other approved repetitive wood members may be used in lieu of solid-sawn lumber~~

~~in conventional construction provided these members comply with the provisions of this code.~~

COMMENT: This existing provision was updated and relocated to section 18.24.320 thru 18.24.370.

Section [X]. Amend Chapter 18.24 of the Long Beach Municipal Code by deleting Section 18.24.540 which read as follows:

~~18.24.540 CBC section 2320.5.1 amended--Braced wall lines.~~

~~Section 2320.5.1 of Chapter 23 of the California Building Code is amended to read as follows:~~

~~2320.5.1 Braced wall lines. Buildings shall be provided with exterior and interior braced wall lines. Spacing shall not exceed 25 feet (7620 mm) on center in both the longitudinal and transverse directions in each story.~~

COMMENT: This existing provision was updated and relocated to section 18.24.320.

Section [X]. Amend Chapter 18.24 of the Long Beach Municipal Code by deleting Section 18.24.550 which read as follows:

~~18.24.550 CBC section 2320.5.3 amended--Veneer.~~

~~Section 2320.5.3 of Chapter 23 of the California Building Code is amended to read as follows:~~

~~2320.5.3 Veneer. Anchored masonry and stone wall veneer shall not exceed 5 inches (127 mm) in thickness, shall conform to the requirements of Chapter 14 and shall not extend more than 5 feet (1219 mm) above first story finish floor.~~

COMMENT: This existing provision was updated and relocated to section 18.24.340.

Section [X]. Amend Chapter 18.24 of the Long Beach Municipal Code by deleting Section 18.24.560 which read as follows:

~~18.24.560 CBC Section 2320.5.6 amended--Interior braced wall support.~~

~~Section 2320.5.6 of Chapter 23 of the California Building Code is amended to read as follows:~~

~~2320.5.6 Interior braced wall support. Interior braced wall lines shall be supported on continuous foundations.~~

COMMENT: This existing provision was updated and relocated to section 18.24.320.

Section [X]. Amend Chapter 18.24 of the Long Beach Municipal Code by deleting Section 18.24.570 which read as follows:

~~18.24.570 CBC Section 2320.9.2 amended--Wood structural panels.~~

~~Section 2320.9.2 of Chapter 23 of the California Building Code is amended to read as follows:~~

~~2320.9.2 Wood structural panels. Where used as structural subflooring, wood structural panels shall be as set forth in Tables 23-II-E-1 and 23-II-E-2. Wood structural panel combination subfloor underlayment shall have maximum spans as set forth in Table 23-II-F-1.~~

COMMENT: This existing provision was updated and relocated to section 18.24.240.

Section [X]. Amend Chapter 18.24 of the Long Beach Municipal Code by deleting Section 18.24.580 which read as follows:

~~18.24.580 CBC Section 2320.11.3 amended--Bracing.~~

~~Section 2320.11.3 of Chapter 23 of the California Building Code is amended to read as follows:~~

~~2320.11.3 Bracing. Braced wall lines shall consist of braced wall panels which meet the requirements for location, type and amount of bracing specified in Table 23-IV-C-1 and are in line or offset from each other by not more than 4 feet (1219 mm). Braced wall panels shall start at not more than 8 feet (2438 mm) from each end of a braced wall line. All braced wall panels shall be clearly indicated on the plans. Construction of braced wall panels shall be by one of the following methods:~~
~~1. (Not Adopted)~~
~~2. (Not Adopted)~~
~~3. Wood structural panel sheathing of a thickness not less than 1/2-inch (12.7 mm) nominal of structural I grade for a maximum 16-inch (406 mm) stud spacing accordance~~

~~with Tables 23-II-A-1 and 23-IV-D-1. Nailing shall be minimum 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.~~

~~4. (Not Adopted)~~

~~5. (Not Adopted)~~

~~6. (Not Adopted)~~

~~7. Portland cement plaster on studs spaced 16 inches (406 mm) on center installed in accordance with Table 25-I.~~

~~8. (Not Adopted)~~

~~For Method 3, each braced panel must be at least 48 inches (1219 mm) in length, covering three stud spaces where studs are spaced 16 inches (406 mm) apart and have a height to length ratio not exceeding 2 to 1.~~

~~For Method 7 each braced wall panel must be at least 96 inches (2438 mm) in length and have a height to length ratio not exceeding 1 to 1.~~

~~All vertical joints of panel sheathing shall occur over studs. Horizontal joints shall occur over blocking equal in size to the studding except where waived by the installation requirements for the specific sheathing materials.~~

~~Braced wall panel construction types shall not be mixed within a braced wall line.~~

~~Braced wall panel sole plates shall be nailed to the floor framing and top plates shall be connected to the framing above in accordance with Table 23-II-B-1. Sills shall be bolted to the foundation or slab in accordance with Section 1806.6 of this code. Where joists are perpendicular to braced wall lines above, blocking shall be provided under and in line with the braced wall panels. 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 inch (6096 mm) intervals along the top plate of discontinuous vertical framing.~~

COMMENT: This existing provision was updated and relocated to section 18.24.320 thru 18.24.370.

Section [X]. Amend Chapter 18.24 of the Long Beach Municipal Code by deleting Section 18.24.590 which read as follows:

~~18.24.590 CBC section 2320.11.4 amended--Alternate braced walls.~~

~~Section 2320.11.4 of Chapter 23 of the California Building Code is amended to read as follows:~~

~~2320.11.4 Alternate braced wall panels. For one story Group U, Division 1, occupancies a braced wall panel required by Section 2320.11.3 may be replaced by an alternate braced wall panel constructed in accordance with the following:~~

~~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 1/2-inch-nominal minimum-thickness (12.7 mm) plywood sheathing nailed with 8d common or galvanized box nails in accordance with Table 23-II-B-1 and blocked at all plywood edges. Two anchor bolts installed in accordance with Section 1806.6 shall be provided in each panel. Anchor bolts shall be placed at panel quarter points. Each panel end stud shall have a tie-down device fastened to the foundation, capable of providing an approved uplift capacity of not less than 1,800 pounds (816.5 kg). The tie-down device shall be installed in accordance with the manufacturer's recommendations. The panels shall be supported directly on a foundation which 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, or~~

~~2. Braced wall panels required by Section 2320.5.1 may be eliminated when all of the following requirements are met:~~

~~a. Detached or attached garage is no more than 25 feet in depth or length.~~

~~b. The roof and three enclosing walls are solid sheathed with 1/2 inch nominal thickness wood structural panels with 8d common nails placed 3/8 inches from panel edges and spaced not more than 6 inches on center along all panel edges and 12 inches on center along intermediate framing members. Wall openings for doors or windows are permitted provided a minimum 4 foot wide wood structural braced panel with minimum height to length ratio of 2 to 1 is provided at each end of the wall line and that the wall line be sheathed for 50% of its length.~~

COMMENT: This existing provision was updated and relocated to section 18.24.320 thru 18.24.370.

Section [X]. Amend Chapter 18.24 of the Long Beach Municipal Code by deleting Section 18.24.600 which read as follows:

~~18.24.600 CBC table 23-IV-C-1 amended--Braced wall panels.~~

~~Table 23-IV-C-1 of Chapter 23 of the California Building Code is amended to read as follows:~~

~~**TABLE 23-IV-C-1- BRACED WALL PANELS**[1]~~

~~**SEISMIC ZONE**~~	~~**CONDITION**~~	~~**CONSTRUCTION METHOD**~~[2,3]								~~**BRACED PANEL LOCATION AND LENGTH**~~ [4]
		~~1~~	~~2~~	~~3~~	~~4~~	~~5~~	~~6~~	~~7~~	~~8~~	
~~0, 1 and 2A~~	~~One Story Top of Two or Three Story~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~Each end and not more than 25 feet (7620 mm) of center~~
	~~First Story of Two Story or Second Story of Three Story~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	
	~~First Story of Three Story~~		~~X~~	~~X~~	~~X~~	~~X~~[5]	~~X~~	~~X~~	~~X~~	

2B, 3	One story, Top of Two Story of Three Story		X	X	X	X	X	X[6]	X	Each end and not more than 25 feet (7620 mm) on center
	First Story of Two Story or Second of Three Story		X	X	X	X[5]	X	X[6]	X	Each end and not more than 25 feet (7620 mm) on center but not less than 25% of building length[7]
	First Story of three story		X	X	X	X[5]	X	X[6]	X	Each end and not more than 25 feet (7620 mm) on center but not less than 40% of building length[7]
4	One Story			X				X[6]		Each end and not more than 25 feet (7620 mm) on center but not less than 25% of building length for method 3 and 50% for method 7.

1 This table specifies minimum requirements for braced panels which form interior or exterior braced wall lines.
2 See Section 2320.11.3 for full description.
3 See Section 2320.11.4 for alternate braced panel requirement.
4 Building length is the dimension parallel to the braced wall length.
5 Gypsum wallboard applied to supports at 16 inches (406 mm) on center.
6 Not permitted for bracing cripple walls in Seismic Zone 4. See Section 2320.11.5.
7 The required lengths shall be doubled for gypsum board applied to only one face of a braced wall panel.

COMMENT: This existing provision was updated and relocated to section 18.24.320 thru 18.24.370.

Section [X]. Amend Chapter 18.24 of the Long Beach Municipal Code by deleting Section 18.24.610 which read as follows:

~~18.24.610 BC section 2501.2 amended--Wall and ceiling coverings.~~

~~Section 2501.2 of Chapter 25 of the California Building Code is amended to read as follows:~~

~~2501.2 Inspection. No lath or gypsum board or their attachments shall be covered or finished until it has been inspected and approved by the Building Official in accordance with Sections 18.16.010 through 18.16.050.~~

COMMENT: This existing provision was updated and relocated to section 18.16.040.

Section [X]. Amend Chapter 18.24 of the Long Beach Municipal Code by deleting Section 18.24.620 which read as follows:

~~18.24.620 CBC Section 2513.4 amended--Height to length ratio.~~

~~Section 2513.4 of Chapter 25 of the California Building Code is amended to read as follows:~~

~~2513.4 Height to length Ratio. The maximum allowable height to length ratio for the construction in this section shall be 2 to 1. Wall sections having height to length ratios in excess of 1-1/2 to 1 shall be blocked. All shear walls designed to resist lateral loads in Seismic Zone 4 shall have a maximum allowable height-to-length ratio of 1 to 1.~~

COMMENT: This existing provision was updated and relocated to section 18.24.290.

Section [X]. Amend Chapter 18.24 of the Long Beach Municipal Code by deleting Section 18.24.630 which read as follows:

~~18.24.630 CBC table 25-I amended--Shear walls/gypsum board and plaster.~~

~~Table 25-I of Chapter 25 of the California Building Code is amended to read as follows:~~

TABLE 25-I -- ALLOWABLE SHEAR FOR WIND OR SEISMIC FORCES IN POUNDS PER FOOT FOR VERTICAL DIAPHRAGMS OF LATH AND PLASTER OR GYPSUM BOARD FRAME WALL ASSEMBLIES[1]

TYPE OF MATERIAL	THICKNESS OF MATERIAL x 25.4 for mm x 304.8 for mm	WALL CONSTRUCTION	NAIL SPACING[2] MAXIMUM (inches) x 25.4 for mm	SHEAR VALUE X 14.6 for N/m Seismic[4]	 Wind	MINIMUM NAIL SIZE[3,4] x 25.4 for mm
1. Expanded metal, or woven wire lath and portland cement plaster	7/8"	Unblocked	6	180 90	180	No. 11 gage, 1 1/2" long, 7/16" head, with 1/4" thick furring No. 16 gage staple, 7/8" legs, for wind loads only.
2. Gypsum lath	3/8" lath and 1/2" plaster	Unblocked	5	100 30	100	No. 13 gage, 1 1/8" long, 19/64" head, plasterboard blued nail
3. Gypsum sheathing board	1/2" x 2' x 8'	Unblocked	4	75 30	75	No. 11 gage, 1 3/4" long, 7/16" head, diamond point, galvanized
	1/2" x 4'	Blocked	4	175 30	175	
	1/2" x 4'	Unblocked	7	100 30	100	
4. Gypsum wallboard or veneer base	1/2"	Unblocked	7	100 30	100	5d cooler (0.086" dia., 1 5/8" long, 15/64" head) or wallboard (0.086" dia., 1 5/8" long, 9/32" head)
			4	125 30	125	
		Blocked	7	125 30	125	
			4	150 30	150	
	5/8"	Unblocked	7	115 30	115	6d cooler (0.092" dia., 1 7/8" long, 1/4" head) or wallboard (0.0915" dia., 1 7/8" long, 19/64" head)
			4	145 30	145	
		Blocked	7	145 30	145	
			4	175 30	175	
		Blocked Two ply	Base ply: 9 Face ply: 7	250 30	250	Base ply 6d cooler (0.092" dia., 1 7/8" long, ¼"head) or wallboard (0.0915" dia., 1 7/8" long, 19/64" head) Face ply 8d cooler (0.113" dia., 2 3/8 long, 9/32" head) or wallboard (0.113" dia., 2 3/8" long, 3/8" head)

~~1 These vertical diaphragms shall not be used to resist loads imposed by masonry or concrete construction. See Section 2513.2. Values shown are for short-term loading due to wind or due to seismic loading. Values shown must be reduced 25 percent for normal loading.~~
~~2 Applies to nailing at all studs, top and bottom plates, and blocking.~~
~~3 Alternate nails may be used if their dimensions are not less than the specified dimensions.~~
~~4 This construction shall not be used below the top level of wood construction in a multilevel building.~~

COMMENT: This existing provision was updated and relocated to section 18.24.300 and 18.24.310.

Section [X]. Amend Chapter 18.24 of the Long Beach Municipal Code by deleting Section 18.24.640 which read as follows:

~~18.24.640 CBC section 3102.4.1 amended--Design.~~

~~Section 3102.4.1 of Chapter 31 of the California Building Code is amended to read as follows:~~

~~3102.4.1 Design. Masonry chimneys shall be designed and constructed to comply with Sections 3102.3.2 and 3102.3.3 and applicable design requirements of this Section.~~
~~Notwithstanding any other provisions of this Title, an existing masonry chimney which is altered or repaired more than 10 percent of its replacement cost within any 12-month period shall have its entire chimney structure comply with the current requirements of this Title or other standards approved by the building official.~~

COMMENT: This administrative amendment is no longer necessary. The latest edition of the California Building Code adequately addresses this provision.

Section [X]. Amend Chapter 18.24 of the Long Beach Municipal Code by deleting Section 18.24.650 which read as follows:

~~18.24.650 CBC Section 3102.4.3 amended--Reinforcing and seismic anchorage.~~

~~Section 3102.4.3 of Chapter 31 of the California Building Code is amended to read as follows:~~

~~3102.4.3 Reinforcing and seismic anchorage. The masonry and concrete chimney shall be designed per requirements in Chapter 21 and shall be tied to a structural element of the building capable of providing lateral resistance for the horizontal forces specified in Section 1632. The anchorage of the ties to the resisting structural element shall be designed for the loads specified in Section 1632.~~

COMMENT: This administrative amendment is no longer necessary. The latest edition of the California Building Code adequately addresses this provision.

Section [X]. Amend Chapter 18.24 of the Long Beach Municipal Code by deleting Section 18.24.660 which read as follows:

~~18.24.660 CBC section 3401 amended--General.~~

~~Section 3401 of Chapter 34 of the California Building Code is amended to read as follows:~~

~~A. Buildings in existence at the time of the adoption of this code may have their existing use or occupancy continued, if such use or occupancy was legal at the time of the adoption of this code, provided such continued use is not dangerous to life or found to be substandard as defined in Chapter 18.08 of this title.~~

~~B. Any change in the use or occupancy of any existing building or structure shall comply with the provisions of Section 3405 of the California Building Code.~~

~~C. This Chapter is revised by changing reference "Section 101.17.9" anywhere it occurs to Sections 18.24.040H & I, and "Section 101.17.11" anywhere it occurs to Section 18.24.040K.~~

COMMENT: This administrative amendment is no longer necessary. The latest edition of the California Building Code adequately addresses this provision.

Section [X]. Amend Chapter 18.24 of the Long Beach Municipal Code by deleting Section 18.24.670 which read as follows:

~~18.24.670 CBC section 3405 amended--Change in use.~~

~~Section 3405 of Chapter 34 of the California Building Code is revised by changing the reference "Section 109" in the last paragraph to Section 18.16.150.~~

COMMENT: This administrative amendment is no longer necessary. The latest edition of the California Building Code adequately addresses this provision.

Section [X]. Amend Chapter 18.24 of the Long Beach Municipal Code by deleting Section 18.24.680 which read as follows:

~~18.24.680 CBC appendix section 3309.2 amended--Grading permit application.~~

~~Section 3309.2 of Chapter 33 of the California Building Code Appendix is amended to read as follows:~~

~~3309.2 Application. The provisions of Section 18.12.020 are applicable to grading and in addition to the application shall state the estimated quantities of work involved.~~

COMMENT: This administrative amendment is no longer necessary. The latest edition of the California Building Code adequately addresses this provision.

Section [X]. Amend Chapter 18.24 of the Long Beach Municipal Code by deleting Section 18.24.690 which read as follows:

~~18.24.690 CBC appendix section 3309.9 amended--Grading permit issuance.~~

~~Section 3309.9 of the California Building Code Appendix is amended to read as follows:~~

~~3309.9 Issuance. The provisions of Sections 18.12.060 through 18.12.110 are applicable to grading permits. The building official may require that grading operations and project designs be modified if delays occur which incur weather-generated problems not considered at the time the permit was issued.~~

~~The building official may require professional inspection and testing by the soils engineer. When the building official has cause to believe that geologic factors may be involved, the grading will be required to conform to engineering grading.~~

COMMENT: This existing provision was updated and relocated to section 18.12.051.D.

Section [X]. Section 18.24.710 of the Long Beach Municipal Code is amended by changing the section reference to read as follows:

~~18.24.710~~18.24.430 Chapter 17 added to Uniform Housing Code--Prohibited uses and maintenance.

CHAPTER 17
PROHIBITED USES AND MAINTENANCE
Sec. 1701--Prohibited Uses--
(a) Cooking. It shall be unlawful for any person to cook or prepare food or to permit another person to cook or prepare food in any bath, shower, slop sink, toilet room, water closet compartment, any room not designed and intended to be used as a kitchen, or in any other portion of a building in which the cooking or preparation of food is detrimental to the health of the occupants or the proper sanitation of the building.
(b) Sleeping--It shall be unlawful for any person to use or to permit another person to use any of the following portions of a building for sleeping purposes:
1. A kitchen, hallway, water closet, bath, cellar, shower compartment or slop sink

room.

2. Any other room or place which does not comply with the provisions of this Code as a sleeping room or in which sleeping is dangerous to life or health.

Sec. 1702--Maintenance and Repair--

(a) Maintenance. Every building shall be maintained in good repair.

(b) Roof. The roof of every building shall be kept watertight and all storm or casual water shall be properly drained and conveyed from the roof to a storm drain or street gutter in accordance with other applicable provisions of this Part.

(c) Drainage. All portions of a lot about a building, including the yards, areaways, vent shafts, court and passageways, shall be graded and drained to efficiently carry the water away from the building.

(d) Surfacing, etc. If the Building Official finds it necessary for the protection of the health and safety of the occupants, or for the proper sanitation of a dwelling, apartment house or hotel, it may require that the yards, areaways, vent shafts, court, passageways, or other parts of the lot surrounding the building be graveled, or properly paved and surfaced with concrete, asphalt or similar materials.

(e) Painting of Room Walls and Ceilings. The walls and ceilings of every room in a dwelling, apartment house or hotel shall be finished, sealed, coated or covered in an approved manner. Approved materials shall be applied as often as may be necessary to maintain the walls and ceilings in a clean and sanitary condition.

(f) Painting of Court and Shaft Walls. Unless built of light-colored materials, the walls of courts and shafts shall be painted in a light color, or shall be whitewashed. The paint or whitewash shall be applied as often as may be necessary to maintain the walls in a light color.

(g) Wallpaper. Not more than two thicknesses of wallpaper shall be placed upon any wall, partition, or ceiling of any room in any dwelling, apartment house or hotel. If any wall, partition, or ceiling with two thicknesses of wallpaper in any such room is to be repapered, the old wallpaper shall first be removed. Any wallpaper which has become loose or dilapidated shall be removed and the surface repapered, calcimined or painted.

(h) Painting of Wallpaper. Paint or calcimine over wallpaper is permissible if the plaster under the wallpaper is in good condition.

(i) Screening. Whenever necessary for the health of the occupants, or for the proper sanitation or cleanliness of any building, acceptable mosquito screening shall be provided for each exterior door, window, or other opening in the exterior walls of the buildings.

(j) Garbage Receptacle Compartment. Every residential building shall be provided with facilities adequate for the storing of all garbage and waste, either within an approved compartment or receptacles. These facilities shall be maintained in a clean and sanitary condition.

(k) Fences. All fences shall be maintained in good repair and shall be kept straight, uniform and structurally sound. Wooden fences shall be either painted or stained or otherwise treated or sealed in an approved manner to prevent their becoming a nuisance from weathering or deterioration.

(l) Sanitation. Each room, hallway, passageway, stairway, wall, partition, ceiling, floor, skylight, glass window, door carpet, rug, matting, window curtain, water closet, compartment, or room, toilet room, bathroom, slop sink room, washroom, plumbing fixtures, drain, roof, closet, cellar, basement, yard, court, lot and the premises of every

building shall be kept in every part clean, sanitary, and free from all accumulation of debris, abandoned or inoperable motor vehicles and vehicle parts, filth, rubbish, garbage, rodents, insects and other vermin, excessive vegetation and other offensive matter.

(m) Dangerous Articles. No article that is dangerous or detrimental to life or to the health of the occupants, including any feed, hay, straw, excelsior, cotton, paper stock, rags, junk, or any other material that may create a fire hazard, shall be kept, stored or handled in any part of a dwelling, apartment house or hotel, or on the lot on which such building is located.

(n) Caretaker. A janitor, housekeeper, or other responsible person shall reside upon the premises and shall have charge of every apartment house in which there are sixteen or more apartments, of every hotel in which there are twelve or more guest rooms, unless the owner of any such apartment house or hotel resides upon said premises. If the owner does not reside upon the premises of any apartment house in which there are more than four but less than sixteen apartments, a notice stating the owner's name and address or the name and address of his agent in charge of the apartment house shall be posted in a conspicuous place on the premises.

(o) Bedding. In every apartment house or hotel, every part of every bed, including mattress, sheets, blankets, and bedding, shall be kept in a clean, dry and sanitary condition, free from filth, urine or other foul matters, and from the infection of lice, bedbugs or other insects. The bed linen of a bed in a hotel shall be changed at least as often as a new guest occupies the bed.

COMMENT: This administrative amendment is to be consistent with latest edition of the California Building Code and makes minor editorial changes to reflect the new section reference.

Section [X]. Amend Chapter 18.24 of the Long Beach Municipal Code by deleting Section 18.24.720 which read as follows:

~~18.24.720 Sections deleted from codes.~~

~~The following sections of the 2001 Edition of the California Building Code, Volumes I and II, and Appendices, and the 1997 Edition of the Uniform Housing Code are deleted.~~

~~A. Chapter 1, Section 312.6 of Chapter 3, Chapter 11, Sections 1701.1, 1701.2, and 1701.3 of Chapter 17; Division I of Appendix Chapter 4; Divisions I, II and III of Appendix Chapter 16; Division I of Appendix Chapter 31; Section 3310.3 of Appendix Chapter 33; and Appendix Chapters 3, 10, 11, 12, 13, 19, 21, 23, 29, 30 and 34 of the California Building Code.~~

~~B. Chapters 1, 2, 3, 4, 10, 11, 12, 13, 14, 15, and 16 of the Uniform Housing Code.~~

COMMENT: This existing provision was updated and relocated to section 18.24.040.

Section [X]. Amend Chapter 18.24 of the Long Beach Municipal Code by deleting Section 18.24.730 which read as follows:

~~18.24.730 Certain municipal code provisions still in effect.~~

~~Notwithstanding the adoption of the 2001 Edition of the California Building Code, Volumes I and II, and Appendices, and the 1997 Edition of the Uniform Housing Code, the following chapters of this title shall remain in full force and effect, subject to any amendments to these chapters:~~

~~Chapter 18.04, "General Provisions";~~
~~Chapter 18.08, "Definitions";~~
~~Chapter 18.12, "Permits";~~
~~Chapter 18.16, "Inspections";~~
~~Chapter 18.17, "Transportation Improvement Fee";~~
~~Chapter 18.18, "Park and Recreation Facilities Fee";~~
~~Chapter 18.19, "Long Beach Airport Traffic Study Area Traffic Fee and Mitigation Requirements";~~
~~Chapter 18.20, "Administration and Enforcement";~~
~~Chapter 18.21, "Maintenance of Long Term Boarded and Vacated Buildings";~~
~~Chapter 18.24, "Building Codes";~~
~~Chapter 18.28, "Electrical Code";~~
~~Chapter 18.32, "Electrical Regulations";~~
~~Chapter 18.36, "Mechanical Code";~~
~~Chapter 18.40, "Plumbing Code";~~
~~Chapter 18.44, "Plumbing Regulations";~~
~~Chapter 18.52, "Moving Buildings";~~
~~Chapter 18.56, "Signs";~~
~~Chapter 18.64, "Sandblasting";~~
~~Chapter 18.68, "Earthquake Hazard Regulations";~~
~~Chapter 18.72, "Gas Appliances";~~
~~Chapter 18.76, "Report on Available Off Street Parking Spaces Upon Resale";~~
~~Chapter 18.80, "Demolition of Historic Landmarks";~~
~~Chapter 18.90, "Alternative Building Regulations for Live/Work Uses";~~
~~Chapter 18.95, "NPDES and SUSMP Regulations"; and~~
~~Chapter 18.96, "Visitability of Dwelling Units".~~

COMMENT: This existing provision was updated and relocated to section 18.24.030.

Section [X]. Section 18.28.010 of the Long Beach Municipal Code is amended to read as follows:

18.28.010 Adoption.

The city council adopts and incorporates by reference as though set forth in full in this chapter, the California Electrical Code, ~~2004~~ 2007 Edition, and ~~Appendices~~ Annex A, B, and C, which is based on, and which amends the provisions of the ~~2002~~ 2005 National Electrical Code as developed by the National Fire Protection Association, subject to the changes, amendments and modifications to it, and certain provisions of the Long Beach Municipal Code ~~including, but not limited to, Section 18.28.030 which shall remain in full force and effect, and which~~ shall constitute and be known as the Long Beach Electrical Code. A copy of the California Electrical Code, printed as a code in book form, shall be on file in the office of the city clerk.

COMMENT: Administrative amendment which adopts the latest edition of the California Electrical Code and makes minor editorial changes to update the references.

Section [X]. Section 18.28.020 of the Long Beach Municipal Code is amended to read as follows:

18.28.020 Application.

The provisions of the model code (the National Electrical Code), which are incorporated into the California Electrical Code, are applicable to all occupancy groups and uses regulated by the model code. The amendments made by the state agencies to the model code and incorporated into the California Electrical Code are applicable only to those occupancies or uses which the state agency making the amendments is authorized to regulate, as listed in ~~Section 18.24.040~~ Article 89 of the California Electrical Code. The building and safety bureau shall only enforce those amendments made by the following state agencies:

A. The department of housing and community development (HCD) as specified in Section 89.108 of the 2007 California Electrical Code.
B. Division of the state architect, access compliance (DSA/AC) as specified in Section 89.109 of the 2007 California Electrical Code.
C. Office of the state fire marshal (SFM) as specified in Section 89.111 of the 2007 California Electrical Code.
D. Office of statewide health, planning and development (OSHPD 3) as specified in Section 89.110 of the 2007 California Electrical Code.
E. California energy commission (CEC) as specified in Section 89.105 of the 2007 California Electrical Code.
~~F. Department of water resources (DWR).~~

COMMENT: Administrative amendment which adopts the latest edition of the California Electrical Code and makes minor editorial changes to update the reference.

Section [X]. Amend Chapter 18.28 of the Long Beach Municipal Code by

deleting Section 18.28.030 which read as follows:

~~18.28.030 Deletions.~~

~~Article 089 of the California Electrical Code is deleted.~~

COMMENT: This administrative amendment is no longer necessary. The latest edition of the California Electrical Code adequately addresses this provision.

Section [X]. Amend Chapter 18.32 of the Long Beach Municipal Code by deleting Section 18.32.310 which read as follows:

~~18.32.310 Exemptions.~~

~~The requirements for fees contained in this chapter shall not apply when the collection of such fees is legally prohibited by other laws or ordinances. A fee shall not be required for the issuance of a permit to perform work regulated by this chapter in a structure designed and used exclusively as an emergency fallout shelter. (Ord. C-5329 § 1 (part), 1977: prior code § 8130.208).~~

COMMENT: The removal of this provision is due to the fact that fallout shelter has not been built for several decades within the city. A thorough review through the plan review process is necessary to ensure the design and life-safety of such a structure, if built, is adequate.

Section [X]. Section 18.36.010 of the Long Beach Municipal Code is amended to read as follows:

18.36.010 Adoption.

The city council adopts and incorporates by reference as though set forth in full in this chapter, the California Mechanical Code and Appendices A, B, C and D, ~~2001~~ 2007 Edition, which is based on, and which amends the provisions of the ~~2000~~ 2006 Uniform Mechanical Code as developed by the International Association of Plumbing and Mechanical Officials, subject to the changes, amendments and modifications to the code as set forth in this chapter. The various parts of the code, the amendments and modifications to it as adopted in this chapter, and certain provisions of the Long Beach Municipal Code, which shall remain in full force and effect as provided in this chapter, shall constitute and be known as the Long Beach Mechanical Code. A copy of the California Mechanical Code, printed as a code in book form, shall be on file in the office of the city clerk.

COMMENT: Administrative amendment which adopts the latest edition of the California Mechanical Code and makes minor editorial changes to update the reference.

Section [X]. Section 18.36.015 of the Long Beach Municipal Code is amended to read as follows:

18.36.015 Application.

The provisions of the model code (the Uniform Mechanical Code), which are incorporated into the California Mechanical Code, are applicable to all occupancy groups and uses regulated by the model code. The amendments made by the state agencies to the model code and incorporated into the California Mechanical Code are applicable only to those occupancies or uses which the state agency making the amendments is authorized to regulate, as listed in ~~Section 18.24.040~~ Chapter 1 of the California Mechanical Code. The building and safety bureau shall only enforce those amendments made by the following state agencies:

A. The department of housing and community development (HCD) as specified in Section 108 of the 2007 California Mechanical Code.

B. Division of the state architect, access compliance (DSA/AC) as specified in Section 109 of the 2007 California Mechanical Code.

C. Office of the state fire marshal (SFM) as specified in Section 111 of the 2007 California Mechanical Code.

D. Office of statewide health, planning and development (OSHPD 3) as specified in Section 110 of the 2007 California Mechanical Code.

E. California energy commission (CEC) as specified in Section 105 of the 2007 California Mechanical Code.

~~F. Department of water resources (DWR).~~

COMMENT: Administrative amendment which adopts the latest edition of the California Mechanical Code and makes minor editorial changes to update the reference.

Section [X]. Section 18.36.030 of the Long Beach Municipal Code is amended to read as follows:

18.36.030 Deletions.

Appendix Chapter 1 of the 2007 California Mechanical Code is deleted.

COMMENT: Administrative amendment which adopts the latest edition of the California Mechanical Code and makes minor editorial changes to update the reference.

Section [X]. Amend Chapter 18.36 of the Long Beach Municipal Code by

deleting Section 18.36.040 which read as follows:

~~18.36.040 California Mechanical Code Section 1107.0 amended Refrigeration machinery rooms.~~

~~Section 1107.0 of Chapter 11 of the California Mechanical Code is amended to read as follows:~~

~~1107.0 Refrigeration Machinery Rooms.~~
~~1107.1 When Required. Refrigeration systems shall be provided with a refrigeration machinery room when any of the following conditions exist:~~
~~1107.1.1 The quantity of refrigerant in a single, independent refrigerant circuit of a system exceeds Table 11-1 amounts.~~
~~1107.1.2 Direct- and indirect-fired absorption equipment.~~
~~Exception:~~
~~Direct- and indirect-fired lithium bromide absorption systems using water as the refrigerant.~~
~~1107.1.3 An A1 system having an aggregate combined compressor horsepower of 100 (73.55 kW) or more.~~
~~1107.1.4 The system contains other than a Group A1 refrigerant.~~
~~Exceptions:~~
~~1. Lithium bromide absorption systems using water as the refrigerant.~~
~~2. Ammonia-water absorption unit systems installed outdoors, provided that the quantity of refrigerant in a single system does not exceed Table 11-1 amounts and the discharge is shielded and dispersed.~~
~~3. Systems containing less than 300 pounds (136 kg) of refrigerant R-123 and located in an approved exterior location.~~
~~4. Systems containing less than 35 pounds (16 kg) of refrigerant R-717 and located in an approved exterior location.~~
~~Refrigeration machinery rooms shall house all refrigerant-containing portions of the system other than the piping and evaporators permitted by Section 1105.3, discharge piping required by this chapter, and cooling towers regulated by this chapter, Part II, and their essential piping.~~

COMMENT: This administrative amendment is no longer necessary. The latest edition of the California Mechanical Code adequately addresses this provision.

Section [X]. Amend Chapter 18.36 of the Long Beach Municipal Code by deleting Section 18.36.090 which read as follows:

~~18.36.090 Alternate materials and methods of construction.~~

~~A. The provisions of this Code are not intended to prevent the use of any material or method of construction not specifically prescribed by this Code, provided any such alternate has been approved and the use authorized by the Building Official.~~

~~B. The Building Official may approve any such alternate provided he finds that the proposed design is satisfactory and complies with the provisions of this Code, and that the material, method, or work offered is, for the purpose intended, at least the equivalent of that prescribed in this Code in quality, strength, effectiveness, fire resistance, durability, and safety.~~
~~C. The Building Official shall require that sufficient evidence or proof be submitted to substantiate any claims that may be made regarding its use. (Ord. C-7379 § 34, 1995; Ord C-5412 § 8 (part), 1978: prior code § 8170.104).~~

COMMENT: This administrative amendment is no longer necessary. This provision will be addressed in Section 18.04.090.

Section [X]. Amend Chapter 18.36 of the Long Beach Municipal Code by deleting Section 18.36.091 which read as follows:

~~18.36.091 Modifications.~~

~~Whenever there are practical difficulties involved in carrying out the provisions of this Code, the Building Official may grant modifications for individual cases. The Building Official shall first find that a special individual reason makes the strict letter of this Code impractical and the modification is in conformity with the intent and purpose of this Code and that such modification does not lessen health, life and fire safety requirements. The details of actions granting modifications shall be entered in the files of the Building Official. (Ord. C-7379 § 49, 1995).~~

COMMENT: This administrative amendment is no longer necessary. This provision will be addressed in Section 18.04.100.

Section [X]. Amend Chapter 18.36 of the Long Beach Municipal Code by deleting Section 18.36.092 which read as follows:

~~18.36.092 Tests.~~

~~Whenever there is insufficient evidence of compliance with the provisions of this Code, or evidence that a material or method does not conform to the requirements of this Code, or in order to substantiate claims for alternate materials or methods, the Building Official may require tests as evidence of compliance to be made at no expense to the jurisdiction.~~
~~Test methods shall be as specified in this Code or by other recognized test standards. In the absence of recognized and accepted test methods, the Building Official shall specify the testing procedures.~~
~~All tests shall be performed by an approved agency. Reports of tests shall be retained by the Building Official for the period required for retention of public records. (Ord. C-~~

~~7379 § 50, 1995).~~

COMMENT: This administrative amendment is no longer necessary. This provision will be addressed in Section 18.04.090.

Section [X]. 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 California Plumbing Code, ~~2001~~ 2007 Edition, and Appendices A, B, ~~C,~~ D, ~~G A~~ and I, which is based on, and which amends the provisions of the ~~2000~~ 2006 Uniform Plumbing Code as developed by the International Association of Plumbing and Mechanical Officials. This code and certain provisions of the Long Beach Municipal Code which shall remain in full force and effect as provided in this chapter, shall constitute and be known as the Long Beach Plumbing Code. A copy of the California Plumbing Code, printed as a code in book form, shall be on file in the office of the city clerk.

COMMENT: Administrative amendment which adopts the latest edition of the California Plumbing Code and makes minor editorial changes to update the reference.

Section [X]. Section 18.40.020 of the Long Beach Municipal Code is amended to read as follows:

18.40.020 Deletion.

The following parts of the California Plumbing Code, as adopted in Section 18.40.010, are deleted: ~~Chapter 1 - Administration and~~ Chapter 13 - Health Care Facilities and Medical Gas and Vacuum Systems and Appendix Chapter 1 Administration.

COMMENT: Administrative amendment which adopts the latest edition of the California Plumbing Code and makes minor editorial changes to update the reference.

Section [X]. Section 18.40.022 of the Long Beach Municipal Code is amended to read as follows:

18.40.022 Application.

The provisions of the model code (the Uniform Plumbing Code), which are incorporated into the California Plumbing Code, are applicable to all occupancy groups and uses regulated by the model code. The amendments made by the state agencies to the model code and incorporated into the California Plumbing Code are applicable only to those occupancies or uses which the state agency making the amendments is authorized to regulate, as listed in ~~Section 18.24.040~~Chapter 1 of the California Plumbing Code. The building and safety bureau shall only enforce those amendments made by the following state agencies:

A. The department of housing and community development (HCD) as specified in Section 108 of the 2007 California Plumbing Code.

B. Division of the state architect, access compliance (DSA/AC) as specified in Section 109 of the 2007 California Plumbing Code.

C. Office of the state fire marshal (SFM) as specified in Section 111 of the 2007 California Plumbing Code.

D. Office of statewide health, planning and development (OSHPD 3) as specified in Section 110 of the 2007 California Plumbing Code.

E. California energy commission (CEC) as specified in Section 105 of the 2007 California Plumbing Code.

F. Department of water resources (DWR) as specified in Section 113 of the 2007 California Plumbing Code.

COMMENT: Administrative amendment which adopts the latest edition of the California Plumbing Code and makes minor editorial changes to update the reference.

Section [X]. Delete Chapter 18.56 of the Long Beach Municipal Code in its entirety which read as follows:

~~18.56.010 Adoption.~~

~~The city council adopts and incorporates by reference as though set forth in full in this chapter, the Uniform Sign Code, 1994 Edition, as developed by the International Conference of Building Officials, subject to the changes, amendments and modifications as set forth in this chapter. The various parts of the code, the amendments and modifications to it as adopted by this chapter, and certain provisions of the Long Beach Municipal Code which shall remain in full force and effect as provided in this chapter, shall constitute and be known as the Long Beach Sign Code. A copy of the Uniform Sign Code, printed as a code in book form, shall be on file in the office of the city clerk.~~

~~18.56.020 Amendments.~~

~~The Uniform Sign Code as adopted in Section 18.56.010 is amended and modified as set forth in Sections 18.56.030 through 18.56.040.~~

~~18.56.030 Deletions.~~

~~The following sections of the Uniform Sign Code as adopted in Section 18.56.010 are~~

~~deleted: Sections 103 and 304.~~

~~18.56.040 USC Section 303 amended—Exemptions.~~

~~Section 303 of the Uniform Sign Code is revised by amending paragraph 3 to read as follows:~~

~~3. Signs that are exempt under the provisions of Section 21.44.070.~~

~~18.56.050 Street banners—Permit required.~~

~~A. No person shall hang, suspend or otherwise affix any sign, street banner, pole banner, flag, pennant or street decoration on any street light pole, traffic signal pole or over and above any street unless a permit to do so is first obtained from the city manager. Permits issued pursuant to this section shall be in accordance with the provisions of Chapter 16.55 of this code, the city's police on city sponsorship, corporate recognition and advertising, as adopted on July 23, 1996, as amended from time to time, and any guidelines that may from time to time be approved by the city council.~~

~~B. The above provisions shall not apply to any sign or advertising matter lettered upon the surface of any awning, provided the awning is securely attached to a building and is not less than seven feet above the sidewalk level immediately below.~~

COMMENT: This administrative amendment is no longer necessary. The latest edition of the California Building Code adequately addresses this provision with Appendix H for Signs. Section 18.56.030 and 18.56.050 relocated into Section 18.12.010.

Section [X]. Chapter 18.69 is added to the Long Beach Municipal Code to read as follows:

CHAPTER 18.69
VOLUNTARY EARTHQUAKE HAZARD REDUCTION IN EXISTING WOOD FRAME RESIDENTIAL BUILDINGS WITH WEAK CRIPPLE WALLS AND UNBOLTED SILL PLATES

18.69.010 General.

A. Purpose. The provisions of this chapter are intended to promote public safety and welfare by reducing the risk of earthquake-induced damage to existing wood-framed residential buildings. The voluntary minimum standards contained in this chapter shall substantially improve the seismic performance of these residential buildings but will not necessarily prevent all earthquake damage. When fully followed, these standards will strengthen the portion of the structure that is most vulnerable to earthquake damage.

Prior to 1960, most wood frame residential buildings were built with raised wood floors supported by short wood stud walls known as cripple walls. These cripple walls are typically braced with weak seismic materials such as portland cement plaster or horizontal wood siding. In addition, wood frame buildings built under building codes in effect prior to July 1938 were not required to be bolted to their foundations. Recent earthquakes have shown that if a building has weak cripple walls or is unbolted, it may fall off its foundation even in moderate earthquakes.

Fallen buildings have collapsed, caught fire or needed extensive repairs to restore their occupancy.

This chapter sets prescriptive standards for strengthening of under floor enclosures, if permitted by the building official, without requiring construction documents prepared by a registered design professional licensed by the State of California. This chapter also provides a design standard for the use of alternate materials or an alternate method of construction in lieu of the prescriptive standards.

Construction documents for strengthening using alternate materials or methods shall be prepared by a registered design professional licensed by the State of California.

B. Scope. The provisions of this chapter may be applied to light wood frame Group R occupancies, with no more than four dwelling units when they contain one or more of the structural weaknesses specified in Section 18.69.030.

The provisions of this chapter do not apply to the buildings or elements thereof listed below. These buildings or elements require analysis by a registered design professional licensed by the State of California in accordance with Chapter 16 of the California Building Code or other approved standards to determine appropriate strengthening.

1. Buildings with a lateral-force-resisting system using poles or columns embedded in the ground.

2. Cripple walls that exceed 4 feet in height.

3. Buildings exceeding three stories in height and any three-story building with cripple wall studs exceeding 14 inches in height.

4. Buildings, or portions thereof, constructed on a concrete slab on grade or constructed on or into a slope steeper than 1 unit vertical in 3 units horizontal (33.3% slope).

5. Buildings where the building official determines that conditions exist that are beyond the scope of the requirements of this chapter.

The standard details approved by the building official and these prescriptive provisions are not intended to be the only acceptable strengthening methods permitted.

Alternate details and methods shall be permitted when approved by the building official. Qualified Historical Buildings shall be permitted to use alternate building regulations or deviations from this chapter in order to preserve their original or restored architectural elements and features. See California Code of Regulations, Title 24, Part 8 (California Historical Building Code) for these standards.

C. Alternative Design Procedures. When analysis by a registered design professional is required or provided for a building within the scope of this chapter, such analysis shall be in accordance with all requirements of this code except as provided in this chapter. The design shall provide strengthening for any structural weakness listed in Section 18.69.030 that is at least equivalent to that provided by the prescriptive requirements of this chapter with respect to strength, deflection and capacity. The building official may require that sufficient evidence be submitted to substantiate such equivalence. The base shear may be determined in accordance with the following:

$V = 0.1375\ W$ (69-1)

Where:
V = the total design lateral force or shear at the base
W = the total seismic dead load defined in Section 12.7.2 of ASCE 7.

18.69.020 Definitions.

For the purpose of this chapter, in addition to the applicable definitions, symbols and notations in this code, certain additional terms are defined as follows:

ADHESIVE ANCHOR is a fastener placed in hardened concrete or masonry that derives its holding strength from a chemical adhesive compound placed between the wall of the hole and the embedded portion of the anchor.

ANCHOR SIDE PLATE is a metal plate or plates used to connect a sill plate to the side of a concrete or masonry stem wall.

CRIPPLE WALL is a wood-framed stud wall extending from the top of the foundation to the underside of the lowest floor framing.

EXPANSION ANCHOR is a mechanical fastener placed in hardened concrete or assembled masonry, designed to expand in a self-drilled or pre-drilled hole of a specified size and engage the sides of the hole in one or more locations to develop shear and/or tension resistance to applied loads without grout, adhesive or drypack.

PERIMETER FOUNDATION is a foundation system which is located under the exterior walls of a building.

SNUG-TIGHT is as tight as an individual can torque a nut on a bolt by hand using a wrench with a 10 inch long handle and the point at which the full surface of the plate washer is contacting the wood member and slightly indents the wood surface.

UNREINFORCED MASONRY includes adobe, burned clay, concrete or sand-lime brick, hollow clay or concrete block, hollow clay tile, rubble, cut stone, and unburned clay masonry walls in which the area of reinforcement is less than 50 percent of the minimum steel ratios required for reinforced masonry.

18.69.030 Structural Weaknesses.

For the purpose of this chapter, structural weaknesses shall be as specified below:

1. Sill plates or floor framing which are supported directly on the ground without an approved foundation system.

2. A perimeter foundation system which is constructed of wood posts supported on isolated pad footings.

3. Perimeter foundation systems that are not continuous.

EXCEPTIONS:
a. Existing single-story exterior walls not exceeding 10 feet in length forming an extension of floor area beyond the line of an existing continuous perimeter foundation.
b. Porches, storage rooms and similar spaces not containing fuel burning appliances.

4. A perimeter foundation system which is constructed of unreinforced masonry.

5. Sill plates which are not connected to the foundation or are connected with less than what is required by Section 18.69.040.C.1.

6. Cripple walls that are not braced in accordance with the requirements of Section 18.69.040.D and Table 69-A.

18.69.040 Strengthening Requirements

A. General.

1. Scope. The structural weaknesses noted in Section 18.69.030 shall be strengthened in accordance with the requirements of this section. Strengthening work shall be allowed to include both new construction and alteration of existing construction. Except as provided herein, all strengthening work and materials shall comply with the applicable provisions of this code. Alternate methods of strengthening shall be allowed provided such systems are designed by a registered design professional and approved by the building official.

2. Condition of existing wood materials. All existing wood materials which will be a part of the strengthening work shall be in a sound condition and free from defects which substantially reduce the capacity of the member. Any wood material found to contain

fungus infection shall be removed and replaced with new material. Any wood material found to be infested with insects or to have been infested shall be strengthened or replaced with new materials to provide a net dimension of sound wood at least equal to its undamaged original dimension.

3. Floor joists not parallel to foundations. Floor joists framed perpendicular or at an angle to perimeter foundations shall be restrained by either a nominal 2 inch wide continuous rim joist or a nominal 2 inch wide full depth blocking between alternate joists in one- and two-story buildings, and between each joist in three-story buildings. Blocking for multistory buildings must occur at each joist space above a braced cripple wall panel.

Existing connections at the top edge of an existing rim joist or blocking need not be verified. The bottom edge connection to either the foundation sill plate or top plate of a cripple wall shall be verified unless a supplemental connection is provided. The minimum existing bottom edge connection shall consist of 8d toenails spaced 6 inches apart for a continuous rim joist or three 8d toenails per block. When this minimum bottom edge connection is not present, or is not verified, a supplemental connection shall be provided.

When an existing continuous rim joist or the minimum existing blocking does not occur, new 1-1/8 inch wood structural panel blocking installed tightly between floor joists and nailed with 10d common nails at 4 inches on center to the sill or wall top plate shall be provided at the inside face of the cripple wall. In lieu of 1-1/8 inch wood structural panel blocking, tight-fitting, full or near full depth 2 inches nominal width lumber blocking shall be allowed provided it does not split during installation. New blocking is not required where it will interfere with vents or plumbing which penetrates the wall.

4. Floor joists parallel to foundations. Where existing floor joists are parallel to the perimeter foundations, the end joist shall be located over the foundation and, except for required ventilation openings, shall be continuous and in continuous contact with any existing foundation sill plate or top plate of the cripple wall. Existing connections at the top edge connection of the end joist need not be verified; however, the bottom edge connection to either the foundation sill plate or the top plate of a cripple wall shall be verified unless a supplemental connection is provided.

The minimum bottom edge connection shall be 8d toenails spaced 6 inches apart. If this minimum bottom edge connection is not present or is not verified, a supplemental connection shall be provided.

5. Supplemental connections. Supplemental connections shall provide sufficient strength to transfer the seismic forces. Framing anchors of minimum 18 gage steel and 12 approved fasteners may be considered to meet this requirement when spaced 32 inches on center for one-story buildings, 24 inches on center for two-story buildings and 16 inches on center for three-story buildings.

EXCEPTION: A supplemental connection is not required when:

a. The structural wood panel sheathing extends from the sill plate to the rim joist or blocking above.

b. The floor sheathing is nailed directly into the sill or top plate of the cripple wall.

6. Single top plate ties. When a single top plate exists in the cripple wall, all end joints in the top plate shall be tied. Ties shall be connected to each end of the discontinuous top plate and shall be equal to one of the following:

a. 3 inch by 6 inch by 0.036 inch thick galvanized steel and nailed with six 8d nails at each end.

b. 1-1/2 inches by 12 inch by 0.058 inch galvanized steel nailed with six 16d nails at each end.

c. 2 inch by 4 inch by 12 inch wood blocking nailed with six 16d nails at each end.

B. Foundations.

1. New perimeter foundations. New perimeter foundations shall be provided for structures with the structural weaknesses noted in Items 1 and 2 of Section 18.69.030. Soil investigations or geotechnical studies are not required for this work unless the building shows signs of excessive settlement or creep.

2. Foundation evaluation by a registered design professional. Partial perimeter foundations or unreinforced masonry foundations shall be evaluated by a registered design professional for the force levels noted in Formula (69-1) of this chapter. Test reports or other substantiating data to determine existing foundation material strengths shall be submitted for review. When approved by the building official, these foundation systems may be strengthened in accordance with the recommendations included with the evaluation in lieu of being replaced.

EXCEPTION: In lieu of testing existing foundations to determine material strengths and when approved by the building official, a new non-perimeter foundation system, designed for the forces noted in Formula (69-1) of this chapter, may be used to resist all exterior wall lateral forces.

3. Details for new perimeter foundations. All new perimeter foundations shall be continuous and constructed according to the standards for new buildings.

EXCEPTIONS:

a. When approved by the building official, the existing clearance between existing floor joists or girders and existing grade below the floor need not comply with Section 2304.11.2.1 of the California Building Code. This exception shall not be permitted when buildings are relocated on new foundations.

b. When approved by the building official, and when designed by a registered design professional, partial perimeter foundations may be used in lieu of a continuous perimeter foundation.

C. Foundation Sill Plate Anchorage.

1. Existing perimeter foundations. When the building has an existing continuous perimeter foundation, all perimeter wall sill plates shall be connected to the foundation in accordance with Table 69-A and this section. Anchors shall be installed with the plate washer installed between the nut and the sill plate. The nut shall be tightened to a snug-tight condition after curing is complete for adhesive anchors and after expansion wedge engagement for expansion anchors.

The installation of nuts on all anchors shall be subject to verification by the building official. Torque testing shall be performed for 25 percent of all adhesive or expansion anchors.

Minimum test values shall be 30 foot-pounds for 1/2 inch and 40 foot-pounds for 5/8 inch diameter anchors.

Anchor side plates shall be permitted when conditions prevent anchor installation vertically through the sill plate. Anchor side plates shall be spaced as required for adhesive or expansion anchors but only one anchor side plate is required on individual pieces of sill plate less than 32 inches in length. Wood structural panel shims shall be used on sill plates for single plate anchor side plates when the foundation stem wall is from 3/16 inch to 3/4 inch wider than the sill plate. The shim length shall extend a minimum of 2 inches past each end of the anchor side plate. Two plate anchor side plates shall be used when the total thickness of the required shim exceeds 3/4 inch.

All anchor side plates which use lag or wood screws shall pre-drill the sill plate to prevent splitting as required by Section 2304.9 of the California Building Code.

Lag or wood screws shall be installed in the center of the thickness of the existing sill plate.

Expansion anchors shall not be used in unreinforced masonry or concrete o masonry grout of poor quality. Adhesive anchors shall be required when expansion anchors will not tighten to the required torque or their installation causes surface cracking of the foundation wall.

2. Placement of anchors. Anchors shall be placed within 12 inches, but not less than 9 inches, from the ends of sill plates and shall be placed near the center of the stud space closest to the required spacing. New sill plates may be installed in pieces when necessary because of existing conditions.

The minimum length of new sill plate pieces shall be 30 inches.

EXCEPTION: Where physical obstructions such as fireplaces, plumbing or heating ducts interfere with the placement of an anchor, the anchor shall be placed as close to the obstruction as possible, but not less than 9 inches from the end of the plate. Center-to-center spacing of the anchors shall be reduced as necessary to provide the minimum total number of anchors required based on the full length of the wall. Center-to-center spacing shall not be less than 12 inches.

3. New perimeter foundations. Sill plates for new perimeter foundations shall be anchored as required by Section 1805.6 of the California Building Code.

D. Cripple Wall Bracing.

1. General. Exterior cripple walls not exceeding 4 feet in height shall use the prescriptive bracing method listed below. Cripple walls more than 4 feet in height require analysis by a registered design professional in accordance with Chapter 16 of the California Building Code.

2. Sheathing requirements. Wood structural panel sheathing shall not be less than 15/32 inch thick. When used, plywood panels shall be constructed of five or more plies.

All wood structural panels shall be nailed with 8d common nails spaced 4 inches on center at all edges and at 12 inches on center at each intermediate support with not less than two nails for each stud. Nails shall be driven so that their head or crown is flush with the surface of the sheathing and shall penetrate the supporting member a minimum of 1-1/2 inch. When a nail fractures the surface, it shall be left in place and not counted as part of the required nailing. A new 8d nail shall be located within 2 inches of the discounted nail and hand-driven flush with the sheathing surface.

EXCEPTION: No. 6 × 1-1/2 inch wood screws may be used for sheathing nailing when bracing materials are installed on the interior face of studs and cement plaster or other brittle finishes are on the exterior of the sheathed wall.

All horizontal joints must occur over nominal 2 inch by 4 inch blocking installed with the nominal 4-inch dimension against the face of the plywood. All vertical joints must occur over studs. Vertical joints at adjoining pieces of wood structural panels shall be centered on existing studs such that there is a minimum 1/8 inch between the panels.

Nails shall be placed a minimum of 1/2 inch from the edges of the existing stud. When such edge distance cannot be maintained because of the width of the existing stud, a new stud shall be added adjacent to the existing and connected with 16d common nails at 8 inches on center. A minimum of three such nails shall be provided.

3. Distribution and amount of bracing. See Table 69-A for the distribution and amount of bracing required. Bracing for a building with three or more floor levels above cripple wall studs exceeding 14 inches in height must be designed in accordance with Chapter 16 of the California Building Code.

The braced panel must be at least two times the height of the cripple stud wall but not less than 48 inches in width. All panels along a wall shall be nearly equal in length and shall be nearly equally spaced along the length of the wall. Braced panels at ends of walls shall be located as near the end as possible.

Where physical obstructions such as fireplaces, plumbing or heating ducts interfere with the placement of cripple wall bracing, the bracing shall then be placed as close to the obstruction as possible. The total amount of bracing required shall not be reduced because of obstructions, but the required length of bracing need not exceed the length of the wall.

Under floor ventilation openings shall be maintained in accordance with Section 1203.3 of the California Building Code. Braced panels may include under floor ventilation openings when the height of the solid portion of the panel meets or 75 percent of the height of the cripple stud wall.

When the minimum amount of bracing prescribed in Table 69-A cannot be installed due to obstructions along any wall, the bracing must be designed by a registered design professional in accordance with Section 18.69.010.C.

4. Stud space ventilation. When bracing materials are installed on the interior face of studs forming an enclosed space between the new bracing and existing exterior finish, each braced stud space must be ventilated. Adequate ventilation and access for future inspection shall be provided by drilling on 2 inch to 3 inch diameter round hole through the sheathing nearly centered between each stud at the top and bottom of the cripple wall. Such holes should be spaced a minimum of 1 inch clear from the sill or top plates. In stud spaces containing sill bolts, the hole shall be located on the center line of the sill bolt but not closer than 1 inch clear from the nailing edge of the sheathing.

When existing blocking occurs within the stud space, additional ventilation holes shall be placed above and below the blocking or the existing block shall be removed and a new nominal 2 inch by 4 inch block installed with the nominal 4 inch dimension against the face of the plywood. For stud heights less than 18 inches, only one ventilation hole need be provided.

5. Existing under floor ventilation. Existing under floor ventilation shall not be reduced without providing equivalent new ventilation as close to the existing as possible. New sheathing may be installed around existing vent openings in braced panels when the length of the panel is increased a distance equal to the length of the vent opening or one stud space minimum.

EXCEPTION: For residential buildings with a post and pier foundation system where a new continuous perimeter foundation system is being installed, ventilation shall be provided in accordance with this code.

18.69.050 Quality Control.

A. Inspection by the department. All work shall be subject to inspection by the building official including, but not limited to:

1. Placement and installation of new adhesive or expansion anchors or anchor side plates installed in existing foundations.

2. Placement of required blocking and framing anchors.

3. Installation and nailing of new cripple wall bracing. The torque testing of sill plate anchors per Section 18.69.040.C.1 shall be performed by the building inspector.

B. Special inspection. Special inspection is not required for sill plate anchors installed in existing foundations regulated by the provisions of this chapter. Any work may be subject to special inspection when required by the building official or when so designated by the registered design professional of record.

C. Structural observation. Structural observation is not required for work done under the prescriptive provisions of this chapter. When construction documents for strengthening are prepared by a registered design professional and alternate materials or methods are used, structural observation shall be provided as required in Section 1709 of the California Building Code.

D. Registered design professional of record's statement. When an alternative design is provided per Section 18.69.010.C, the responsible registered design professional of record shall place the following statement on the approved construction document:

1. "I am responsible for this building's seismic strengthening design for the under floor cripple walls and sill bolting in compliance with the minimum seismic resistance standards of Chapter 18.69 of the Long Beach Municipal Code."

or when applicable:

2. "The Registered Special Inspector, required as a condition of the use of structural design stresses requiring continuous inspection, will be responsible to me as required by Section 1704.1 of the California Building Code."

TABLE 69-A SILL PLATE ANCHORAGE AND CRIPPLE WALL BRACING[1,2,3]

NUMBER OF STORIES ABOVE CRIPPLE WALLS	MINIMUM SILL PLATE CONNECTION AND MAXIMUM SPACING	AMOUNT OF WALL BRACING
One Story	Adhesive or expansion anchors shall be 1/2 inch minimum diameter spaced at 6 feet maximum center to center.	Each end and not less than 50% of the wall length.
Two Story	Adhesive or expansion anchors shall be 1/2 inch minimum diameter spaced at 4 feet maximum center to center; or 5/8 inch spaced at 6 feet maximum center to center.	Each end and not less than 70% of the wall length.
Three Story	Adhesive or expansion anchors shall be 1/2 inch minimum diameter spaced at 2 feet 8 inches maximum center to center; or 5/8 inch minimum diameter spaced at 4 feet maximum center to center.	100% of the wall length.

[1] Plate washers for use with adhesive or expansion anchors shall be 2 inch by 2 inch by 3/16 inch for 1/2 inch diameter anchors and 2-1/2 inch by 2-1/2 inch by 1/4 inch for 5/8 inch diameter anchors.
[2] Existing sill plate anchor bolts shall be permitted to provide all or a portion of the sill plate connection requirement if:
2.1 the anchor bolt is cast in concrete and in sound condition,
2.2 the diameter size and maximum spacing meets or exceeds the requirements of this table,
2.3 a new plate washer conforming to Footnote 1 is installed, and
2.4 the sill plate is connected to a snug-tight condition and torque tested per Section 18.69.040.C.1.
[3] Anchor side plates shall be permitted when conditions prevent anchor installation vertically through the sill plate.

COMMENT: Amendment due to local geological conditions. The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. The provisions of this proposed chapter are intended to promote public safety and welfare by reducing the risk of earthquake-induced damage to existing wood-framed residential buildings. The voluntary minimum standards contained in this proposed chapter shall substantially improve the seismic performance of these residential buildings but will not necessarily prevent all earthquake damage. When fully followed, these standards will strengthen the portion of the structure that is most vulnerable to earthquake damage.

Prior to 1960, most wood frame residential buildings were built with raised wood floors supported by short wood stud walls known as cripple walls. These cripple walls are typically braced with weak seismic materials such as portland cement plaster or horizontal wood siding. In addition, wood frame buildings built under building codes in effect prior to July 1938 were not required to be bolted to their foundations. Recent earthquakes have shown that if a building has weak cripple walls or is unbolted, it may fall off its foundation even in moderate earthquakes. Fallen buildings have collapsed, caught fire or needed extensive repairs to restore their occupancy.

This proposed chapter sets prescriptive standards for strengthening of under floor enclosures, if permitted by the building official, without requiring construction documents prepared by a registered design professional licensed by the State of California. This chapter also provides a design standard for the use of alternate materials or an alternate method of construction in lieu of the prescriptive standards.

Section [X]. Chapter 18.70 is added to the Long Beach Municipal Code to read as follows:

CHAPTER 18.70
VOLUNTARY EARTHQUAKE HAZARD REDUCTION IN EXISTING WOOD FRAME RESIDENTIAL BUILDINGS WITH SOFT, WEAK OR OPEN FRONT WALLS

18.70.010 Purpose.

The purpose of this chapter is to promote the public welfare and safety by reducing the risk of death or injury that may result from the effects of earthquakes on existing wood-frame multi-unit residential buildings. The ground motion of the Northridge earthquake caused the loss of human life, personal injury and property damage in these types of buildings. This chapter creates minimum standards to strengthen the more vulnerable portions of these structures. When fully followed, these minimum standards will substantially improve the performance of these buildings but will not necessarily prevent all earthquake-related damage.

18.70.020 Scope.

The provisions of this chapter shall apply to all existing wood frame buildings or portions thereof, designed using the Building Code in effect before January 1, 1995, which are used as hotels, lodging houses, congregate residences or apartment houses where:

1. The ground floor portion of the wood frame structure contains parking or other similar open floor space that causes soft, weak or open front wall lines as defined in this chapter and there exists one or more levels above, or

2. The walls of any story or basement of wood construction are laterally braced with nonconforming structural materials as defined in this chapter and there exists two or more levels above.

18.70.030 Definitions.

Notwithstanding the applicable definitions, symbols and notations in this code, the following definitions shall apply for the purposes of this chapter.

APARTMENT HOUSE is any building or portion thereof which contains three or more dwelling units, and for the purposes of this chapter, includes residential condominiums.

ASPECT RATIO is the ratio of the height of a wall section to its width.

CONGREGATE RESIDENCE is any building or portion thereof which contains facilities for living, sleeping and sanitation, as required by this code, and may include facilities for eating and cooking, for occupancy by other than a family. A congregate residence may be a shelter, convent, monastery, dormitory, and fraternity or sorority house but does not include jails, hospitals, nursing homes, hotels or lodging houses.

CRIPPLEWALL is a wood-framed stud wall extending from the top of the foundation wall to the underside of the lowest floor framing.

DWELLING UNIT is any building or portion thereof which contains living facilities, including provisions for sleeping, eating, cooking and sanitation, as required by this code, for not more than one family, or congregate residence for 10 or fewer persons.

EXPANSION ANCHOR is an approved mechanical fastener placed in hardened concrete, designed to expand in a self-drilled or pre-drilled hole of a specified size and engage the sides of the hole in one or more locations to develop shear and/or tension resistance to applied loads without grout, adhesive or drypack.

GROUNDFLOOR is any floor within the wood frame portion of a building whose elevation is immediately accessible from an adjacent grade by vehicles or pedestrians. The ground floor portion of the structure does not include any level that is completely below adjacent grades.

GUEST ROOM is any room or rooms used or intended to be used by a guest for sleeping purposes. Every 100 square feet of superficial floor area in a congregate residence shall be considered a guest room.

HOTEL is any building containing six or more guest rooms intended or designed to be used, rented, hired out to be occupied, or which are occupied for sleeping purposes by guests.

LEVEL is a story, basement or under floor space of a building with cripple walls exceeding 4 feet in height.

LODGINGHOUSE is any building or portion thereof containing at least one but not more than five guest rooms where rent is paid in money, goods, labor or otherwise.

MOTEL shall mean a hotel as defined in this chapter.

MULTI-UNIT RESIDENTIAL BUILDINGS are hotels, lodging houses, congregate residences and apartment houses.

NONCONFORMING STRUCTURAL MATERIALS are wall bracing materials for seismic loads whose allowable shear value was reduced or whose maximum allowable aspect ratio was decreased since the original building construction. These methods or materials include, but are not limited to cement or gypsum plaster, gypsum wall board, diagonal or let-in bracing, straight or diagonal wood sheathing, particle board and structural wood panels.

OPEN FRONTWALL LINE is an exterior wall line without vertical elements of the lateral-force-resisting system which requires tributary seismic forces to be resisted by diaphragm rotation or excessive cantilever beyond parallel lines of shear walls.

Diaphragms that cantilever more than 25 percent of the distance between lines of lateral-force-resisting elements shall be considered excessive. Exterior exit balconies of 6 feet or less in width shall not be considered excessive cantilevers.

RETROFIT is an improvement of the lateral-force-resisting system by alteration of existing structural elements or addition of new structural elements.

SOFTWALL LINE is a wall line whose lateral stiffness is less than required by story drift limitations or deformation compatibility requirements of this chapter. In lieu of analysis, this may be defined as a wall line in a story where the story stiffness is less than 70 percent of the story above for the direction under consideration.

STORY STRENGTH is the total strength of all seismic-resisting elements sharing the same story shear in the direction under consideration.

WALLLINE is any length of a wall along a principal axis of the building used to provide resistance to lateral loads. Parallel wall lines separated by less than 4 feet shall be considered one wall line for the distribution of loads.

WEAKWALL LINE is a wall line laterally braced with nonconforming structural materials or a wall line in a story where the story strength is less than 80 percent of the story above in the direction under consideration.

18.70.040 General Requirements for Phased Construction

When the building contains three or more levels, the work specified in this chapter shall be permitted to be done in the following phases. Work shall start with Phase 1 unless otherwise approved by the building official. When the building does not contain the conditions shown in any phase, the sequence of retrofit work shall proceed to the next phase in numerical order.

1. Phase 1 Work. The first phase of the retrofit work shall include the ground floor portion of the wood structure that contains parking or other similar open floor space.

2. Phase 2 Work. The second phase of the retrofit work shall include the walls of any level of wood construction with two or more levels above, which are laterally braced with nonconforming structural materials.

3. Phase 3 Work. The third and final phase of the retrofit work shall include the remaining portions of the building up to, but not including, the top story as specified in Section 18.70.050.B.

18.70.050 Analysis and Design

A. General. Every building within the scope of this chapter shall be analyzed, designed and constructed in conformance with this code except as modified herein. No alteration of the existing lateral-force-resisting or vertical load-carrying system shall reduce the strength or stiffness of the existing structure.

B. Scope. This chapter requires the alteration, repair, replacement or addition of structural elements and their connections to meet the strength and stiffness requirements herein. The lateral load path analysis shall include the resisting elements and connections from the wood diaphragm above any soft, weak or open front wall lines

to the foundation soil interface or reinforced concrete slab or masonry wall supporting elements below. The top story of any building need not be analyzed. The lateral load path analysis for added structural elements shall also include evaluation of the allowable soil bearing and lateral pressures in accordance with Section 1804 of the California Building Code.

EXCEPTION: When an open front, weak or soft wall line exists due to parking at the ground level of a two-level building and the parking area is less than 20 percent of the ground floor level, then only the wall lines in the open, weak or soft directions of the enclosed parking area, need comply with the provisions of this chapter.

C. Design Base Shear. The design base shear shall be 75% of that currently required by ASCE 7-05 Section 12.8.1.

D. Vertical Distribution of Forces. The total seismic force shall be distributed over the height of the structure based on Formula (12.8-11 and 12.8-12) in ASCE 7-05 Section 12.8.3. Distribution of force by story weight shall be permitted for two-story buildings. The value of *R* used in the design of any story shall be less than or equal to the value of *R* used in the given direction for the story above.

E. Weak Story Limitation. The structure shall not exceed 30 feet in height or two levels if the lower level strength is less than 65 percent of the story above. Existing walls shall be strengthened as required to comply with this provision unless the weak level can resist a total lateral seismic force of Ω_o (per Section 18.70.050.C) times the design force prescribed in Section 18.70.050.D.

The story strength for each level of all other structures shall be a minimum of 80 percent of the story above.

F. Story Drift Limitation. The calculated story drift for each retrofitted level shall not exceed the allowable deformation compatible with all vertical load-resisting elements and 0.005 or 0.04/R times the story height. The calculated story drift shall not be reduced by the effects of horizontal diaphragm stiffness but shall be increased when these effects produce rotation.

The effects of rotation and soil stiffness shall be included in the calculated story drift when lateral loads are resisted by vertical elements whose required depth of embedment is determined by pole formulas such as Equation (18-1), (18-2) and (18-3) in Section 1805.7.2.1 of the California Building Code. The coefficient of variation of subgrade reaction used in the deflection calculations shall be provided from an approved geotechnical engineering report or other approved methods.

G. *P*Δ Effects. The requirements of ASCE 7-05 Section 12.8.7 shall apply except as modified herein. All framing elements not required by the design to be part of the lateral-force-resisting system shall be investigated and shown to be adequate for vertical load-carrying capacity when displaced Ω_o (per Section 18.70.050.C) times the displacements

resulting from the required lateral force. The stress analysis of cantilever columns shall use a buckling factor of 2.1 for the direction normal to the axis of the beam.

H. Ties and Continuity. All parts of the structure included in the scope of Section 18.70.050.B shall be interconnected and the connection shall be capable of resisting the seismic force created by the parts being connected. Any smaller portion of a building shall be tied to the remainder of the building with elements having a strength of 0.1833 times the tributary dead load of the smaller portion.

A positive connection for resisting a horizontal force acting parallel to the member shall be provided for each beam, girder or truss included in the lateral load path. This force shall not be less than 0.08 times the combined tributary dead and live loads or as required by the lateral load path transfer, whichever is greater.

I. Collector Elements. Collector elements shall be provided which can transfer the seismic forces originating in other portions of the building to the elements within the scope of Section 18.70.050.B that provide resistance to those forces.

J. Horizontal Diaphragms. The analysis of shear demand or capacity of an existing plywood or diagonally sheathed horizontal diaphragm need not be investigated unless the diaphragm is required to transfer lateral forces from the lateral-resisting elements above the diaphragm to other lateral-force-resisting elements below the diaphragm due to offset in placement of the elements. Wood diaphragms in structures that support floors or roofs above shall not be allowed to transmit lateral forces by rotation or cantilever. However, rotational effects shall be accounted for when unsymmetric wall stiffness increases shear demands.

EXCEPTION: Diaphragms that cantilever 25 percent or less of the distance between lines of lateral-force-resisting elements from which the diaphragm cantilevers may transmit their shears by cantilever provided that rotational effects on shear walls parallel and perpendicular to the load are accounted for.

K. Shear Walls. Shear walls shall have sufficient strength and stiffness to resist the tributary seismic loads and shall conform to the special requirements of this section.

1. Gypsum or plaster products. Gypsum or plaster products shall not be used to provide lateral resistance.

2. Wood structural panels.

a. Drift limit. Wood structural panel shear walls shall meet the story drift limitation of Section 18.70.050.G. Conformance to the story drift limitation shall be determined by approved testing or calculation or analogies drawn there from and not the use of an aspect ratio. Calculated deflection shall be in accordance with Section 2305.3.2 of the California Building Code and 25 percent shall be added to account for inelastic action and repetitive loading. Contribution to the deflection from the anchor or tie down slippage shall also be included. The slippage contribution shall include the vertical

elongation of the metal, the vertical slippage of the connectors and compression or shrinkage of the wood elements. The vertical slippage shall be multiplied by the aspect ratio and added to the total horizontal deflection. Individual shear panels shall be permitted to exceed the maximum aspect ratio provided the story drift and allowable shear capacities are not exceeded.

b. Openings. Openings are permitted in shear walls if they do not exceed 50 percent of the height or width of the shear wall. The remaining portion of the shear wall shall be strengthened for the transfer and increase of all shearing forces caused by the opening. The resulting shear wall shall be analyzed as a mosaic of shear-resisting elements. Blocking and steel strapping shall be employed at the corners of the opening to transfer forces from discontinuous boundary elements into adjoining panel elements.

The effect of openings on the stiffness of the shear wall shall be demonstrated to comply with the requirements of Section 18.70.050.F. The stiffness shall be calculated using the properties of the different shear elements making up the shear wall or it shall be demonstrated by approved testing. When shear walls cannot be made to conform to the requirements of this section because of existing openings, the openings shall be relocated or reduced in width to meet the strength and stiffness requirements of the lateral loads. Relocated and altered openings shall comply with the emergency escape requirements in Chapter 10 of the California Building Code. Relocated and altered openings shall comply with the light and ventilation requirements in Chapter 12 of the California Building Code unless otherwise approved by the building official.

c. Wood species of framing members. Allowable shear values for wood structural panels shall consider the species of the framing members. When the allowable shear values are based on Douglas Fir-larch framing members and framing members are constructed of other species of lumber, the allowable shear values shall be multiplied by the appropriate factors determined in accordance Chapter 23 of the California Building Code.

3. Mechanical penetrations. Mechanical penetrations in shear walls that exceed the provisions of Chapter 23 of the California Building Code shall be accounted for in the design or the shear wall shall be analyzed as two separate walls on each side of the penetration.

4. Substitution for 3-inch nominal width framing members. Two 2-inch nominal width framing members shall be permitted in lieu of any required 3-inch nominal width framing member when the existing and new framing member are of equal dimensions, are connected as required to transfer the in-plane shear between them and the sheathing fasteners are equally divided between them.

5. Hold down connectors.

a. Expansion anchors in tension. Expansion anchors that provide tension strength by friction resistance shall not be used to connect hold down devices to existing

concrete or masonry elements. Expansion anchors shall be permitted to provide tension strength by bearing.

b. Required depth of embedment. The required depth of embedment or edge distance for the anchor used in the hold down connector shall be provided in the concrete or masonry below any plain concrete slab unless satisfactory evidence is submitted to the building official that shows that the concrete slab and footings are of monolithic construction.

c. Required preload of bolted hold down connectors. Bolted hold down connectors shall be preloaded to reduce slippage of the connector. Preloading shall consist of tightening the nut on the tension anchor after the placement but before the tightening of the shear bolts in the panel flange member. The tension anchor shall be tightened until the shear bolts are in firm contact with the edge of the hole nearest the direction of the tension anchor. Hold down connectors with self-jigging bolt standoffs shall be installed in a manner to permit preloading.

18.70.060 Materials of Construction

A. New materials. All materials approved by this code, including their appropriate allowable stresses and minimum aspect ratios, shall be permitted to meet the requirements of this chapter.

B. Allowable foundation and lateral pressures. Allowable foundation and lateral pressures shall be permitted to use the values from Table 1804.2 of the California Building Code. The coefficient of variation of subgrade reaction shall be established by an approved geotechnical engineering report or other approved methods when used in the deflection calculations of embedded vertical elements as required in Section 18.70.050.F.

C. Existing materials. All existing materials shall be in sound condition and constructed in conformance to this code before they can be used to resist the lateral loads prescribed in this chapter. The verification of existing material conditions and their conformance to these requirements shall be made by physical observation reports, material testing or record drawings as determined by the responsible registered design professional of record and approved by the building official.

1. Horizontal wood diaphragms. Existing horizontal wood diaphragms that require analysis under Section 18.70.050.J shall be permitted to use Table A-23-C of Chapter 18.68 this code for their allowable values.

2. Wood structural panel shear walls.

a. Allowable nail slip values. When the required drift calculations of Section 18.70.050.K.2.a rely on the lower slip values for common nails or surfaced dry lumber, their use in construction shall be verified by exposure. The use of box nails and unseasoned lumber may be assumed without exposure. The verification of surfaced dry

lumber shall be by identification conforming to Chapter 23 of the California Building Code.

b. Reduction for clipped nail heads. When exposed nails do not meet the nominal head sizes required for hand-driven nails in Chapter 23 of the California Building Code, the allowable shear capacity for wood structural panel shear walls shall be proportionately reduced. The reduction shall be a percentage of the reduction in the nail head area below the required nail head area including tolerances.

c. Plywood panel construction. When verification of the existing plywood materials is by use of record drawings alone, the panel construction for plywood shall be assumed to be of three plies.

d. Framing members of other species. When verification of the existing wood material is by use of record drawings, the allowable shear capacity shall be multiplied by the reduction factor of 0.82 for buildings built on or after 1960. Buildings built before this period shall use the reduction factor 0.65. When verification of the existing wood material is by identification in conformance to Chapter 23 of the California Building Code, the allowable shear capacity shall be determined in accordance with Section 18.70.050.K.2.c.

3. Lumber. When the existing dimensioned lumber is not identified in conformance to Chapter 23 of the California Building Code, the allowable stresses shall be permitted for the structural elements specified below.

Posts and Beams	Douglas Fir-larch No. 1
Joists and Rafters	Douglas Fir-larch No. 2
Studs, Blocking	Hem Fir Stud

4. Structural steel. All existing structural steel shall be permitted to use the allowable stresses for Grade A36. Existing pipe or tube columns shall be assumed to be of minimum wall thickness unless verified by testing or exposure.

5. Strength of concrete. All existing concrete footings shall be permitted to use the allowable stresses for plain concrete with a compressive strength of 2,000 psi. The strength of existing concrete with a record compressive strength greater than 2,000 psi shall be verified by testing, record drawings or department records.

6. Existing sill plate anchorage. Existing cast-in-place anchor bolts shall be permitted to use the allowable service loads for bolts with proper embedment when used for shear resistance to lateral loads.

18.70.070 Required Information on Construction Documents.

A. General. The construction documents shall show all necessary dimensions and materials for plan review and construction and shall accurately reflect the results of the engineering investigation and design.

B. Existing construction. The construction documents shall show the existing diaphragm and shear wall sheathing and framing materials, fastener type and spacing, diaphragm and shear wall connections, continuity ties, and collector elements. The plans shall also show the portion of the existing materials that needs verification during construction.

C. New construction.

1. Foundation plan elements. The foundation plan shall include the size, type, location and spacing of all anchor bolts with the required depth of embedment, edge and end distance; the location and size of all columns for braced or moment frames; referenced details for the connection of braced or moment frames to their footing; and referenced sections for any grade beams and footings.

2. Framing plan elements. The framing plan shall include the width, location and material of shear walls; the width, location and material of frames; references on details for the column-to-beam connectors, beam-to-wall connections, and shear transfers at floor and roof diaphragms; and the required nailing and length for wall top plate splices.

3. Shear wall schedule, notes and details. Shear walls shall have a referenced schedule on the plans that includes the correct shear wall capacity in pounds per foot; the required fastener type, length, gauge and head size; and a complete specification for the sheathing material and its thickness. The schedule shall also show the required location of 3-inch nominal or two 2-inch nominal edge members; the spacing of shear transfer elements, such as framing anchors or added sill plate nails; the required hold down with its bolt, screw or nail sizes; and the dimensions, lumber grade and species of the attached framing member.

Notes shall show required edge distance for fasteners on structural wood panels and framing members; required flush nailing at the plywood surface; limits of mechanical penetrations; and the sill plate material assumed in the design. The limits of mechanical penetrations shall also be detailed showing the maximum notching and drilled hole sizes.

4. General notes. General notes shall show the requirements for material testing, special inspection, structural observation and the proper installation of newly added materials.

5. Registered design professional of record's statement. The responsible registered design professional of record shall provide the following statements on the approved construction documents:

a. "I am responsible for designing this building's seismic strengthening in compliance with the minimum seismic resistance standards of Chapter 18.70 of the Long Beach Building Code."

and when applicable:

b. "The Registered Special Inspector, required as a condition of the use of structural design stresses requiring continuous inspection, will be responsible to me as required by Section 1704.1 of the California Building Code."

COMMENT: Amendment due to local geological conditions. The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. The purpose of this chapter is to promote the public welfare and safety by reducing the risk of death or injury that may result from the effects of earthquakes on existing wood-frame multi-unit residential buildings. The ground motion of the Northridge earthquake caused the loss of human life, personal injury and property damage in these types of buildings. This chapter creates minimum standards to strengthen the more vulnerable portions of these structures. When fully followed, these minimum standards will substantially improve the performance of these buildings but will not necessarily prevent all earthquake-related damage.

Section [X]. Chapter 18.71 is added to the Long Beach Municipal Code to read as follows:

CHAPTER 18.71
VOLUNTARY EARTHQUAKE HAZARD REDUCTION IN EXISTING REINFORCED CONCRETE BUILDINGS AND CONCRETE FRAME BUILDINGS WITH MASONRY INFILLS

18.71.010 Purpose.

The purpose of this chapter is to promote public safety and welfare by reducing the risk of death or injury that may result from the effects of earthquakes on concrete buildings and concrete frame buildings with masonry infills. The Northridge earthquake caused widespread damage to these buildings, including some collapses.

The recent Great Hanshin earthquake in Kobe, Japan, also caused several hundred of these buildings to collapse. These nonductile concrete buildings are frequently used in Long Beach for department stores, office buildings, hotels, parking structures and some mid-rise condominiums. Their performance in an earthquake is essential to the life and safety of their occupants and the overall stability of the local economy. This chapter provides voluntary retrofit standards that, when fully followed, will substantially improve the seismic performance of these buildings but will not necessarily prevent all earthquake damage.

18.71.020 Scope.

The provisions of this chapter may be applied to all buildings designed under building codes in effect prior to January 13, 1976, or built with building permits issued prior to January 13, 1977, having concrete floors and/or concrete roofs supported by reinforced concrete walls or concrete frames and columns, and/or concrete frames with masonry infills.

18.71.030 Definitions.

For purposes of this chapter, the applicable definitions and notations in Section 1602, 1613.2 and 1902 of the California Building Code and the following definition shall apply:

MASONRY INFILL is the unreinforced or reinforced masonry wall construction within a reinforced concrete frame.

18.71.040 General Requirements.

When the owner of each building within the scope of this chapter causes an investigation of the existing construction, a structural analysis shall be made of the building by a registered design profession licensed by the State of California.

EXCEPTION: Regular concrete shear wall buildings, of four stories in height and under, may be shown to be in conformance with this chapter by filing a report signed by a registered design profession licensed by the State of California containing the information specified in Section 18.71.090.

18.71.050 Criteria Selection.

A. Basis for analysis. The building shall be analyzed to determine the displacements caused by inertial force effects determined in accordance with the dynamic lateral analysis procedure of Section 18.71.060. The building structural system shall provide a complete load path for resisting the effects of seismic loading. The capacity of all parts of the structural system shall exceed the demand calculated by the dynamic analysis using the effective stiffnesses determined by a nonlinear analysis of the elements.

EXCEPTION: Buildings conforming to the requirements of Sections 18.71.050.D.2 and 18.71.050.D.3 may be analyzed using the procedure specified in Sections 18.71.070 and 18.71.080, respectively.

B. Site geology and soil characteristics. In the absence of a soils investigation, the soil site class shall be taken as Type D.

C. Configuration requirements.

1. General. Each structure shall be designated as structurally regular or irregular.

2. Regular structures. Regular structures have no significant physical discontinuities in plan or vertical configuration or in their lateral-force-resisting systems such as the irregular features described below.

3. Irregular structures.

a. Irregular structures have significant physical discontinuities in configuration or in their lateral-force-resisting systems. Irregular features include, but are not limited to, those described in Tables 12.3-1 and ASCE 7-05 Section 12.3-2.

b. Structures having one or more of the features listed in Table 12.3-2 of ASCE 7-05 shall be designated as having a vertical irregularity.

EXCEPTION: Where none of the story drift ratios under equivalent lateral forces is greater than 1.3 times the story drift ratio of the story above, the structure may be deemed to not have the structural irregularities of Type 1 or 2 listed in Table 12.3-2 of ASCE 7-05. The story drift for this determination shall be calculated including torsional effects.

c. Structures having one or more of the features listed in Table 12.3-1 of ASCE 7-05 shall be designated as having a plan irregularity.

d. Irregular structures conforming to the requirements of Sections 18.71.050.D and 18.71.080 may be considered regular if the plan and vertical irregularities are removed by the addition of lateral load-resisting systems.

D. Selection of lateral analysis procedure.

1. General. Any structure may be analyzed using the dynamic lateral analysis procedures of Section 18.71.060. The equivalent lateral force procedure or the simplified analysis may be used for structures conforming to the requirements on the use of those analyses.

2. Equivalent lateral force. The equivalent lateral force procedure of Section 18.71.070 may be used for regular structures or irregular structures having plan irregularity only of not more than four stories.

3. Simplified analysis. Regular structures of not more than four stories conforming to the requirements of Section 18.71.080 may be analyzed for a prescribed strength of their systems and elements.

E. Alternative procedures.

1. General. Alternative lateral analysis procedures using rational analyses based on well-established principles of mechanics may be used in lieu of those prescribed in this chapter when approved by the building official.

2. Seismic isolation. Seismic isolation (Chapter 17 of ASCE 7-05, Seismic Design Requirements For Seismically Isolated Structures), energy dissipation and damping systems may be used to reduce story drift when approved by the building official. The isolated structure shall comply with the drift requirements of Section 18.71.060.

18.71.060 Dynamic Lateral Analysis Procedure.

A. General. Structures shall be analyzed for seismic forces acting concurrently on the orthogonal axes of the structure. The effects of the loading on two orthogonal axes shall be combined by the square root of the sum of the squares (SRSS) methods.

B. Ground motion. The seismic ground motion values shall be determined in accordance with ASCE 7-05 and may be one of the following:

1. The elastic design response spectrum shall be 75 percent of the response spectrum described in ASCE 7-05 Section 11.4.5.

2. A site-specific response spectrum shall be 75 percent of the site-specific response spectrum described in ASCE 7-05 Section 11.4.7.

C. Mathematical model. The three-dimensional mathematical model of the physical structure shall represent the spatial distribution of mass and stiffness of the structure to an extent which is adequate for the calculation of the significant features of its dynamic response. All concrete and masonry elements shall be included in the model of the physical structure.

EXCEPTION: Concrete or masonry partitions that are adequately isolated from the concrete frame members and the floor above.

Cast-in-place reinforced concrete floors with span-to-depth ratios less than 3:1 may be assumed to be rigid diaphragms. Other floors, including floors constructed of precast elements with or without a reinforced concrete topping, shall be analyzed in conformance with ASCE 7-05 Section 12.3.1.3 to determine if they must be considered as flexible diaphragms. The effective in-plane stiffness of the diaphragm, including effects of cracking and discontinuity between precast elements, shall be considered. Ramps that interconnect floor levels shall be modeled as having mass appropriately distributed on that element. The lateral stiffness of the ramp may be calculated as having properties based on the uncracked cross section of the slab exclusive of beams and girders.

D. Effective stiffness.

1. General. The effective stiffness of concrete and masonry elements or systems shall be calculated as the secant stiffness of the element or system with due consideration of the effects of tensile cracking and compression strain. The secant stiffness shall be taken from the force-displacement relationship of the element or system. The secant stiffness shall be measured as the slope from the origin to the

intersection of the force-displacement relationship at the assumed displacement. The force-displacement relationship shall be determined by a nonlinear analysis. The force-displacement analysis shall include the calculation of the displacement at which strength degradation begins.

EXCEPTION: The initial effective moment of inertia of beams and columns in shear wall or infilled frame buildings may be estimated using Table 71-B. The ratio of effective moment of inertia used for the beams and for the columns shall be verified by Formulas (71-1), (71-2) and (71-3). The estimates shall be revised if the ratio used exceeds the ratio calculated by more than 20 percent.

$$I_e = \left(\frac{M_{cr}}{M_a}\right)^3 I_g + \left[1 - \left(\frac{M_{cr}}{M_a}\right)^3\right] I_{cr} \quad \text{(71-1)}$$

WHERE:

$$M_{cr} = \frac{f_r I_g}{y_t} \quad \text{(71-2)}$$

and

$$f_r = 7.5 \sqrt{f'_c} \quad \text{(71-3)}$$

2. Infills. The effective stiffness of an infill shall be determined from a nonlinear analysis of the infill and the confining frame. The effect of the infill on the stiffness of the system shall be determined by differencing the force-displacement relationship of the frame-infill system from the frame-only system.

3. Model of infill. The mathematical model of an infilled frame structure shall include the stiffness effects of the infill as a pair of diagonals in the bays of the frame. The diagonals shall be considered as having concrete properties and only axial loads.

Their lines of action shall intersect the beam-column joints. The secant stiffness of the force-displacement relationship, calculated as prescribed in Section 18.71.060.D.2, shall be used to determine the effective area of the diagonals. The effective stiffness of the frame shall be determined as specified in Section 18.71.060.D.1. Other procedures that provide the same effective stiffness for the combination of infill and frame may be used when approved by the building official.

4. Effective stiffness of elements and systems. The effective stiffness shall be determined by an iterative method. The mathematical model using assumed effective stiffness shall be used to calculate dynamic displacements. The effective stiffness of all concrete and masonry elements shall be modified to represent the secant stiffness obtained from the nonlinear force displacement analysis of the element or system at the calculated displacement. A reanalysis of the mathematical model shall be made using the adjusted effective stiffness of existing and supplemental elements and systems until

closure of the iterative process is obtained. A difference of 10 percent from the effective stiffness used and that recalculated may be assumed to be closure of the iterative process.

E. Description of analysis procedures.

1. Response spectrum analysis. Response spectrum analysis is an elastic dynamic analysis of a structure utilizing the peak dynamic response of all modes having a significant contribution to total structural response. Peak modal responses are calculated using the ordinates of the appropriate response spectrum curve which correspond to the modal periods. Maximum modal contributions are combined in a statistical manner to obtain an approximate total structural response.

2. Number of modes. The requirement of Section 18.71.060.E.1 may be satisfied by demonstrating that for the modes considered, at least 90 percent of the participating mass of the structure is included in the calculation of response for each principal horizontal direction.

3. Combining modes. The peak displacements for each mode shall be combined by recognized methods. Modal interaction effects of three-dimensional models shall be considered when combining modal maxima.

4. Torsion. The three-dimensional analysis shall be considered as including all torsional effects including accidental torsional effects.

F. Material characteristics. The stress-strain relationship of concrete, masonry and reinforcement shall be determined by testing or from published data. The procedure for testing and determination of stress-strain values shall be as prescribed in one of the following:

1. Concrete. The compressive strength of existing concrete shall be determined by tests on cores sampled from the structure or may be taken from information given on the construction documents and confirmed by limited testing. A default value of horizontal shear stress may be used in Section 18.71.080.E.1 without testing of the compressive strength of the existing concrete.

a. The cutting of cores shall not significantly reduce the strength of the existing structure. Cores shall not be taken in columns. Existing reinforcement shall not be cut.

b. If the construction documents do not specify a minimum compressive strength of the classes of concrete, five cores per story, with a minimum of 10 cores, shall be obtained for testing.

EXCEPTION: If the coefficient of variation of the compressive strength does not exceed 15 percent, the number of cores per story may be reduced to two and the minimum number of tests reduced to five.

c. When the construction documents specify a minimum compressive strength, two cores per story, per class of concrete, shall be taken in the areas where that concrete was to be placed. A minimum of five cores shall be obtained for testing. If a higher strength of concrete was specified for columns than the remainder of the concrete, cores taken in the beams for verification of the specified strength of the beams shall be substituted for tests in the columns. The strength specified for columns may be used in the analyses if the specified compressive strength in the beams is verified.

d. The sampling for the concrete strength tests shall be distributed uniformly in each story. If the building has shear walls, a minimum of 50 percent of the cores shall be taken from the shear walls. Not more than 25 percent of the required cores shall be taken in floor and roof slabs. The remainder of cores may be taken from the center of beams at mid-span. In concrete frame buildings, 75 percent of the cores shall be taken from the beams.

e. The mean value of the compressive stresses obtained from the core testing for each class of concrete shall be used in the analyses. Values of peak strain that is associated with peak compressive stress may be taken from published data for the nonlinear analyses of reinforced concrete elements.

2. Solid grouted reinforced masonry. The compressive strength of solid grouted concrete block or brick masonry may be taken as 2,000 psi. The strain associated with peak stress may be taken as 0.0025.

3. Partially grouted masonry. A minimum of five units shall be removed from the walls and tested in conformance with ASTM C90-03 Specification for Loadbearing Concrete Masonry Units. Compressive strength of the masonry may be determined in accordance with Chapter 21 of the California Building Code, assuming Type S mortar. The strain associated with peak stress may be taken as 0.0025.

4. Unreinforced masonry.

a. The stress-strain relationship of existing unreinforced masonry shall be determined by in-place cyclic testing. The test procedure shall conform to Section 18.71.100.

b. One stress-strain test per story and a minimum of five tests shall be made in the unreinforced masonry infills. The location of the tests shall be uniformly distributed throughout the building.

c. The average values of the stress-strain values obtained from testing shall be used in the nonlinear analyses of frame-infill assemblies or in the calculation of the effective diagonal brace that is used in the simplified analysis procedure of Section 18.71.080.

5. Reinforcement. The yield stress of each type of new or existing reinforcement shall be taken from Table 71-C unless the reinforcement is sampled and tested for yield

stress. The axial reinforcement in columns of post-1933 buildings shall be assumed to be hard grade unless noted otherwise on the construction documents.

6. Combination of concrete and masonry materials. Combinations of masonry and concrete infills shall be assumed to have equal strain. The secant moduli at peak stress of the masonry and concrete shall be used to determine the effective transformed area of the composite material.

G. Story drift limitation.

1. Definition. Story drift is the displacement of one level relative to the level above or below calculated by the response spectrum analysis using the appropriate effective stiffness.

2. Limitation. The story drift is limited to that displacement that causes any of the following effects:

a. Compressive strain of 0.003 in the frame confining infill or in a shear wall.

b. Compressive strain of 0.004 in a reinforced concrete column unless the engineer can show by published experimental research that the existing confinement reinforcement justifies higher values of strain.

c. Peak strain in masonry infills as determined by experimental data or by physical testing as prescribed in Section 18.71.100.

d. Displacement that was calculated by the nonlinear analysis as when strength degradation of any element began.

EXCEPTION: Item (d) may be taken as the displacement that causes a strength degradation in that line of resistance equal to 10 percent of the sum of the strength of the elements in that line of resistance.

e. A story drift of 0.015 using the dynamic analysis procedure or the forces specified in Section 18.71.070. This limitation shall not supersede the limitations of Items (a) through (d).

H. Compressive strain determination.

1. General. The compressive strain in columns, shear walls and infills may be determined by the nonlinear analysis or a procedure that assumes plane sections remain plane.

2. Axial and flexural loading. The compressive strain shall be determined for combined flexure and axial loading. The flexural moments shall be taken from the response spectrum model for frame or shear wall buildings, and from the substructure

model for infill frames. The axial loads shall have the following combination of effects, where *L* is unreduced live load:

U = 1.0*D* + 0.3*L* + 1.0*E* (71-4)

U = 0.9*D* − 1.0*E* (71-5)

I. Shear strength limitation. The required in-plane shear strength of all columns, piers and shear walls shall be the shear associated with the moments induced at the ends of columns or piers and at the base of shear walls by the story displacements. No strength reduction factors shall be used in the determination of strength.

18.71.070 Equivalent Lateral Force Procedure.

A. General. Structures shall be analyzed for prescribed forces acting concurrently on the orthogonal axes of the building. The effects of the loading on the two orthogonal axes shall be combined as required by Section 18.71.060.A.

B. Base shear for analysis. The base shear used to determine story drifts shall be determined using 75 percent of the base shear as determined in accordance with ASCE 7-05 Section 12.8.1.

WHERE:

R = 1.4 for concrete frame buildings with masonry infill and all other reinforced concrete buildings.

EXCEPTION: *R* = 1.0 for single-story buildings. The *R* value in ASCE 7-05 Table 12.2-1 for new building design shall not be used for story drift determination.

C. Structure period. The value of *T* may be determined by either Method A or B as prescribed by ASCE 7-05 Section 12.8.2. The structure period calculated by Method B need not be limited to a percent of the value obtained by Method A.

D. Vertical distribution of forces. The base shear shall be distributed over the height of the structure in conformance with Formula (71-6).

$$C_{vx} = \frac{w_x h_x^{\,k}}{\sum_{i=1}^{i=n} w_i h_i^{\,k}} \qquad (71\text{-}6)$$

WHERE:

C_{vx} = vertical distribution factor to be applied to *V* to obtain the story force at level *x*.

k = an exponent related to building period as follows:
For buildings having a period of 0.4 seconds or less,
k = 1.0
For buildings having a period of 2.0 seconds or more,
k = 2.0
For buildings having a period between 0.4 and 2.0 seconds, *k* may be taken as two or determined by linear interpolation between one and two.

E. Horizontal distribution of shear. The effective stiffness of elements shall be used for the horizontal distribution of shear.

F. Horizontal torsional moments. Provision shall be made for increased displacements resulting from horizontal torsion. The effects of torsional moments shall be included in the determination of the effective stiffness of elements and systems. Reinforced concrete floors may be considered as rigid diaphragms.

G. Effective stiffness. The effective stiffness of concrete and masonry elements shall be determined as prescribed in Section 18.71.060.D.

H. Material characteristics. Material characteristics shall be determined as prescribed in Section 18.71.060.F.

I. Story drift limitations. Story drift limits shall be as prescribed in Section 18.71.060.G.

J. Compressive strain determination. Compressive strain shall be determined as prescribed in Section 18.71.060.H.

K. Shear strength limitation. The in-plane shear strength shall equal or exceed the shear forces determined as prescribed in Section 18.71.060.I.

18.71.080 Simplified Analysis Procedure.

A. General. Structures conforming to the requirements of this section may be analyzed for having a required strength by a simplified analysis procedure.

B. Required features of the building. The building shall conform to all the following features, or the building shall be analyzed by the equivalent lateral force procedure or the dynamic lateral force procedure as prescribed by Section 18.71.050.D of this code.

1. The lateral-resisting elements of the building shall be reinforced concrete shear walls or frames with solid masonry infills and infills which have openings in the masonry infills not exceeding 10 percent of the gross area of the infill panel which has the opening(s).

2. The effective shear area of reinforced concrete shear walls on each orthogonal axis shall be calculated by passing a horizontal plane through each story level. The height of the plane shall be that height where the area of the shear walls is a minimum.

3. The reinforced concrete elements shall have no visible deterioration of concrete or reinforcement.

4. The vertical elements in the lateral-load-resisting system shall not have significant strength discontinuities; the story strength in any story shall not be less than 90 percent of the strength of the story above.

5. The lateral-force-resisting elements in all story levels shall form a system that is not subject to significant torsion. Significant torsion is the condition where the distance between the story center of rigidity and the story center of mass is greater than 20 percent of the width of the structure in the corresponding plan dimension.

6. The minimum ratio of area of reinforcement to gross area of wall in existing reinforced concrete shear walls shall be 0.0015 in both the vertical and horizontal direction or the minimum ratio of axial reinforcement in the columns of frames containing infills shall be 0.01.

7. The ratio of total height to base length of cantilevered or coupled shear walls shall be two or less. The ratio of clear height to in-plane depth of piers in a shear wall shall be two or less. Shear walls or piers having a height to in-plane depth ratio greater than two shall be given an effective shear area of one-half their area.

8. All concrete frames with infilled panels conforming to Item 1 above shall have total height to base length ratios of 2:1 or less.

C. Analysis procedure.

1. General. Supplemental elements may be added to the existing building to bring the structure into conformance with Section 18.71.090.B.

2. Seismic loading. The seismic loading shall be calculated by Section 18.71.070.B. The loading of each story level shall be calculated by Formula (71-6) of Section 18.71.070.D.

3. Relative rigidities. The relative rigidity of reinforced concrete shear walls may be based on the stiffness of uncracked sections. The relative rigidity of infill panels may be calculated using a common modulus of elasticity. Use of a combination of infills and reinforced concrete or masonry shear walls on any orthogonal axis is prohibited.

4. Required calculations. The calculations may be limited to computation of loads on the reinforced concrete shear walls or infilled frame panels that comply with Section 18.71.080.B and computation of the drag and tie forces that develop a complete load path. The loads shall include torsional effects.

D. Required strength of systems and elements.

1. The capacity of all parts of the structure shall exceed the demand calculated by use of the loading specified in Section 18.71.070.

2. The strength of infilled frame systems used for lateral load resistance in this section shall be calculated using only the infilled frames that conform to Item 1 of Section 18.71.080.B.

E. Shear stress limit.

1. The maximum horizontal shear stress in new and existing reinforced concrete shear walls shall not exceed 2 $(f'c)^{1/2}$. For the purpose of this chapter, the horizontal shear stress may be taken as 80 psi without testing as required by Item 1 of Section 18.71.060.F.

2. The in-plane shear stress in any masonry infilled panel shall not exceed 30 psi. The calculation of shear stresses shall use net section area and only the area of the infilled masonry.

EXCEPTION: The in-plane strength of an infill panel without openings may be calculated by procedures described in published research that were verified by experimental testing and approved by the building official.

18.71.090 Minimum Requirements for a Limited Structural Analysis.

A. General. Structures conforming to the requirements of this section may be shown to be in conformance with this chapter by submission of the report described in this section.

B. Required features of the building. The building shall conform to all of the following features or the building shall be analyzed as prescribed by Section 18.71.050.D of this code.

1. The lateral-load-resisting elements of the building shall be reinforced concrete shear walls.

2. The minimum ratio of area of reinforcement to gross area of the wall shall be 0.0015 in both the vertical and horizontal directions.

3. The reinforced concrete elements shall have no visible deterioration of concrete or reinforcement.

4. The area of concrete shear walls on each orthogonal axis at the first floor level shall be 1.5 *n* percent of the area of the first floor of the building, where *n* is the number of floor and roof levels.

5. The area of the shear walls in all stories above the first floor shall not be more than 100 percent or less than 80 percent of the area of shear walls at the first floor.

6. The concrete shear walls in all stories above the first floor shall be directly above the shear walls at the first floor which are used to calculate the percent of shear wall area to floor area.

7. The wall area must be uniformly distributed such that at least 80 percent of the wall area used in the calculation is symmetrically placed about the center of the building.

8. The area of the shear walls on each orthogonal axis shall be calculated by passing a horizontal plane through the first story level. The height of the plane shall be that height where the area of the shear walls is a minimum.

9. The ratio of total height to base width of cantilevered or coupled shear walls shall be two or less. The ratio of the clear height to in-plane depth of piers in a shear wall shall be two or less. Shear walls or piers having a height to depth ratio greater than two shall be given an effective area of one-half of their area.

C. Information required in the report.

1. The report shall include data, sketches, plans and calculations that show conformance with the features given in this section.

2. The registered design professional of record shall meet with the representative of the department at the site to review the report.

18.71.100 Determination of the Stress-Strain Relationship of Existing Unreinforced Masonry.

A. Scope. This section covers procedures for determining the expected compressive modulus, peak strain and peak compressive stress of unreinforced brick masonry used for infills in frame buildings.

B. General procedure. The outer wythe of multiple wythe brick masonry shall be tested by inserting two flat jacks into the mortar joints of the outer wythe. The prism height, the vertical distance between the flat jacks, shall be five bricks high. The test location shall have adequate overburden and/or vertical confinement to resist the flat jack forces.

C. Preparation for the test. Remove a mortar joint at the top and bottom of the test prism by saw cutting or drilling and grinding to a smooth surface. The cuts for inserting the flat jacks shall not have a deviation from parallel of more than 3/8 inch. The deviation from parallel shall be measured at the ends of the flat jacks. The width of the saw cut shall not exceed the width of the mortar joint. The length of the sawcut on the

face of the wall may exceed the length of the flat jacks by not more than twice the thickness of the outer wythe plus 1 inch.

D. Required equipment. The flat jacks shall be rectangular or with semicircular ends to mimic the radius of the saw blade used to cut the slot for the flat jack. The length of the flat jack shall be 18 inches maximum and 16 inches minimum. This length shall be measured on the longest edge of a flat jack with semicircular ends. The maximum width of the flat jack shall not exceed the average width of the wythe of brick that is loaded. The minimum width of a flat jack shall be 3-1/2 inches measured out-to-out of the flat jack. The flat jack shall have a minimum of two ports to allow air in the flat jack to be replaced by hydraulic fluid. The unused port shall be sealed after all the air is forced out of the flat jack. The thickness of the flat jack shall not exceed three quarters of the minimum height of the mortar joint. It is recommended that the height of the flat jack be about one half of the width of the slot cut for installation of the flat jack. The remaining space can be filled with steel shim plates having plan dimensions equal to the flat jack.

E. Data acquisition equipment. The strain in the tested prism shall be recorded by gages or similar recording equipment having a minimum range of one ten-thousandth of an inch. The compressive strain shall be measured on the surface of the prism and shall have a gage length, measured vertically on the face of the prism, of 10 inches minimum. The gage points shall be fixed to the wall by drilled-in anchors or by anchors set in epoxy or similar material. The support for the data-recording apparatus shall be isolated from the wall by a minimum of 1/16 inch so that the gage length used in the calculation of strain can be taken as the measured length between the anchors of the equipment supports. The gaging equipment shall be as close to the face of the prism as possible to minimize the probability of erroneous strain measurements caused by bulging of the prism outward from its original plane.

The compressive strain data shall be measured at a minimum of two points on the vertical face of the prism. These points shall be the one-third points of the length of the flat jacks plus or minus 1/2 inch. As an alternative, the strain may be measured at three points on the face of the prism.

These points shall be spaced at one quarter of the flat jack length plus or minus 1/2 inch.

Horizontal gages at mid-height of the prism may be used to record Poisson strain, but this gage should be considered as recording data secondary in importance to the vertical gages and its placement shall not interfere with placing the vertical gaging as close as possible to the face of the prism.

F. Loading and recording data. The loading shall be applied by hydraulic pumps that add hydraulic fluid to the flat jacks in a controlled method. The application of load shall be incremental and held constant while strains are being recorded. The increasing loading for each cycle of loading shall be divided into a minimum of four equal load increments. The strain shall be recorded at each load step. The decrease in loading shall be divided into a minimum of two equal unloading increments. Strain shall be

recorded on the decreasing load steps. The hydraulic pressure shall be reduced to zero and the permanent strain caused by this cycle of loading shall be recorded. This procedure shall be used for each cycle of loading.

The load applied in each cycle of load shall be determined by estimating the peak compressive stress of the existing brick masonry. The hydraulic pressure needed to cause this peak compressive stress in the prism shall be calculated by assuming the area of the loaded prism is equal to the area of the flat jack. A maximum of one third of this pressure, rounded to the nearest 25 psi, shall be applied in the specified increments to the peak pressure prescribed for the first cycle of loading. After recording the strain data, this pressure shall be reduced in a controlled manner to each of the specified increments for unloading and for recording data. The maximum jack pressure on the subsequent cycles shall be one-half, two-thirds, five-sixths and estimated peak pressure. If the estimated peak compressive stress is less than the existing peak compressive stress, the cyclic loading and unloading shall continue using increments of increasing pressure equal to those used prior to the application of estimated peak pressure.

All strain data shall be recorded to one ten-thousandth of an inch. Jack pressure shall be recorded in increments of 25 psi pressure.

G. Quality control. The flat jack shall be calibrated before use by placing the flat jack between bearing plates of 2 inches minimum thickness in a calibrated testing machine. A calibration curve to convert hydraulic pressure in the flat jack to total load shall be prepared and included in the report of the results of testing. Flat jacks shall be recalibrated after three uses.

The hydraulic pressure in the flat jacks shall be indicated by a calibrated dial indicator having a subdivision of 25 psi or less. The operator of the hydraulic pump shall use this dial indicator to control the required increments of hydraulic pressure in loading and unloading.

H. Interpretation of the data. The data obtained from the testing required by Item 4(b) of Section 18.71.060.F shall be averaged both in expected peak compressive stress and the corresponding peak strain. The envelope of the averaged stress-strain relationship of all tests shall be used for the material model of the masonry in the infilled frame. If two strain measurements have been made on the surface of the prism, these strain measurements shall be averaged for determination of the stress-strain relationship for the test. If three strain measurements have been made on the surface of the prism, the data recorded by the center gage shall be given a weight of two for preparing the average stress-strain relationship for the test.

18.71.110 Evaluation of Existing Structural Conditions.

The registered design professional of record shall report any observed structural conditions and structural damage that, in the registered design professional's judgment,

have imminent life-safety effects on the structure and recommend repairs. Evaluations and repairs shall be reviewed and approved by the department.

18.71.120 Materials of Construction.

All materials permitted by this code may be used to reduce the story drifts. Their effective stiffness shall be determined by a nonlinear analysis using principles of engineering mechanics and expected material characteristics.

18.71.130 Information Required on the Construction Documents.

A. General. In addition to the seismic analysis required elsewhere in this chapter, the registered design professional responsible for the seismic analysis of the building shall record the information required by this section on the approved construction documents.

B. Information required. The construction documents shall accurately reflect the results of the engineering investigation and design, and show all pertinent dimensions and sizes for plan review and construction. The following shall be provided:

1. The construction documents of the existing construction shall be adequately dimensioned and furnish adequate details in schedules, notes and sections to fully describe the existing building. The construction documents shall include a foundation plan, floor and roof plans which indicate new work, and existing construction.

2. Elevations of the structural system showing sizes and dimensions.

3. Schedules, sections and details showing reinforcement of walls, slabs, beams, joists, girders, columns and foundations.

EXCEPTION: If copies of the original construction documents are submitted for information during the plan check, the information required by Items 1, 2 and 3 may be limited to areas of and adjacent to new construction on a complete outline at that level of the building.

4. Sections and details showing attachments and joining of new and existing structures. All reinforcement in the existing structure shall be shown in these sections and details.

5. Specifications and/or general notes fully describing demolition, materials and methods, testing and inspection requirements.

C. Registered design professional of record's statement. The responsible registered design professional of record shall state on the approved construction documents the following:

1. "I am responsible for this building's seismic strengthening design in compliance with the minimum seismic resistance standards of Chapter 18.71 of the Long Beach Building Code."

or when applicable:

2. "The Registered Special Inspector, required as a condition of the use of structural design stresses requiring continuous inspection, will be responsible to me as required by Section 1704.1 of the California Building Code."

TABLE 71-A RATING CLASSIFICATIONS CLASSIFICATION TYPE OF BUILDING

CLASSIFICATION	TYPE OF BUILDING
Group I	Essential buildings
Group II	Buildings with occupant load of 5,000 or more, or assembly rooms of 1,000 occupants or more, and malls as defined elsewhere in the code.
Group III	1,000 to 4,999 occupants
Group IV	300 to 999 occupants
Group V	All others

TABLE 71-B INITIAL EFFECTIVE MOMENT OF INERTIA OF CONCRETE MEMBERS

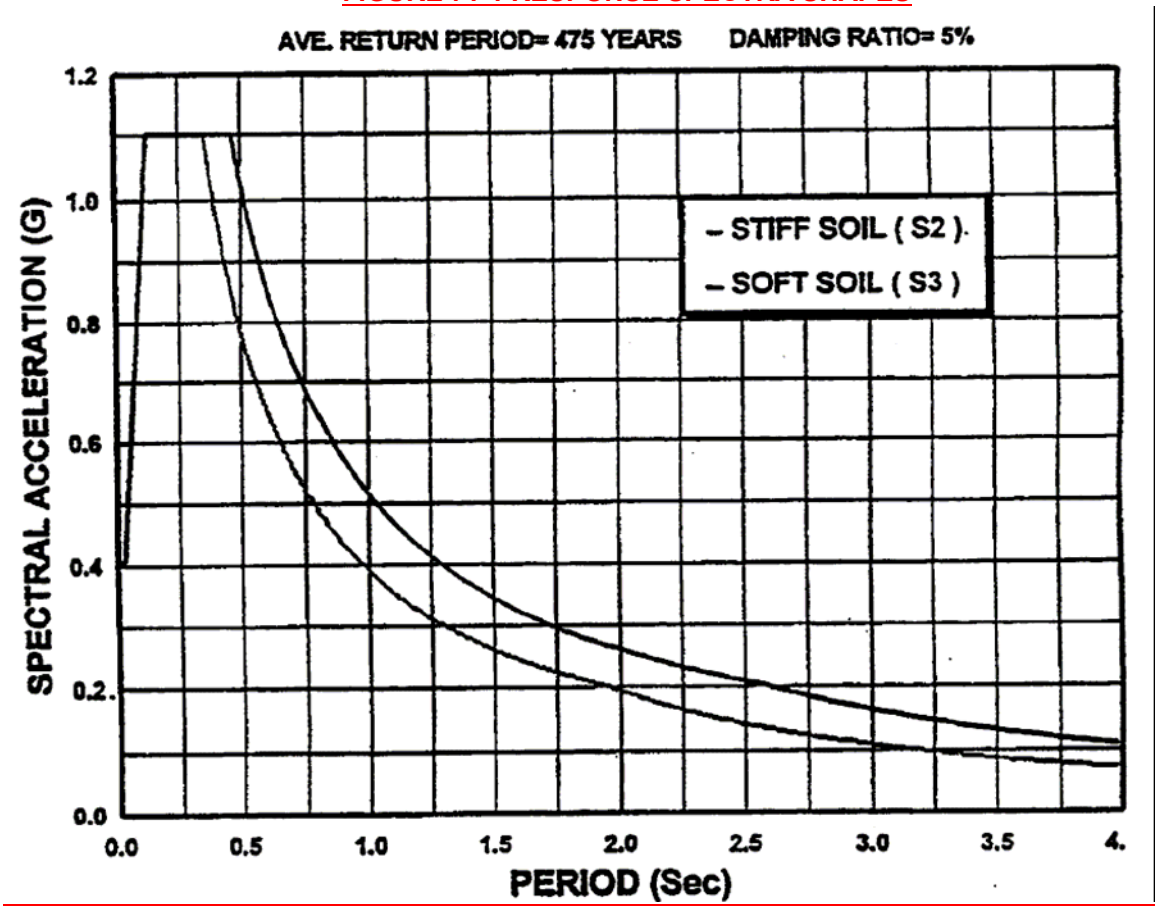
MEMBER	RANGE
Rectangular beams	0.30 - 0.5 I_g
T- and L-shaped beams	0.25 - 0.45 I_g
Columns P > 0.5 $f_c' A_g$	0.7 - 0.9 I_g
Columns P = 0.2 $f_c' A_g$	0.5 - 0.7 I_g
Columns P = - 0.05 $f_c' A_g$	0.3 - 0.5 I_g

TABLE 71-C ASSUMED YIELD STRESS OF EXISTING REINFORCEMENT

TYPE OF REINFORCEMENT AND ERA	ASSUMED YIELD STRESS, ksi
Pre-1940 — Structural and intermediate grade, plain and deformed	45
Pre-1940 — Twisted and hard grade	55
Post-1940 — Structural and intermediate grade	45
Post-1940 — Hard grade	60
ASTM A 615 Grade 40	50
ASTM A 615 Grade 60	70

For **SI:** 1 ksi = 6.894 MPa.

FIGURE 71-1 RESPONSE SPECTRA SHAPES



COMMENT: Amendment due to local geological conditions. The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. The purpose of this chapter is to promote public safety and welfare by reducing the risk of death or injury that may result from the effects of earthquakes on concrete buildings and concrete frame buildings with masonry infills. The Northridge earthquake caused widespread damage to these buildings, including some collapses.

The recent Great Hanshin earthquake in Kobe, Japan, also caused several hundred of these buildings to collapse. These nonductile concrete buildings are frequently used in Long Beach for department stores, office buildings, hotels, parking structures and some mid-rise condominiums. Their performance in an earthquake is essential to the life and safety of their occupants and the overall stability of the local economy. This chapter provides voluntary retrofit standards that, when fully followed, will substantially improve the seismic performance of these buildings but will not necessarily prevent all earthquake damage.

Section [X]. Delete Chapter 18.72 of the Long Beach Municipal Code in its entirety which read as follows:

~~18.72.010 Definitions.~~

~~A. "Appliance" means and includes every domestic appliance and industrial appliance which burns gas.~~

~~B. "Domestic appliance" means and includes cooking, lighting, water heating, house heating, and all other appliances used for the consumption of gas, which are or may be installed or used in dwelling houses or any room, suite or apartment used for human habitation.~~

~~C. "Industrial appliance" means and includes steam or explosive power generation appliances, forges, smelters, brazing tables, enameling appliances, ovens, core ovens, melting pots, steam tables, stock pots, coffee urns, dish washers, broilers, bake ovens and all appliances used in hotel or restaurant kitchens, and any and all other miscellaneous appliances, burning gas not included in the definition of domestic appliance.~~

~~D. "Install" and "installation" means to connect, adjust, set up and connect, or sell and connect, any appliance, or to alter or adjust any appliance already connected.~~

~~18.72.020 Defective or dangerous appliances prohibited.~~

~~No person shall:~~

~~A. Install, or sell and install, for use in any building any defective appliance or any appliance that is incapable of efficient service or that is in any manner dangerous to health, life, or property;~~

~~B. Connect any appliance to any gas supply outlet having a less capacity than the inlet of the appliance;~~

~~C. Install and leave for use any appliance until the gas pressure is at least equal to four and one-half inches water column and the appliance is properly adjusted for efficient service of the appliance;~~

~~D. Install and leave for use any appliance without providing access for air to all its burners and air mixers sufficient for complete combustion and efficient service;~~

~~E. Install and leave for use any appliance without adjusting the same so that it will be safe and will effect the most efficient use of the gas;~~

~~F. Install and leave for use any appliance without permanently protecting all adjacent woodwork, or other inflammable materials, when the woodwork or inflammable material is subject to direct, reflected, or radiated heat exceeding one hundred forty degrees Fahrenheit; and the protection shall be of such material and construction as will effectively prevent fire, and of such durability as to last during the life of the appliance.~~

COMMENT: This administrative amendment is no longer necessary.

Section [X]. Add Chapter 18.72 of the Long Beach Municipal Code which

read as follows:

CHAPTER 18.72
VOLUNTARY EARTHQUAKE HAZARD REDUCTION IN EXISTING REINFORCED CONCRETE AND REINFORCED MASONRY WALL BUILDINGS WITH FLEXIBLE DIAPHRAGMS

18.72.010 Purpose.

The purpose of this chapter is to promote public safety and welfare by reducing the risk of death or injury that may result from the effects of earthquakes on reinforced concrete and masonry wall buildings with flexible diaphragms designed under the building codes in effect prior to January 1, 1995. These buildings are potentially hazardous and prone to significant damage, including possible collapse, in a moderate to major earthquake. These structures typically shelter large numbers of persons and property for retail, food markets, food distribution centers, warehousing, aerospace, industrial/manufacturing and general business and office use. Their continued use after an earthquake is also essential to the local economy and its post-earthquake recovery.

The provisions of this chapter are minimum standards for structural seismic resistance established primarily to reduce the risk of loss of life or injury on both subject and adjacent properties and will not necessarily prevent all earthquake damage to an existing building which complies with these standards. This chapter shall not require existing electrical, plumbing, mechanical or fire safety systems to be altered unless they constitute a hazard to life or property.

This chapter provides voluntary retrofit standards for deficient wall anchorage systems on structures that are not subject to the mandatory provisions of Chapter 18.68. When fully followed, these standards will strengthen the portion of the structure that is most vulnerable to earthquake damage.

18.72.020 Scope.

The voluntary provisions of this chapter shall apply to existing buildings of the following types:

1. Cast-in-place reinforced concrete or masonry wall buildings with flexible diaphragms designed under building codes in effect prior to January 1, 1995.

2. Tilt-up concrete wall buildings with flexible diaphragms designed under the building codes in effect prior to January 1, 1995, but after January 1, 1976. All existing reinforced masonry or concrete buildings with flexible diaphragms, including tilt-up concrete wall buildings, designed under the building code in effect on or after January 1, 1995, shall be designed in conformance with Chapter 16 of the California Building Code.

18.72.030 Definitions.

For the purposes of this chapter, the applicable definitions in Chapter 2, Sections 1602, 1613.2, 1902, and 2302 of the California Building Code; Sections 1.2, 3.1.1, 4.1, 5.2, 6.2 and 11.2 of ASCE 7-05, and the following shall apply.

ANCHORAGE SYSTEM is the system of all structural elements and connections which support the concrete or masonry wall in the lateral direction, including diaphragms and subdiaphragms, wall anchorage and continuity or crosstie connectors in subdiaphragms and main diaphragms.

COMMENCED CONSTRUCTION is construction pursuant to a valid building permit that has progressed to the point that one of the called inspections as required by the department has been made and the work for which the inspection has been called has been judged by the department to be substantial and has been approved by the department.

EXISTING BUILDING is an erected building for which a legal building permit and a certificate of occupancy have been issued.

FLEXIBLE DIAPHRAGM is any diaphragm constructed of wood structural panel, diagonal or straight wood sheathing, metal decking without a structural concrete topping, or horizontal rod bracing.

HISTORICAL BUILDING is any building designated or currently in the process of being designated as a historical building by an appropriate federal, state or city jurisdiction.

REINFORCED CONCRETE WALL is a concrete wall which has 50 percent or more of the reinforcing steel required for reinforced concrete in Chapter 19 of the California Building Code.

REINFORCED MASONRY WALL is a masonry wall which has 50 percent or more of the reinforcing steel required by Item 2.3 of Section 2106.4 of the California Building Code.

RETROFIT strengthens or structurally improves the lateral force-resisting system of an existing building by alteration of existing or addition of new structural elements.

TILT-UP CONCRETE WALL is a form of precast concrete panel construction either cast in the horizontal position at the site and after curing, lifted and moved into place in a vertical position, or cast off-site in a fabricator's shop.

18.72.040 Analysis and Design.

A. Wall panel anchorage. Concrete and masonry walls shall be anchored to all floors and roofs which provide lateral support for the wall. The anchorage shall provide a positive direct connection between the wall and floor or roof construction capable of

resisting a horizontal force equal to 30 percent of the tributary wall weight for all buildings, and 45 percent of the tributary wall weight for essential buildings, or a minimum force of 250 pounds per linear foot of wall, whichever is greater.

The required anchorage shall be based on the tributary wall panel assuming simple supports at floors and roof.

EXCEPTION: An alternate design may be approved by the building official when justified by well-established principles of mechanics.

B. Special requirements for wall anchors and continuity ties. The steel elements of the wall anchorage systems and continuity ties shall be designed by the allowable stress design method using a load factor of 1.7. The one-third stress increase permitted by Section 1605.3.2 of the California Building Code shall not be permitted for materials using allowable stress design methods.

The strength design specified in Section 1912.1 of the California Building Code, using a load factor of 2.0 in lieu of 1.4 for earthquake loading, shall be used for the design of embedment in concrete.

Wall anchors shall be provided to resist out-of-plane forces, independent of existing shear anchors.

EXCEPTION: Existing cast-in-place shear anchors may be used as wall anchors if the tie element can be readily attached to the anchors and if the registered design professional can establish tension values for the existing anchors through the use of approved as-built plans or testing, and through analysis showing that the bolts are capable of resisting the total shear load while being acted upon by the maximum tension force due to seismic loading. Criteria for analysis and testing shall be determined by the building official.

Expansion anchors are not allowed without special approval of the building official. Attaching the edge of plywood sheathing to steel ledgers is not considered as complying with the positive anchoring requirements of the code; and attaching the edge of steel decks to steel ledgers is not considered as providing the positive anchorage of this code unless testing and analysis are performed which establish shear values for the attachment perpendicular to the edge of the deck.

C. Development of anchor loads into the diaphragm. Development of anchor loads into roof and floor diaphragms shall comply with Section 12.11.2.2.3 of ASCE 7-05.

EXCEPTION: If continuously tied girders are present, then the Maximum spacing of the continuity ties is the greater of the girder spacing or 24 feet.

In wood diaphragms, anchorage shall not be accomplished by use of toenails or nails subject to withdrawal, nor shall wood ledgers, top plates or framing be used in

cross-grain bending or cross grain tension. The continuous ties required by Section 12.11.2.2.3 of ASCE 7-05 shall be in addition to the diaphragm sheathing.

Lengths of development of anchor loads in wood diaphragms shall be based on existing field nailing of the sheathing unless existing edge nailing is positively identified on the original construction plans or at the site.

At reentrant corners, continuity collectors may be required for existing return walls not designed as shear walls, to develop into the diaphragm a force equal to the lesser of the rocking or shear capacity of the return wall, or the tributary shear but not exceeding the capacity of the diaphragm. Shear anchors for the return wall shall be commensurate with the collector force. If a truss or beam other than rafters or purlins is supported by the return wall or by a column integral with the return wall, an independent secondary column is required to support the roof or floor members whenever rocking or shear capacity of the return wall is governing.

D. Anchorage at pilasters. Anchorage of pilasters shall be designed for the tributary wall anchoring load per Section 18.72.040.A of this code, considering the wall as a two-way slab. The edge of the two-way slab shall be considered “fixed” when there is continuity at pilasters, and considered “pinned” at roof or floor levels. The pilasters or the walls immediately adjacent to the pilasters shall be anchored directly to the roof framing such that the existing vertical anchor bolts at the top of the pilasters are bypassed without causing tension or shear failure at the top of the pilasters.

EXCEPTION: If existing vertical anchor bolts at the top of the pilasters are used for the anchorage, then additional exterior confinement shall be provided.

The minimum anchorage at a floor or roof between the pilasters shall be that specified in Section 18.72.040.A of this code.

E. Symmetry. Symmetry of connectors in the anchorage system is required. Eccentricity may be allowed when it can be shown that all components of forces are positively resisted and justified by calculations or tests.

F. Minimum member size. Wood members used to develop anchorage forces to the diaphragm shall be of minimum 3-inch nominal width for new construction and replacement. All such members must be designed for gravity and earthquake forces as part of the wall anchorage system. For existing structural members, the allowable stresses shall be without the one-third stress increase per Section 18.72.040.B.

G. Combination of anchor types. To repair and retrofit existing buildings, a combination of different anchor types of different behavior or stiffness shall not be permitted. The capacity of the new and existing connectors cannot be added.

H. Prohibited anchors. Usage of connectors that were bent or stretched from the intended use shall be prohibited.

I. Crack and damage repairs, evaluation of existing structural alterations. The registered design professional shall report any observed structural conditions and structural damage that have imminent life-safety effects on the buildings and recommend repairs, including alterations such as openings cut in existing wall panels without a building permit. Evaluations and repairs shall be reviewed and approved by the department.

J. Miscellaneous. Existing mezzanines relying on the concrete or masonry walls for vertical or lateral support shall be anchored to the walls for the tributary mezzanine load. Walls depending on the mezzanine for lateral support shall be anchored per Sections 18.72.040.A, 18.72.040.B and 18.72.040.C of this code.

EXCEPTION: Existing mezzanines that have independent lateral and vertical support need not be anchored to the concrete or masonry walls.

Existing interior masonry or concrete walls not designed as shear walls, which extend to the floor above or to the roof diaphragm, shall also be anchored for out-of-plane forces per Sections 18.72.040.A, 18.72.040.B and 18.72.040.C of this code. In the in-plane direction, the walls may be isolated or shall be developed into the diaphragm for a lateral force equal to the lesser of the rocking or shear capacity of the wall, or the tributary shear but not exceeding the diaphragm capacity.

K. Historical buildings. Qualified historical buildings shall be permitted to use alternate building standards or deviations from this chapter in order to preserve their original or restored architectural elements and features. See California Code of Regulations, Title 24, Part 8 (California Historical Building Code) for these standards.

18.72.050 Materials of Construction.

All materials permitted by this code, including their appropriate allowable stresses and those existing configurations of materials specified in Chapter 18.68 of this code, may be utilized to meet the requirements of this chapter.

18.72.060 Information Required on Construction Documents.

A. General. In addition to the seismic analysis required elsewhere in this chapter, the licensed registered design professional responsible for the seismic analysis of the building shall record the information required by this section on the approved construction documents.

B. Information required. The construction documents shall accurately reflect the results of the engineering investigation and design and show all pertinent dimensions and sizes for plan review and construction. The following shall be provided:

1. Floor plans and roof plans shall show the existing framing construction, diaphragm construction, proposed wall anchors, crossties and collectors. Existing

nailing, anchors, ties and collectors shall also be shown on the plans if these are part of the design, and these structural elements need to be verified in the field.

2. At elevations where there is alterations or damage, the details shall show the roof and floor heights, dimensions of openings, location and extent of existing damage, and proposed repair.

3. Typical concrete or masonry wall sections with wall thickness, height and location of anchors shall be provided.

4. Details shall include the existing and new anchors and the method of development of anchor forces into the diaphragm framing, existing and new crossties, existing and new or improved support of the roof, and floor girders at pilasters or walls.

C. Registered design professional of record's statement. The responsible registered design professional of record shall state on the approved construction documents the following:

1. "I am responsible for this building's seismic strengthening design of the tilt-up concrete wall anchorage system in compliance with the minimum seismic resistance standards of Chapter 18.72 of the Long Beach Building Code."

or when applicable:

2. "The Registered Special Inspector, required as a condition of the use of structural design stresses requiring continuous inspection, will be responsible to me as required by Section 1704.1 of the California Building Code."

COMMENT: Amendment due to local geological conditions. The greater Los Angeles/Long Beach region is a densely populated area having buildings constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. The purpose of this chapter is to promote public safety and welfare by reducing the risk of death or injury that may result from the effects of earthquakes on reinforced concrete and masonry wall buildings with flexible diaphragms designed under the building codes in effect prior to January 1, 1995. These buildings are potentially hazardous and prone to significant damage, including possible collapse, in a moderate to major earthquake. These structures typically shelter large numbers of persons and property for retail, food markets, food distribution centers, warehousing, aerospace, industrial/manufacturing and general business and office use. Their continued use after an earthquake is also essential to the local economy and its post-earthquake recovery.

The provisions of this chapter are minimum standards for structural seismic resistance established primarily to reduce the risk of loss of life or injury on both subject and adjacent properties and will not necessarily prevent all earthquake damage to an existing building which complies with these standards. This chapter shall not require

existing electrical, plumbing, mechanical or fire safety systems to be altered unless they constitute a hazard to life or property.

This chapter provides voluntary retrofit standards for deficient wall anchorage systems on structures that are not subject to the mandatory provisions of Chapter 18.68. When fully followed, these standards will strengthen the portion of the structure that is most vulnerable to earthquake damage.

Section [X]. Section 18.99.010 of the Long Beach Municipal Code is amended to read as follows:

18.99.010 Purpose

A. The provisions of ~~o~~Ordinance ~~C-7823~~ No. ORD-07-_____ contain various changes, deletions, modifications and additions to title 18 of the Long Beach municipal code, and include provisions for chapters and sections of that title to remain in full force and effect. Chapters and sections of this title, including the amendments herein, are considered amendments to the California building code. Some of these changes and continued chapters and sections are administrative in nature in that they do not constitute changes, modifications or additions to the state building standards.

B. Pursuant to the California Health and Safety Code sections 17958.5 and 17958.7, the city council hereby expressly finds that all of the provisions contained in this title, continued added or amended, which are not administrative in nature are reasonably necessary because of local climatic, geological or topographical conditions in the city of Long Beach. A summary of the changes can be found in ~~table 18.99-1 and table 18.99-2 attached to ordinance C-7823, sec. 130 (part).~~Resolution No. RES-07-_____.

COMMENT: Administrative amendment to update the ordinance and resolution number.