ANALYSIS

This ordinance repeals those provisions of Title 26 - Building Code of the Los Angeles County Code, which had incorporated portions of the 2002 Edition of the California Building Code by reference and replaces them with provisions incorporating portions of the 2007 California Building Code, published by the California Building Standards Commission, by reference, with certain changes and modifications.

This ordinance also incorporates, by reference, portions of the 1997 Uniform Building Code, as published by the International Conference of Building Officials and certain standards published by the American Society of Civil Engineers, the American Concrete Institute and the American Institute of Steel Construction.

State law requires that the County's Building Code contain the same requirements as are contained in the building standards published in the California Building Code. State law allows the County to change or modify these requirements only if it determines that such changes or modifications are reasonably necessary because of local climatic, geological or topographical conditions.

The changes and modifications to requirements contained in the building standards published in the 2007 California Building Code which are contained in this ordinance, are based upon express findings, contained in the ordinance, that such changes are reasonably necessary due to local climatic, geological, or topographical conditions.

RAYMOND G. FORTNER, JR.
County Counsel

By
MARK T. YANAI
Principal Deputy County Counsel

MTY:ia

03/28/07 (Requested)

09/25/07 (Revised)

470563_4

ORDINANCE NO. _____

An ordinance amending Title 26 - Building Code of the Los Angeles County Code by adopting the 2007 California Building Code and portions of the 1997 Uniform Building Code, by reference, with certain changes and modifications, and making other revisions thereto.

The Board of Supervisors of the County of Los Angeles ordains as follows:

SECTION 1. Sections 101.17.1 through 101.17.16 of Chapter 1, Chapters 2 through 35, Chapters 64 and 96 and Appendix Chapters 3, 3A, 4, 9, 12, 15, 16, 18, 30, 31, 33 and 34 are hereby repealed.

SECTION 2. Chapter 1 is hereby amended to read as follows:

CHAPTER 1

ADMINISTRATION

SECTION 100 -- ADOPTION BY REFERENCE

Except as hereinafter changed or modified, Sections ~~101.17.1~~102 through ~~101.17.16~~ 114 of Chapter 1~~, Chapters 2 through 21A, Divisions I – III and VI – XI of Chapter 22, Chapters 22A through 35, Division II of Appendix Chapter 3, Appendix Chapter 3A, Division II of Appendix Chapter 4 and Appendix Chapters 9, Division IIA of Appendix Chapter 12,15, 16, 30, 31, and 33~~ of that certain building code known and designated as the 2007 California Building Code, ~~2001 Edition~~as published by the California Building Standards Commission and are adopted by reference and incorporated into this Title 26 of the Los Angeles County Code as if fully set forth below, and shall be known as Sections ~~101.17.1~~120 through ~~101.17.16~~132, respectively of

Chapter 1~~, Chapters 2 through 21A, Divisions I – III and VI – XI of Chapter 22, Chapters 22A through 35, Division II of Appendix Chapter 3, Appendix Chapter 3A, Division II of Appendix Chapter 4 and Appendix Chapters 9, Division IIA of Appendix Chapter 12, 15, 16, 30, 31, and 33~~ of Title 26 of the Los Angeles County Code.

Except as hereinafter changed or modified, Chapters 2 through 35, Appendices C, I and J and Appendix Chapter A1 of that certain building code known and designated as the 2007 California Building Code as published by the California Building Standards Commission and are adopted by reference and incorporated into this Title 26 of the Los Angeles County Code as if fully set forth below, and shall be known as Chapters 2 through 35, Appendices C, I and J and Appendix Chapter A1 of Title 26 of the Los Angeles County Code.

A copy of said California Building Code, hereinafter referred to as the CBC, including the above-designated appendices~~or portions thereof~~, shall be at all times maintained by the Building Official for use and examination by the public.

~~Appendix Chapter 18 and Division III of Appendix Chapter 34, of the Uniform Building Code, 1997 Edition, as published by the International Conference of Building Officials (ICBO), are adopted by reference and incorporated into this Title 26 of the Los Angeles County Code as if fully set forth below, and shall be known as Appendix Chapter 18 and Division III of Appendix Chapter 34, of Title 26 of the Los Angeles County Code.~~

~~A copy of said Uniform Building Code, 1997 Edition, as published by the International Conference of Building Officials (ICBO), including the above-designated~~

~~appendices or portions thereof, shall be at all times maintained by the Building Official for use and examination by the public.~~

~~A copy of the Seismic Provisions for Structural Steel Buildings, of the American Institute of Steel Construction, Parts I and III, dated April 15, 1997, and Supplement No. 2, dated November 10, 2000, portions of which are incorporated by reference into Division IV of Chapter 22 of Title 26 of the Los Angeles County Code, shall be at all times maintained by the Building Official for use and examination by the public.~~

SECTION 101 -- TITLE, PURPOSE AND INTENT

. . .

101.3 Scope.

The provisions of this Code shall apply to the construction, alteration, moving, demolition, repair, use of any building or structure and grading within the unincorporated territory of the County of Los Angeles and to such work or use by the County of Los Angeles in any incorporated city not exercising jurisdiction over such work or use.

. . .

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 provided in Section 109~~,~~ and Chapter 34 ~~and Division III of Appendix Chapter 34~~ of this Code.

. . .

Except as hereinafter changed or modified, the building standards contained in the ~~Uniform~~International Building Code of the International ~~Conference of Building~~

~~Officials~~Code Council, which are published in the California Building Standards Code, are applicable to all occupancies and uses throughout the County of Los Angeles. Amendments to the building standards contained in the ~~Uniform~~International Building Code, by state agencies, are applicable only to those occupancies or uses which the state agency making the amendment is authorized to regulate.

~~**SECTIONS 101.4 through 101.16 of Title 26 of the Los Angeles County Code are hereby reserved.**~~

~~**101.17 Application.**~~

~~Following is a list from the 2001 California Building Code of the State agencies that adopt building standards, the specific scope of application of the agency responsible for enforcement, and the specific statutory authority of each agency to adopt and enforce such provisions of building standards of this Code, unless otherwise stated.~~

SECTION 102 -- UNSAFE BUILDINGS

. . .

102.3 Posting of Signs.

The Building Official shall cause to be posted on buildings required to be vacated or remain unoccupied a notice to read substantially as follows: "DO NOT ENTER. UNSAFE TO OCCUPY. Department of Public Works, Building and Safety/~~Land Development~~ Division, County of Los Angeles." Such notice shall be posted at the main entrance and shall be visible to persons approaching the building or structure from a street. Such notice shall remain posted until the required repairs, demolition or removal

are completed. Such notice shall not be removed without written permission of the Building Official and no person shall enter the building except for the purpose of making the required repairs or of demolishing the building.

. . .

SECTION 104 -- ORGANIZATION AND ENFORCEMENT

. . .

104.2 Powers and Duties of the Building Official.

104.2.1 General.

The Building Official is hereby authorized and directed to enforce all the provisions of this Code, including the Electrical Code, the Plumbing Code, and the Mechanical Code, and to make all inspections pursuant to the provisions of each such Code. For such purposes, the Building Official shall have the powers of a law enforcement officer.

. . .

104.2.1.1 The Building Official is authorized to make and enforce such guidelines and policies for the safeguarding of life, limb, health or property as may be necessary from time to time to carry out the purpose of this Code. A copy of said regulations and policies shall be ~~filed with the Executive Office of the Board of Supervisors and shall be in effect immediately thereafter~~maintained in the offices of the Building Official.

. . .

104.2.7 Modifications.

Whenever there are practical difficulties involved in carrying out the provisions of this Code, the Building Official may grant modifications for individual cases, provided the Building Official shall first find that a special individual reason makes the strict letter of this Code impractical and that the modification is in conformity with the spirit and purpose of this Code and that such modification does not lessen any fire-protection or other life-safety related requirements or any degree of structural integrity. The details of any action granting modifications shall be recorded and entered in the files of the code enforcement agency.

. . .

104.2.8 Alternate materials, designs and methods of construction.

The provisions of this code are not intended to prevent the use of any material, design or method of construction not specifically prescribed by this code, provided any such alternate has been approved.

The building official may approve any such alternate, provided that he or she finds that the proposed design is satisfactory and complies with the provisions of this code, and finds that the material, design or 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 and other life-safety factors, durability, ~~safety~~ and sanitation.

. . .

A written application for use of an alternate material, design or method of construction shall be submitted together with a filing fee of $192.20. When actual staff review exceeds two hours, an additional fee of $96.10 per hour shall be charged for each hour or fraction thereof in excess of two hours.

For the requirements as an approved fabricator see Sections 202 and ~~1701.7~~1702.1.

. . .

104.2.11 Demolition.

Whenever the term "demolition" or "demolish" is used in this ~~Chapter~~Code it shall include the removal of the resulting debris from such demolition and the protection or filling of excavations exposed by such demolition as may be required by this Code or other ordinances or laws.

104.2.12 Service.

Whenever in this ~~Chapter~~Code a notice is required to be served by personal service or by registered or certified mail, it shall be deemed a reasonable effort has been made to serve such notice when registered or certified letters have been mailed to the address of the interested party as shown on the official record and on the record of the County Assessor. When an address is not so listed or contact cannot be made at the listed address, the service shall be by posting on the structure a copy of the notice.

104.2.13 ~~Reports and Records.~~

~~The Building Official shall submit a report to the proper County official at such time as may be directed by the Board of Supervisors covering the work of the division~~

~~subsequent to the last such report. The Building Official shall incorporate in said report a summary of the recommendations as to desirable amendments to this Code.~~

~~The Building Official shall keep a permanent, accurate account of all fees and other moneys collected and received under this Code, the names of the persons upon whose account the same were paid, the date and amount thereof, together with the location of the building or premises to which they relate~~[Reserved].

. . .

SECTION 106 -- PERMITS

106.1 Permits Required.

No person, shall erect, construct, enlarge, alter, repair, move, improve, remove, connect, convert, demolish, or equip any building, structure, or portion thereof, or automatic fire~~-extinguishing~~protection system regulated by Chapter 9, perform any grading, or perform landscaping as regulated by Chapter 71, or cause the same to be done, without first obtaining a separate permit for each such building, structure, automatic fire~~-extinguishing~~protection system, grading or landscaping from the Building Official.

. . .

106.3 Work Exempted.

A building permit shall not be required for the following:

1. One-story detached accessory buildings used as tool and storage sheds, playhouses and similar uses, provided the gross floor area does not exceed 120 square

feet, the plate height does not exceed 12 feet (3.69 m) in height above the grade plane at any point, and the maximum roof projection does not exceed 24 inches.

. . .

11. Canopies or awnings attached to a Group R-3 or ~~M~~U Occupancy and extending not more than 54 inches (1,372 mm) from the exterior wall of the building.

. . .

15. Platforms, walks and driveways not more than 30 inches (762 mm) above grade and not over any basement or story below, and which are not part of an accessible route.

16. Prefabricated swimming pools accessory to a Group ~~R, Division 3~~R-3 Occupancy in which the pool walls are entirely above the adjacent grade and if the capacity does not exceed 5,000 gallons (18,927 L). Fences, gates, door alarms, and other protection devices that are accessory to the prefabricated swimming pool are not exempt from permit requirements.

. . .

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

106.4 Application for Permits.

106.4.1 Application.

To obtain a permit, the applicant shall first file an application therefor in writing on a form furnished for that purpose. Every such application shall:

. . .

3. Show the use ~~or~~and occupancy of all parts of the building;

. . .

6. Where applicable, ~~S~~state the area in square feet (m^2) to be landscaped and the source of water for irrigation;

. . .

106.4.1.1 Expiration of Application.

~~Applications for building, grading, landscape and relocation building permits for which~~When no permit is issued within one year following the date of the application therefor, the application shall automatically expire~~ by limitation~~. Plans and specifications previously submitted may thereafter be returned to the applicant or destroyed by the Building Official. Prior to the expiration of an application, ~~T~~the Building Official may ~~extend the time for action by the applicant~~grant up to two extensions~~for a period~~ not exceeding 180 days per extension, beyond the initial one year limit upon written request by the applicant showing that circumstances beyond the control of the applicant have prevented action from being taken and upon the payment of an extension fee equal to 25 percent of the plan check fee. ~~No permit application shall be extended more than once.~~

Once an application and any extension(s) thereof have expired, the applicant shall resubmit plans and specifications and pay a new plan checking or review ~~of~~ fee.

106.4.2 Plans and specifications.

Within each application for a building permit, and when required by the Building Official for enforcement of any provisions of this Code, two sets of plans and specifications shall be submitted. The Building Official may require plans and specifications to be prepared and designed by an engineer, architect or landscape architect licensed or registered by the state to practice as such. Submittals shall include construction inspection requirements as defined in Section 106.4.5.

EXCEPTION: When authorized by the Building Official, complete plans and specifications need not be submitted for the following when drawings and data sufficient to determine the nature and scope of the work are submitted for review:

1. One-story buildings of Type V conventional wood-stud construction with ~~an~~ gross floor area not exceeding 600 square feet (55.74 m2);
2. ~~Group U, Division 1 Occupancies of Type V conventional wood-stud construction;~~

~~3.~~ Small and/or ~~unimportant~~minor work.

. . .

106.4.3 Information on plans and specifications.

Plans and specifications shall be drawn to scale upon substantial paper or cloth and shall be of sufficient clarity to indicate the nature and extent of the work proposed and show in detail that it will conform to the provisions of this Code and all relevant laws, ordinances, rules and regulations. The first sheet of each set of plans shall give the house and street address of the work and the name and address of the owner and

persons who prepare them. Plans shall include a plot plan showing the location of the proposed building and of every existing building on the property. In lieu of detailed specifications, the Building Official may approve references on the plans to a specific section or part of this Code or other ordinances or laws.

Computations, stress diagrams and other data sufficient to show the correctness of the plans, shall be submitted when required by the Building Official. Plans for buildings more than two stories in height of other than Group ~~R, Division 3~~R-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 communications conduits, pipes and similar systems.

. . .

The plans shall show all mitigation measures required under the National Pollution Discharge Elimination System (NPDES) permit issued to the County of Los Angeles. For the application of NPDES permit requirements as they apply to grading plans and permits, see Appendix ~~Chapter 33~~J of this Code.

. . .

106.4.5 Construction inspection.

When special inspection is required by ~~Section 1701~~Chapter 17, the 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.

. . .

When structural observation is required by ~~Section 1702~~Chapter 17, 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.

. . .

106.5 Permits.

. . .

106.5.4 Expiration.

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 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 180 days. Before such work can be commenced or recommenced, a new permit shall be first obtained, and the fee therefor shall be ~~one-half~~equal to 50 percent of 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 the duration of such failure to commence, suspension or abandonment has not exceeded one year.

Any permittee holding an unexpired permit may apply for an extension of time within which work may commence under that permit. The Building Official may extend the time for action by the permittee for a period not exceeding 180 days on written request and payment of a fee equal to 25 percent of the ~~original~~ permit fee. No permit shall be extended more than twice.

. . .

Permits for rebound tumbling equipment as defined in Chapter 66 shall be valid for a period of not exceeding one year. Permits for portable amusement devices and for temporary Group ~~A, Division 4~~A-4 or Group A-5 structures shall be valid for a period not exceeding 30 days. Permits for amusement devices erected under a building permit shall be valid for a period of 90 days.

106.5.5 Suspension or revocation.

The Building Official may, in writing, suspend or revoke a permit issued under provisions of this Code ~~whenever~~if the permit ~~is~~was issued in error or on the basis of incorrect information supplied to the Building Official, or in violation of ~~any ordinance or regulation or~~ any of the provisions of this Code or of any other laws, ordinances or regulations.

106.5.6 Combined building permit.

A combined building permit may be issued for new one-family or two-family dwellings and attached garages which will include all building, electrical, plumbing, heating, ventilating and air-conditioning work but will not include grading and landscape~~,~~ which require permits under ~~Appendix Chapters 33 and~~Chapter 71 or Appendix J of this

Code; or sewer connections. The combined building permit shall be subject to the requirements of this Code, the Electrical Code, the Plumbing Code and the Mechanical Code, except that the fee for the combined building permit shall be as provided in Section 107.1 of this Code.

SECTION 107 -- FEES

107.1 Building Permit Fees.

In addition to a permit issuance fee of $24.40, a fee for each building permit shall be paid to the building official as set forth in Table 1-A.

The determination of value or valuation under any of the provisions of this code shall be made by the building official. The valuation to be used in computing the permit and plan check 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~~protection systems and any other permanent work or permanent equipment.

EXCEPTIONS:

. . .

2. The total permit fee for a combined building permit, as provided in Section 106.5.6, shall be 1.60 times the building permit fee determined from Table 1-A~~ and the barrier inspection fee of Section 107.9, Item 1K~~.

. . .

107.9 Other Fees.

The following fees shall be paid before a permit is issued, inspection made, occupancy allowed or device operated:

1. In addition to the fees set forth in Items A through K, below, for issuance of each inspection application receipt	$24.40
. . .	
E. For inspection or reinspection of Group ~~A, Division 4,~~A-4 or A-5 structures, each	$192.10
. . .	
4. For geotechnical site review and processing geological or engineering reports submitted pursuant to Sections 110, 111, 113, 804, and Appendix J, Sections ~~3309~~J104.3 and J104.4:	
. . .	

107.12 Refunds.

In the event that any person shall have obtained a permit and no portion of the work or construction covered by such permit shall have been commenced, and such permit shall have been canceled either as provided for in Subsection 106.5.4 or Subsection 107.11, the permittee, upon presentation to said Building Official of a request therefor, in writing on a special form, shall be entitled to a refund in an amount equal to 80 percent of the fee actually paid for such permit.

Upon verification of eligibility, ~~T~~the Building Official shall ~~satisfy himself as to the right of such applicant to such refund, and each such refund shall be paid~~refund the applicable amount, provided ~~a special form~~the request has been submitted ~~prior to~~no later than one year ~~from~~after the expiration of the permit.

. . .

107.14 Noncompliance Fee.

. . .

The noncompliance fee shall not be imposed unless the order states that a failure to comply within 15 days after the compliance date specified in the order will result in the fee being imposed. No more than one such fee shall be collected for failure to comply with an order. The amount of the noncompliance fee shall be $88.90 per building for Group ~~R, Division 3~~R-3 Occupancies and $177.70 per building for all other occupancies, and shall be in addition to the fees specified elsewhere in this code.

. . .

107.16 Plan Maintenance Fee.

. . .

EXCEPTIONS:

1. Single or multiple dwellings not more than two stories and basement in height.
2. Garages and other structures appurtenant to buildings specified in Exception No. 1, above.
3. Farm or ranch buildings appurtenant to buildings specified in Exception No. 1, above.
4. Any one-story building where the span between bearing walls does not exceed 25 feet (7620 mm), except a steel frame or concrete building.

. . .

SECTION 108 -- INSPECTIONS

108.1 General.

All construction or work for which a building permit is required shall be subject to inspection by the Building Official and all such construction or work shall remain accessible and exposed for inspection purposes until approved by the Building Official. In addition, certain types of construction shall have continuous inspection as specified in ~~Section 1701~~Chapter 17.

. . .

It shall be the duty of the permit ~~applicant~~holder to cause the work to remain accessible and exposed for inspection purposes. Neither the Building Official nor the jurisdiction shall be liable for expense entailed in the removal or replacement of any material required to allow inspection.

. . .

A site inspection may be required prior to plan check of building plans for lots or parcels in areas having slopes of 5 horizontal to 1 vertical (5:1) or steeper when the building official finds that a visual inspection of the site is necessary to establish drainage requirements for the protection of property, existing buildings or the proposed construction. The fee for such inspection shall be as set forth in Section 107.9. Such a preinspection shall not be required for a building pad graded under the provisions of Appendix ~~Chapter 33~~J.

. . .

108.6 Special Inspector.

108.6.1 Before commencing duties, the special inspector shall be examined and shall obtain a certificate of registration from the building official. As to the written portion of the required examination, the building official may administer a written examination or the building official may require that a special inspector applicant successfully complete an examination administered by the ~~International Conference of Building Officials (ICBO)~~International Code Council (ICC). Applications shall be made in writing and shall be accompanied by a fee of $214.60. When the building official requires the ~~ICBO~~ICC Certificate in lieu of administering a written examination, the application shall be accompanied by proof of the required Certificate and a fee of $133.30. A separate application and a separate fee shall be required for each type of work. Applicants failing to pass an examination shall be ineligible for re-examination for a period of 30 days. A new application and fee shall accompany each request for re examination. Unless sooner revoked, certificates of registration for special inspectors shall expire biennially on June 30, and must be renewed by payment of biennial renewal fee of $88.90.

. . .

108.7 Inspection Requests.

It shall be the duty of the ~~person doing the work authorized by a permit~~permit holder to notify the Building Official that ~~such~~ work authorized by a permit is ready for inspection. 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 or by telephone at the option of the Building Official.

. . .

108.8 Non-inspected Work.

. . .

For the purposes of this Code, "Non-inspected Work" shall be defined as any erection, construction, enlargement, alteration, repair, movement, improvement, removal, connection, conversion, demolition or equipping, for which a permit was first obtained, pursuant to Section 106.1 supra, but which has progressed beyond the point indicated in successive inspections, including but not limited to inspections set forth in Section 108.4, 108.5 and ~~1701~~Chapter 17, without first obtaining inspection and approval of the Building Official.

SECTION 109 -- USE AND OCCUPANCY

109.1 General.

No building or structure or portion thereof 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 approved the building or structure or portion thereof for such use or occupancy as evidence by the issuance of a certificate of occupancy or a temporary certificate of occupancy. A building of Group ~~R, Division 1~~R-2 or Group ~~R, Division 3~~R-3 Occupancy, if erected on a site where grading has been performed pursuant to a grading permit issued under provisions of this Code, shall not be occupied, nor shall gas or electric utilities be connected thereto, unless the grading

has been completed in accordance with Appendix ~~Chapter 33~~J or the Building Official has found, should the grading not be so completed, that the site conditions will pose no hazard to health, safety or welfare of occupants and/or occupants of adjacent properties, and that a temporary certificate of occupancy has been issued.

. . .

109.2 Change in Use.

Changes in the character or use of a building shall not be made except as specified in Section ~~3405~~3406 of this Code.

. . .

109.4 Temporary Certificate.

. . .

Such temporary certificate of occupancy shall be valid for a period not to exceed ~~six~~three months. Upon request of the owner or permittee the Building Official may, in writing, extend the temporary certificate of occupancy when it is determined that the circumstances so warrant. After the expiration of a temporary certificate of occupancy and any extension(s) thereof, the building or structure shall not be used or occupied until the Building Official has approved the building for such use or occupancy.

109.5 Posting.

. . .

EXCEPTION: Group ~~R, Division 3~~R-3, and Group U Occupancies.

SECTION 110 -- PROHIBITED USES OF BUILDING SITES

. . .

110.2 **Geotechnical Hazards.**

. . .

110.2.2 Except as provided in Section 110.2.3, work requiring a building or grading permit by this Code is not permitted in an area determined by the Building Official to be subject to hazard from landslide, settlement or slippage. These hazards include~~ those from~~, but shall not be limited to, loose debris, slopewash and the potential for mud flows from natural slopes or graded slopes. For the purpose of this section, landslide, settlement or slippage does not include surface displacement due to the earthquake faults.

110.2.3 Subject to the conditions of Subsection 110.2.1, permits may be issued in the following cases.

. . .

110.2.3.2 When the applicant has submitted a geological and/or geotechnical engineering report or reports, ~~complying~~that comply with the provisions of Section 111, ~~which report or reports~~and contain sufficient data to show, to the satisfaction of the Building Official, that the site ~~appears to be~~is safe for the intended use.

110.2.3.3 When the proposed work involves the alteration or minor repair of existing structures and the cost of such alteration or repair does not exceed 25 percent of the current market value of the existing structure, such value to be based on assumed continuation of the established legal use. Before a permit ~~is~~may be issued pursuant to this section, the owner shall do all of the following:

1. If required by the Building Official, submit an engineering geology and/or soils engineering report or reports that contain(s), at a minimum, a qualitative and/or conditional finding that the proposed work complies with the provisions of Section 110.2.1 of this Code.

2. ~~r~~Record in the office of the Department of Registrar-Recorder ~~(1)~~, a statement that the owner is aware that the records of the Building Official indicate that the property is subject to a physical hazard of a geotechnical nature.

3. ~~and (2)~~Record in the office of the Department of Registrar-Recorder, an agreement relieving the County and all officers and employees thereof of any liability for any damage or loss which may result from issuance of such a permit. This agreement shall provide that it is binding on all successors in interest of the owner and shall continue in effect until the Building Official records in the office of the Department of Registrar-Recorder a statement that the Building Official ~~finds~~has determined that such hazard no longer exists. ~~The r~~Repair work shall consist of restoring the original construction. ~~Provision may be made for adjustment of the floor~~The Building Official may require that provisions be made in anticipation of future settlement. For the purposes of this Section 110.2.3.3, "alteration" does not include an addition or additions.

110.2.3.4 When the proposed work involves an addition or additions to an existing structure but is not a change in use or occupancy and such work does not increase the gross floor area of the structure by more than 25 percent of the area of the structure ~~existing~~as it existed on July 6, 1968, and the building official determines that

the proposed work will not impact a historically active landslide. Before a permit ~~is~~may be issued pursuant to this section, the ~~applicant~~owner shall do all of the following:

1. ~~s~~Submit an engineering geology and/or soils engineering report or reports ~~complying~~that contain(s), at a minimum, a qualitative and/or a conditional finding that the proposed work complies with the provisions of Section 111 ~~such that said reports contain a finding that the proposed increased use of the site will not be geotechnically unsafe,~~.

2. ~~and the owner shall r~~Record in the office of the Department of Registrar-Recorder ~~(1)~~ the finding of such report or reports.

3. ~~and (2)~~Record in the office of the Department of Registrar-Recorder an agreement relieving the County and all officers and employees thereof of any liability for any damage or loss which may result from the issuance of such a permit. This agreement shall provide that it is binding on all successors in interest of the owner and shall continue in effect until the Building Official records in the office of the Department of Registrar-Recorder a statement that the Building Official ~~finds~~has determined that a hazard no longer exists.

110.2.3.5 ~~When the work involves a one-story, light-frame accessory structure not intended or used for human occupancy and not exceeding 400 square feet in area nor 12 feet in height.~~When the proposed work involves the repair of a single-family residence or accessory buildings where the cost of such repair exceeds 25 percent of the current market value of the existing building. The scope of the repair

work shall be subject to the approval of the Building Official. Before a permit may be issued pursuant to this section, the owner shall do all of the following:

1. Submit an engineering geology and/or soils engineering report or reports that contain(s), at a minimum, a qualitative and/or conditional finding that the proposed work complies with the provisions of Section 110.2.1 of this Code.

2. Record in the office of the Department of Registrar-Recorder a statement by the owner acknowledging that the records of the Building Official indicate that the property is subject to a physical hazard of a geotechnical nature.

3. Record in the office of the Department of Registrar-Recorder an agreement relieving the county and all officers and employees thereof of any liability for any damage or loss which may result from issuance of such a permit. This agreement shall provide that it is binding on all successors in interest of the owner and shall continue in effect until the Building Official records in the office of the Department of Registrar-Recorder a statement that the Building Official has determined that such hazard no longer exists.

110.2.3.6 ~~When the work involves the repair of single-family residences and accessory buildings where the cost of such repair exceeds 25 percent of the value of the existing building or involves the replacement of such structures where the loss to be replaced was due to causes other than landslide, settlement or slippage. Before a permit is issued the owner shall:~~When the proposed work involves the replacement of structures destroyed by causes other than landslide, settlement or slippage. The replacement structure(s) shall not exceed the area, number of stories,

load, or number of fixtures and bedrooms of the structure that was destroyed. No change in occupancy type shall be permitted. Before a permit may be issued pursuant to this section, the owner shall do all of the following:

1. Demonstrate, to the satisfaction of the Building Official, that the replacement structure and/or the associated private sewage disposal system (if any) and/or the replacement landscaping (if any) will not result in a greater amount of groundwater infiltration than occurred under the original condition.

2. Submit an engineering geology and/or soils engineering report or reports that contain, at a minimum, a qualitative and/or conditional finding that the proposed work complies with the provisions of Section 110.2.1 of this Code and that contain recommendations for enhancing the stability of the site.

3. Record in the office of the Department of Registrar-Recorder ~~(1)~~ a statement ~~that he or she is~~by the owner ~~and~~acknowledging that the owner is aware that the records of the Building Official indicate that the property is subject to a physical hazard of a geotechnical nature.

4. ~~and (2)~~Record in the office of the Department of Registrar-Recorder an agreement relieving the County and all officers and employees thereof of any liability for any damage or loss which may result from issuance of such a permit. This agreement shall provide that it is binding on all successors in interest of the owner and shall continue in effect until the Building Official records in the office of the Department of Registrar-Recorder a statement that the Building Official ~~finds~~has determined that such hazard no longer exists.

~~2. Submit calculations and plans for the proposed reconstruction prepared by a registered civil engineer and designed to minimize damage while accommodating the amount of vertical and horizontal displacements which the engineer determines are probable or which have occurred since the original structure was built, whichever is the greater.~~

110.2.3.7 ~~When the Building Official determines that the hazard from landslide, settlement or slippage is based solely on the fact that the area has been identified as a potentially liquefiable area in a seismic hazard zone (pursuant to Public Resources Code Section 2690 et seq.) and a foundation investigation is performed in connection with the work in accordance with Section 1804 of this Code.~~When the proposed work involves a one-story, detached, light-frame accessory structure not intended or used for human occupancy and not exceeding 400 square feet in gross floor area nor 12 feet in height. Before a permit may be issued pursuant to this section, the owner shall do all of the following:

1. Record in the office of the Department of Registrar-Recorder a statement by the owner acknowledging that the owner is aware that the records of the Building Official indicate that the property is subject to a physical hazard of a geotechnical nature.

2. Record in the office of the Department of Registrar-Recorder an agreement relieving the County and all officers and employees thereof of any liability for any damage or loss which may result from issuance of such a permit. This agreement shall provide that it is binding on all successors in interest of the owner and shall

continue in effect until the Building Official records in the office of the Department of Registrar-Recorder a statement that the Building Official has determined that such hazard no longer exists.

110.2.3.8 ~~Notwithstanding any other provisions of this Section, the Building Official may, at his or her discretion, deny a permit for any building, structure or grading subject to a hazard of a geotechnical nature which cannot be mitigated and may endanger the health or safety of the occupants, adjoining property or the public.~~When the Building Official determines that the hazard from landslide, settlement or slippage is based solely on the fact that the area has been identified as a potentially liquefiable area in a seismic hazard zone (pursuant to Public Resources Code section 2690 et seq.) and a foundation investigation is performed in connection with the work in accordance with Section 1804 of this Code.

110.2.3.9 Notwithstanding any other provisions of this Section, the Building Official may, at his or her discretion, deny a permit for any building, structure or grading subject to a hazard of a geotechnical nature which cannot be mitigated and may endanger the health or safety of the occupants, adjoining property or the public.

110.2.3.10 When the proposed work involves the repair and restoration of a natural (non-graded) slope. Before a permit may be issued pursuant to this section, the owner shall submit an engineering geology and/or soils engineering report or reports that contain(s) the following:

1. A description and analysis of the existing conditions, including the cause or causes of the failed slope.

2. Recommendations for the repair of the failed slope.

3. A qualitative and/or conditional finding that the proposed work complies with the provisions of Section 110.2.1 of this Code.

4. An analysis demonstrating that future failures originating from the repaired portion of the slope will not impact previously permitted structures.

5. An analysis demonstrating that the proposed work will improve existing slope stability.

110.3 Fills Containing Decomposable Material.

. . .

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, floors, underground piping and utilities due to uneven settlement of the fill. One-story, detached light-frame accessory structures not intended or used for human occupancy and not exceeding 400 square feet (37.2 m^2) in gross floor area nor 12 feet (3658 mm) in building height may be constructed without special provision for foundation stability.

110.4 Methane Gas Hazards.

Permits shall not be issued for buildings or enclosed structures regulated by this Code on, adjacent to, or within 25 feet (7.62 m) of active, abandoned or idle oil or gas well(s) unless designed according to recommendations contained in a report prepared by a licensed civil engineer and approved by the Building Official. In addition, permits shall not be issued for a building or structure regulated by this Code located between

25 feet (7.62 m) and 200 feet (60.96 m) from active, abandoned or idle oil or gas well(s) unless designed according to the recommendations contained in a report prepared by a licensed civil engineer and approved by the Building Official or all active, abandoned or idle oil or gas well(s) between 25 feet (7.62 m) and 200 feet (60.96 m) from said building or structure are examined by a licensed petroleum engineer to evaluate whether, in accordance with the current rules and regulations of the Division of Oil and Gas and Geothermal Resources of the State of California, such wells are being properly operated or maintained, or are abandoned. No permits shall be issued until certification of proper operation, maintenance, or abandonment or reabandonment, as determined by the Division of Oil and Gas and Geothermal Resources, is submitted to the Building Official. This requirement is not applicable to active, abandoned or idle oil or gas well(s) located more than 200 feet (60.96 m) from the proposed buildings or structures.

As used in this Section, "well" shall mean any well as defined by Section 3008, Subdivisions (a)~~ and~~, (b), and (c) of the California Public Resources Code.

. . .

SECTION 111 -- ENGINEERING GEOLOGY AND SOILS ENGINEERING REPORTS

The Building Official may require an engineering geology or soils engineering report, or both, where in the Building Official's opinion, such reports are essential for the evaluation of the safety of the site. The engineering geology or soils engineering report or both shall contain a finding regarding the safety of the ~~building~~ site ~~for~~of the proposed ~~structure~~work against hazard from landslide, settlement or slippage and a finding

regarding the effect that the proposed ~~building or grading construction~~work will have on the geotechnical stability of ~~property~~the area outside of the ~~building site~~proposed work. Any engineering geology report shall be prepared by a certified engineering geologist licensed ~~by~~in the State of California. Any soils engineering report shall be prepared by a civil engineer~~, registered~~licensed in the State of California, experienced in the field of soil mechanics, ~~such as a soils engineer~~or a geotechnical engineer licensed in the State of California. When both an engineering geology and soils engineering report are required for the evaluation of the safety of a building site, the two reports shall be coordinated before submission to the Building Official.

. . .

SECTION 113 -- EARTHQUAKE FAULTS

. . .

113.3 Definition.

For the purpose of this Section, a geologist shall be a ~~registered~~professional geologist, licensed by the California State Board ~~of Registration~~ for Geologists and Geophysicists to practice geology in California.

113.4 Known Active Earthquake Faults.

For the purpose of this Section, known active earthquake faults are those faults which have had displacement within Holocene time (approximately the last 11,000 years) as defined in the most current issue of Special Publication 42 of the ~~California Division of Mines and Geology~~California Geological Survey.

113.5 Construction Limitations.

No building or structure shall be constructed over or upon the trace of a known active earthquake fault which is shown on maps maintained by the Building Official. These maps include, but are not limited to, earthquake fault zone maps prepared under Sections 2622 and 2623 of the California Public Resources Code.

The absence of a known active earthquake fault trace at the proposed building location shall be determined by ~~the Building Official or~~ a professional geologist licensed in the State of California in the following cases:

1. When the proposed building is within 50 feet (15.24 m) of that line designated by the building official as the assumed location of a known active earthquake fault on the aforementioned maps.

2. When the proposed building is within 50 feet (15.24 m) of the most probable ground location of the trace of a known active earthquake fault shown on the aforementioned maps.

In these cases ~~when a geologist has not otherwise made such a determination,~~ the Building Official may require the excavation of a trench, for the purpose of determining the existence of an active earthquake fault. Such a trench will be required if a lack of distinguishable fault features in the vicinity prevents the Building Official from determining by a site examination, review of available aerial photographs, or by other means that the fault trace does not underlie the proposed building. The trench shall be approximately perpendicular to the most probable direction of the fault trace, at least 1-

1/2 feet (0.15 m) wide, and at least five feet in depth measured from natural grade, or to a depth satisfactory to the Building Official.

The trench must be accessible for mapping and inspection by the Building Official, when requested, and meet the requirements of Title 8 of the California Code of Regulations, Construction Safety Orders. The trench need not extend further than the full width of the proposed structure plus 5 feet (1.52 m) beyond the traversed exterior walls. A known active earthquake fault shall be presumed nonexistent if an exposure is not found by the ~~Building Official or a~~professional geologist in the walls or floor of the trench.

The Building Official may require a more extensive investigation by a professional geologist as evidence to the absence of a known active earthquake fault prior to the issuance of a permit for Groups A, E, I, H and R, Division 1 Occupancies and B, F, M and S Occupancies over one story in height.

The results of the investigation, conclusions and recommendations shall be presented in a geology report prepared by a ~~registered~~professional geologist as defined by Section 113.3. The report shall comply with the guidelines presented in Note 49 prepared by the California Department of Conservation, Geological Survey.

EXCEPTION: The provisions of this Section do not apply to:

1. One-story, detached light-frame buildings not intended or used for human occupancy and not exceeding 1,000 square feet (92.9 m^2) in gross floor area or 12 feet (3.66 m) in building height.

2. Alterations or repairs to an existing building provided that the aggregate value of such work within any 12-month period does not exceed 50 percent of the current market value of the existing building. For the purposes of this Section 113.5, "alteration" does not include an addition or additions.

. . .

114 through 118 are hereby reserved.

SECTION 119 -- APPLICATION OF STATE AGENCIES

Following is a list of the state agencies that adopt building standards, the specific scope of application of the agency responsible for enforcement, and the specific statutory authority of each agency to adopt and enforce such building standards, unless otherwise stated.

. . .

SECTION 3. Chapter 7A is hereby amended to read as follows:

Chapter 7A [For SFM]

MATERIALS AND CONSTRUCTION METHODS FOR EXTERIOR WILDFIRE EXPOSURE

This chapter has been amended by Los Angeles County and is applicable to all occupancy groups.

SECTION 701A

SCOPE, PURPOSE AND APPLICATION

701A.1 Scope.

This chapter applies to building materials, systems and/or assemblies used in the exterior design~~ and construction~~ of new buildings, ~~located~~and to additions, alterations, or repairs made to existing buildings, erected, constructed or moved within a Wildland-Urban Interface Fire Area as defined in Section 702A.

EXCEPTION: Greenhouses constructed as specified in Appendix C, when approved by the Building Official.

. . .

701A.3 Application.

New buildings, and any additions, alterations or repairs to existing buildings located in or moved within any Fire Hazard Severity Zone within State Responsibility Areas or any Wildland-Urban Interface Fire Area designated by ~~the enforcing agency~~Los Angeles County Fire Department for which an application for a building permit is submitted on or after ~~December 1, 2005~~January 1, 2008, shall comply with the ~~following sections:~~requirements of this chapter.

~~**1. 704A.1 – Roofing**~~

~~**2. 704A.2 – Attic Ventilation**~~

701A.3.1 Alternates for materials, design, tests, and methods of construction.

The ~~enforcing agency~~Building Official is permitted to modify the provisions of this chapter for site-specific conditions in accordance with ~~Appendix Chapter 1, Section 104.10~~Chapter 1, Section 104.2.7. When required by the ~~enforcing agency~~Building Official for the purposes of granting modifications, a fire protection plan shall be submitted in accordance with the ~~California~~Los Angeles County Fire Code Title 32, Chapter 47.

~~**701A.3.2 New buildings located in any fire hazard severity zone.**~~

~~New buildings located in any Fire Hazard Severity Zone, or any Wildland-Urban Interface Fire Area designated by the enforcing agency for which an application for a building permit is submitted on or after January 1, 2008, shall comply with all sections of this chapter.~~

701A.3. 2~~.1~~ Inspection and certification.

Building permit applications and final completion approvals for buildings within the scope and application of this chapter shall comply with the following:

701A.3.2. ~~2~~1 The ~~local b~~Building ~~o~~Official shall, prior to construction, provide the owner or applicant a certification that the building as proposed to be built complies with all applicable state and local building standards, including those for materials and construction methods for wildfire exposure as described in this chapter.

701A.3.2. ~~3~~2 The ~~local b~~Building ~~o~~Official shall, upon completion of construction, provide the owner or applicant with a copy of the final inspection report

that demonstrates the building was constructed in compliance with all applicable state and local building standards, including those for materials and construction methods for wildfire exposure as described in this chapter.

701A.3.2. 43 Prior to building permit final approval the property shall be in compliance with the vegetation clearance requirements prescribed in California Public Resources Code 4291 California Government Code Section 51182 and the Los Angeles County Fire Code Title 32.

SECTION 702A

DEFINITIONS

. . .

FIRE PROTECTION PLAN is a document prepared for a specific project or development proposed for a Wildland-Urban Interface Fire Area. It describes ways to minimize and mitigate potential for loss from wildfire exposure.

The Fire Protection Plan shall be in accordance with this chapter and the ~~California~~ Los Angeles County Fire Code Title 32, Chapter 47. When required by the ~~enforcing agency~~Building Official for the purposes of granting modifications, a fire protection plan shall be submitted. ~~Only locally adopted ordinances that have been filed with the California Building Standards Commission or the Department of Housing and Community Development in accordance with Section 101.8 shall apply.~~

FIRE HAZARD SEVERITY ZONES are geographical areas designated pursuant to California Public Resources Codes Sections 4201 through 4204 and classified as Very High, High, or Moderate in State Responsibility Areas or as Local Agency Very

High Fire Hazard Severity Zones designated pursuant to California Government Code, Sections 51175 through 51189. See ~~California~~Los Angeles County Fire Code ~~Article 86~~Chapter 47.

. . .

IGNITION-RESISTANT MATERIAL is any product which, when tested in accordance with ASTM E 84 for a period of 30 minutes, shall have a flame spread of not over 25 and show no evidence of progressive combustion. In addition, the flame front shall not progress more than 10½ feet (3200 mm) beyond the centerline of the burner at any time during the test.

Materials shall pass the accelerated weathering test and be identified as exterior type, in accordance with ASTM D 2898 and ASTM D 3201. All materials shall bear identification showing the fire performance rating thereof. That identification shall be issued by ICC-ES or a testing facility recognized by the State Fire Marshal or the Building Official having a service for inspection of materials at the factory.

. . .

The ~~enforcing agency~~Building Official may use other definitions of ignition-resistant material that reflect wildfire exposure to building materials and/or their materials, performance in resisting ignition.

. . .

STATE RESPONSIBILITY AREA means lands that are classified by the Board of Forestry pursuant to Public Resources Code Section 4125 where the financial

responsibility of preventing and suppressing forest fires is primarily the responsibility of the state.

VERY HIGH FIRE HAZARD SEVERITY ZONE (VHFHSZ) is a geographical area designated by the Los Angeles County Fire Department and defined in Appendix M of the Los Angeles County Fire Code Title 32.

WILDFIRE is any uncontrolled fire spreading through vegetative fuels that threatens to destroy life, property, or resources as defined in Public Resources Code Sections 4103 and 4104.

. . .

WILDLAND-URBAN INTERFACE FIRE AREA is a geographical area identified by the state as a "Fire Hazard Severity Zone" in accordance with the Public Resources Code Sections 4201 through 4204 and Government Code Sections 51175 through 51189, or other areas designated by the ~~enforcing agency~~Los Angeles County Fire Department to be at a significant risk from wildfires. ~~See Section 706A for the applicable referenced sections of the Government Code and the Public Resources Code.~~

SECTION 703A

STANDARDS OF QUALITY

. . .

703A.2 Qualification by testing.

Material and material assemblies tested in accordance with the requirements of Section 703A shall be accepted for use when the results and conditions of those tests

are met. Testing shall be performed by a testing agency approved by the State Fire Marshal, the Building Official or identified by an ICC-ES report.

. . .

SECTION 704A

MATERIALS, SYSTEMS AND METHODS OF CONSTRUCTION

704A.1 Roofing.

. . .

704A.1.2 Roof coverings.

Roof covering shall be Class A as specified in Section 1505.2. Where the roof profile allows a space between the roof covering and roof decking, the spaces shall be constructed to prevent the intrusion of flames and embers, be firestopped with approved materials or have one layer of No. 72 ASTM cap sheet installed over the combustible decking. Wood-shingle and wood-shake roofs are prohibited in Very High Fire Hazard Severity Zones (VHFHSZ) regardless of classification.

. . .

704A.3 Exterior Walls.

. . .

704A.3.2 Exterior wall openings.

Exterior wall openings shall be in accordance with this section.

. . .

704A.3.2.2 Exterior glazing and window walls.

Exterior windows, window walls, glazed doors, and glazed openings within exterior doors shall be ~~insulating-glass~~multi-pane glazing units with a minimum of one tempered pane, or glass block units, or have a fire-resistance rating of not less than 20 minutes, when tested according to ASTM E 2010, or conform to the performance requirements of SFM 12-7A-2.

. . .

704A.5 Ancillary buildings and structures.

704A.5.1 Ancillary buildings and structures.

When required by the ~~enforcing agency~~Building Official, ancillary buildings and structures and detached accessory structures shall comply with the provisions of this chapter.

SECTION 4. Chapter 14 is hereby amended to read as follows:

CHAPTER 14

EXTERIOR WALLS

. . .

SECTION 1403

PERFORMANCE REQUIREMENTS

. . .

1403.3 Structural

Exterior walls, and the associated openings, shall be designed and constructed to resist safely the superimposed loads required by Chapter 16.

In no case shall veneer be considered as part of the wall in computing strength of deflection nor shall it be considered a part of the required thickness of the wall. Deflection of lateral support of veneer, including wood studs, shall be no greater than h/500.

. . .

SECTION 1405

INSTALLATION OF WALL COVERINGS

. . .

1405.6 Masonry or Stone veneer.

~~Stone veneer units not exceeding 10 inches (254 mm) in thickness shall be anchored directly to masonry, concrete or to stud construction by one of the following methods:~~Support of masonry and stone veneer shall be designed by a registered design professional, unless the masonry or stone veneer complies with the following:

~~1. With concrete or masonry backing, anchor ties shall be not less than 0.1055-inch (2.68 mm) corrosion-resistant wire, or approved equal, formed beyond the base of the backing. The legs of the loops shall be not less than 6 inches (152 mm) in length bent at right angles and laid in the mortar joint, and spaced so that the eyes or loops are 12 inches (305 mm) maximum on center (o.c.) in both directions. There shall be provided not less than a 0.1055-inch (2.68 mm) corrosion-resistant wire tie, or approved equal, threaded through the exposed loops for every 2 square feet (0.2 m2) of stone veneer. This tie shall be a loop having legs not less than 15 inches (381 mm) in length bent so that it will lie in the stone veneer mortar joint. The last 2 inches (51 mm)~~

~~of each wire leg shall have a right-angle bend. One-inch (25 mm) minimum thickness of cement grout shall be placed between the backing and the stone veneer.~~

2. ~~With stud backing, a 2-inch by 2-inch (51 by 51 mm) 0.0625-inch (1.59 mm) corrosion-resistant wire mesh with two layers of water-resistive barrier in accordance with Section 1404.2 shall be applied directly to wood studs spaced a maximum of 16 inches (406 mm) o.c. On studs, the mesh shall be attached with 2-inch-long (51 mm) corrosion-resistant steel wire furring nails at 4 inches (102 mm) o.c. providing a minimum 1.125-inch (29 mm) penetration into each stud and with 8d common nails at 8 inches (203 mm) o.c. into top and bottom plates or with equivalent wire ties. There shall be not less than a 0.1055-inch (2.68 mm) corrosion-resistant wire, or approved equal, looped through the mesh for every 2 square feet (0.2 m2) of stone veneer. This tie shall be a loop having legs not less than 15 inches (381 mm) in length, so bent that it will lie in the stone veneer mortar joint. The last 2- inches (51 mm) of each wire leg shall have a right-angle bend. One-inch (25- mm) minimum thickness of cement grout shall be placed between the backing and the stone veneer~~

1405.6.1. Masonry and stone units [5 inches (127 mm) maximum in thickness].

Masonry and stone veneer not exceeding 5 inches (127 mm) in thickness may be anchored directly to structural masonry, concrete or studs in one of the following manners:

1. Wall ties conforming to the following requirements. Wall ties shall be corrosion resistant, made of sheet metal, shall have a minimum thickness of .0785 inch

(02.00 mm) (No. 14 galvanized sheet gage) by 1 inch (25.4 mm) 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 (51 mm) into the framing member, placed not more than 1/4 inch (6.35 mm) above the extended leg of the angle tie. Wall ties shall be spaced so as to support not more than 2 square feet (0.19 m^2) of wall area but shall not be more than 24 inches (610 mm) on center horizontally. For Seismic Design Categories D, E, & 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 (3.76 mm) (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 (406 mm) on center and approved paper, a minimum 30# fiberglass felt, 4 inch (102 mm) minimum on horizontal laps and 6 inch (152 mm) minimum on end laps, shall first be applied over minimum 15/32 inch (12 mm) plywood sheathing except as otherwise provided in Section 91.1402, and an air space of at least 1-inch (25 mm) shall be maintained between the backing and the veneer. Spot bedding at all ties shall be of cement mortar.

2. Veneer conforming to the following requirements: Veneer applied with 1-inch-minimum (25 mm) grouted backing space which is reinforced by not less than 2-inch by 2-inch (51 mm by 51 mm) 0.065 inch (1.65 mm) (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 (1219 mm) above grade.

The stud spacing shall not exceed 16 inches (406 mm) on center. The galvanized wire mesh shall be anchored to wood studs by galvanized steel wire furring nails at 4 inches (102 mm) on center or by barbed galvanized nails at 6 inches (152 mm) on center with a $1^1/_8$-inch-minimum (29 mm) 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 8d (64 mm) 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 (254 mm) maximum in thickness].

Stone veneer units not exceeding 10 inches (254 mm) in thickness may be anchored directly to structural masonry or concrete. Anchor ties shall not be less than 0.109 inch (2.77 mm) (No. 12 B.W. gage) galvanized wire, or approved equal, formed as an exposed eye and extending not less than 1/2 inch (3 mm) beyond the face of the backing. The legs of the loops shall not be less than 6 inches (152 mm) in length bent at right angles and laid in the masonry mortar joint and spaced so that the eyes or loops are 12 inches (254 mm) maximum on center in both directions. There shall be provided not less than a 0.109 inch (2.77 mm) (No. 12 B.W. gage) galvanized wire tie, or approved equal, threaded through the exposed loops for every 2 square feet (0.19 m^2) of stone veneer. This tie shall be a loop having legs not less than 15 inches (381 mm)

in length so bent that it will lie in the stone veneer mortar joint. The last 2 inches (51 mm) of each wire leg shall have a right angle bend. One inch (25 mm) of cement grout shall be placed between the backing and the stone veneer.

1405.7 Slab-type veneer.

. . .

SECTION 5. Chapter 15 is hereby amended to read as follows:

CHAPTER 15

ROOF ASSEMBLIES AND ROOFTOP STRUCTURES

. . .

SECTION 1507

REQUIREMENTS FOR ROOF COVERINGS

. . .

1507.3 Clay and concrete tile.

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1507.3.1 Deck requirements.

Concrete and clay tile shall be installed only over solid ~~sheathing or spaced~~ structural sheathing boards.

. . .

TABLE 1507.3.7

CLAY AND CONCRETE TILE ATTACHMENT [a, b, c]

GENERAL – CLAY OR CONCRETE ROOF TILE			
Maximum basic wind speed (mph)	**Mean roof height (feet)**	**Roof slope up to <3:12**	**Roof slope 3:12 and over**
85	0 - 60	*Minimum slope: 2.5:12* ~~One fastener per tile. Flat tile without vertical laps,~~ ~~t~~Two fasteners per tile.	Two fasteners per tile. ~~Only one fastener on slopes of 7:12 and less for tiles with installed weight exceeding 7.5 lbs/sq. ft. having a width no greater than 16 inches.~~
100	0 - 40		
. . .	. . .	. . .	

INTERLOCKING CLAY OR CONCRETE ROOF TILE WITH PROJECTING ANCHOR LUGS [d, e] (Installations on ~~spaced~~/solid sheathing with battens ~~or spaced sheathing~~)				
Maximum basic wind speed (mph)	**Mean roof height (feet)**	**Roof slope up to <5:12**	**Roof slope 5:12<12:12**	**Roof slope 12:12 and over**
85	0 - 60	*Minimum slope is 4:12*~~.~~ ~~Fasteners are not required. Tiles with installed weight less than 9 lbs/sq. ft. require a minimum of o~~ One fastener per tile.	One fastener per tile ~~every other row. All perimeter tiles require one fastener~~. Tiles with installed weight less than 9lbs/sq.ft. require a minimum of one fastener per tile.	One fastener required for every tile. Tiles with installed weight less than 9 lbs./sq. ft. require a minimum of one fastener per tile.
100	0 - 40			
. . .	. . .	. . .		

INTERLOCKING CLAY OR CONCRETE ROOF TILE WITH PROJECTING ANCHOR LUGS (Installations on solid sheathing without battens)		
Maximum basic wind speed (mph)	**Mean roof height (feet)**	**Minimum ~~All~~ roof slopes 4 units vertical in 12 units horizontal Maximum slope 7 units vertical in 12 units horizontal**
. . .	. . .	. . .

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 4.882 kg/m^2.

a Minimum fastener size. Hot dipped galvanized ring shank or other ~~C~~corrosion-resistant nails not less than No. 11 gage with $^5/_{16}$-inch head. Fasteners shall be long enough to penetrate into the sheathing 0.75 inch or through the thickness of the sheathing, whichever is less. Attaching wire for clay and concrete tile shall not be smaller than 0.083 inch and shall be copper, brass or stainless steel.

b . . .

. . .

SECTION 6. Chapter 16 is hereby amended to read as follows:

CHAPTER 16

STRUCTURAL DESIGN

. . .

SECTION 1613

EARTHQUAKE LOADS

. . .

1613.6 Alternatives to ASCE 7.

. . .

1613.6.1 Assumption of flexible diaphragm.

. . .

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: For buildings two stories or less in height with diaphragms constructed of wood structural panels, the cantilevered portion may be analyzed using flexible diaphragm assumption, provided the length of the overhang does not exceed 15 percent of the distance between the lateral force resisting system adjacent to the cantilevered portion in the same direction nor one-fourth the width of the diaphragm, where the width is the dimension of the diaphragm perpendicular to the overhang.

1613.6.2 Additional seismic-force-resisting systems for seismically isolated structures.

. . .

1613.7 Seismic Design Provisions for Hillside Buildings.

1613.7.1. Purpose.

The purpose of this section is to establish minimum regulations for the design and construction of new buildings and additions to existing buildings when such buildings or additions are to be located on or into slopes steeper than one unit vertical in three units horizontal (33.3%). These regulations establish minimum standards for seismic force resistance to reduce the risk of injury or loss of life in the event of earthquakes.

1613.7.2. Scope.

The provisions of this section shall apply to the design of the lateral-force-resisting system for hillside buildings at and below the base level diaphragm. The design of the lateral-force-resisting system above the base level diaphragm shall be in accordance with the provisions for seismic and wind design as required elsewhere in this chapter.

EXCEPTION: Non-habitable accessory buildings and decks not supporting or supported from the main building are exempt from these regulations.

1613.7.3. Definitions.

For the purposes of this section certain terms are defined as follows:

BASE LEVEL DIAPHRAGM is the floor at, or closest to, the top of the highest level of the foundation.

DIAPHRAGM ANCHORS are assemblies that connect a diaphragm to the adjacent foundation at the uphill diaphragm edge.

DOWNHILL DIRECTION is the descending direction of the slope approximately perpendicular to the slope contours.

FOUNDATION is concrete or masonry which supports a building, including footings, stem walls, retaining walls, and grade beams.

FOUNDATION EXTENDING IN THE DOWNHILL DIRECTION is a foundation running downhill and approximately perpendicular to the uphill foundation.

HILLSIDE BUILDING is any building or portion thereof constructed on or into a slope steeper than one unit vertical in three units horizontal (33.3%). If only a portion of the building is supported on or into the slope, these regulations apply to the entire building.

PRIMARY ANCHORS are diaphragm anchors designed for and providing a direct connection as described in Sections 1613.7.5 and 1613.7.7.3 between the diaphragm and the uphill foundation.

SECONDARY ANCHORS are diaphragm anchors designed for and providing a redundant diaphragm to foundation connection, as described in Sections 1613.7.6 and 1613.7.7.4.

UPHILL DIAPHRAGM EDGE is the edge of the diaphragm adjacent and closest to the highest ground level at the perimeter of the diaphragm.

UPHILL FOUNDATION is the foundation parallel and closest to the uphill diaphragm edge.

1613.7.4. Analysis and Design.

1613.7.4.1. General.

Every hillside building within the scope of this section shall be analyzed, designed, and constructed in accordance with the provisions of this chapter. When the code-prescribed wind design produces greater effects, the wind design shall govern, but detailing requirements and limitations prescribed in this and referenced sections shall be followed.

1613.7.4.2. Base Level Diaphragm-Downhill Direction.

The following provisions shall apply to the seismic analysis and design of the connections for the base level diaphragm in the downhill direction.

1613.7.4.2.1. Base for Lateral Force Design Defined.

For seismic forces acting in the downhill direction, the base of the building shall be the floor at or closest to the top of the highest level of the foundation.

1613.7.4.2.2. Base Shear.

In developing the base shear for seismic design, the response modification coefficient (R) shall not exceed 4.5 for bearing wall and building frame systems. The total base shear shall include the forces tributary to the base level diaphragm including forces from the base level diaphragm.

1613.7.5. Base Shear Resistance-Primary Anchors.

1613.7.5.1. General.

The base shear in the downhill direction shall be resisted through primary anchors from diaphragm struts provided in the base level diaphragm to the foundation.

1613.7.5.2. Location of Primary Anchors.

A primary anchor and diaphragm strut shall be provided in line with each foundation extending in the downhill direction. Primary anchors and diaphragm struts shall also be provided where interior vertical lateral-force-resisting elements occur above and in contact with the base level diaphragm. The spacing of primary anchors and diaphragm struts or collectors shall in no case exceed 30 feet (9144 mm).

1613.7.5.3. Design of Primary Anchors and Diaphragm Struts.

Primary anchors and diaphragm struts shall be designed in accordance with the requirements of Section 1613.7.8.

1613.7.5.4. Limitations.

The following lateral-force-resisting elements shall not be designed to resist seismic forces below the base level diaphragm in the downhill direction:

1. Wood structural panel wall sheathing,
2. Cement plaster and lath,
3. Gypsum wallboard, and
4. Tension only braced frames.

Braced frames designed in accordance with the requirements of Section 2205.2.2 may be used to transfer forces from the primary anchors and diaphragm struts to the foundation provided lateral forces do not induce flexural stresses in any member

of the frame or in the diaphragm struts. Deflections of frames shall account for the variation in slope of diagonal members when the frame is not rectangular.

1613.7.6. Base Shear Resistance-Secondary Anchors.

1613.7.6.1. General.

In addition to the primary anchors required by Section 1613.7.5, the base shear in the downhill direction shall be resisted through secondary anchors in the uphill foundation connected to diaphragm struts in the base level diaphragm.

EXCEPTION: Secondary anchors are not required where foundations extending in the downhill direction, spaced at not more than 30 feet (9144 mm) on center, extend up to and are directly connected to the base level diaphragm for at least 70 percent of the diaphragm depth.

1613.7.6.2. Secondary Anchor Capacity and Spacing.

Secondary anchors at the base level diaphragm shall be designed for a minimum force equal to the base shear, including forces tributary to the base level diaphragm, but not less than 600 pounds per lineal foot (8.76 kN/m). The secondary anchors shall be uniformly distributed along the uphill diaphragm edge and shall be spaced a maximum of four feet (1219 mm) on center.

1613.7.6.3. Design.

Secondary anchors and diaphragm struts shall be designed in accordance with Section 1613.7.8.

1613.7.7. Diaphragms Below the Base Level-Downhill Direction.

The following provisions shall apply to the lateral analysis and design of the connections for all diaphragms below the base level diaphragm in the downhill direction.

1613.7.7.1. Diaphragm Defined.

Every floor level below the base level diaphragm shall be designed as a diaphragm.

1613.7.7.2. Design Force.

Each diaphragm below the base level diaphragm shall be designed for all tributary loads at that level using a minimum seismic force factor not less than the base shear coefficient.

1613.7.7.3. Design Force Resistance-Primary Anchors.

The design force described in Section 1613.7.7.2 shall be resisted through primary anchors from diaphragm struts provided in each diaphragm to the foundation. Primary anchors shall be provided and designed in accordance with the requirements and limitations of Section 1613.7.5.

1613.7.7.4. Design Force Resistance-Secondary Anchors.

1613.7.7.4.1. General.

In addition to the primary anchors required in Section 1613.7.7.3, the design force in the downhill direction shall be resisted through secondary anchors in the uphill foundation connected to diaphragm struts in each diaphragm below the base level.

EXCEPTION: Secondary anchors are not required where foundations extending in the downhill direction, spaced at not more than 30 feet (9144 mm) on center,

extend up to and are directly connected to each diaphragm below the base level for at least 70 percent of the diaphragm depth.

1613.7.7.4.2. Secondary Anchor Capacity.

Secondary anchors at each diaphragm below the base level diaphragm shall be designed for a minimum force equal to the design force but not less than 300 pounds per lineal foot (4.38 kN/m). The secondary anchors shall be uniformly distributed along the uphill diaphragm edge and shall be spaced a maximum of four feet (1219 mm) on center.

1613.7.7.4.3. Design.

Secondary anchors and diaphragm struts shall be designed in accordance with Section 1613.7.8.

1613.7.8. Primary and Secondary Anchorage and Diaphragm Strut Design.

Primary and secondary anchors and diaphragm struts shall be designed in accordance with the following provisions:

1. Fasteners. All bolted fasteners used to develop connections to wood members shall be provided with square plate washers at all bolt heads and nuts. Washers shall be minimum 3/16 inch (4.8 mm) thick and two inch (51 mm) square for 1/2-inch (12.7 mm) diameter bolts, and 1/4-inch (6.4 mm) thick and 2-1/2-inch (64 mm) square for 5/8-inch (15.9 mm) diameter or larger bolts. Nuts shall be wrench tightened prior to covering.

2. Fastening. The diaphragm to foundation anchorage shall not be accomplished by the use of toenailing, nails subject to withdrawal, or wood in cross-grain bending or cross-grain tension.

3. Size of Wood Members. Wood diaphragm struts collectors, and other wood members connected to primary anchors shall not be less than three-inch (76 mm) nominal width. The effects of eccentricity on wood members shall be evaluated as required per Item 9.

4. Design. Primary and secondary anchorage, including diaphragm struts, splices, and collectors shall be designed for 125 percent of the tributary force.

5. Allowable Stress Increase. The one-third allowable stress increase permitted under Section 1605.3.2 shall not be taken when the working (allowable) stress design method is used.

6. Seismic Load Factor. The seismic load factor shall be 1.7 for steel and concrete anchorage when the strength design method is used.

7. Primary Anchors. The load path for primary anchors and diaphragm struts shall be fully developed into the diaphragm and into the foundation. The foundation must be shown to be adequate to resist the concentrated loads from the primary anchors.

8. Secondary Anchors. The load path for secondary anchors and diaphragm struts shall be fully developed in the diaphragm but need not be developed beyond the connection to the foundation.

9. Symmetry. All lateral force foundation anchorage and diaphragm strut connections shall be symmetrical. Eccentric connections may be permitted when demonstrated by calculation or tests that all components of force have been provided for in the structural analysis or tests.

10. Wood Ledgers. Wood ledgers shall not be used to resist cross-grain bending or cross-grain tension.

1613.7.9. Lateral-Force-Resisting Elements Normal to the Downhill Direction.

1613.7.9.1. General.

In the direction normal to the downhill direction, lateral-force-resisting elements shall be designed in accordance with the requirements of this section.

1613.7.9.2. Base Shear.

In developing the base shear for seismic design, the response modification coefficient (R) shall not exceed 4.5 for bearing wall and building frame systems.

1613.7.9.3. Vertical Distribution of Seismic Forces.

For seismic forces acting normal to the downhill direction the distribution of seismic forces over the height of the building using Section 12.8.3 of ASCE 7 shall be determined using the height measured from the top of the lowest level of the building foundation.

1613.7.9.4. Drift Limitations.

The story drift below the base level diaphragm shall not exceed 0.005 times the story height. The total drift from the base level diaphragm to the top of the foundation

shall not exceed 3/4 inch (19 mm). Where the story height or the height from the base level diaphragm to the top of the foundation varies because of a stepped footing or story offset, the height shall be measured from the average height of the top of the foundation. The story drift shall not be reduced by the effect of horizontal diaphragm stiffness.

Where code-prescribed wind forces govern the design of the lateral force resisting system normal to the downhill direction, the drift limitation shall be 0.0025 for the story drift and the total drift from the base level diaphragm to the top of the foundation may exceed 3/4 inch (19 mm) when approved by the Department. In no case, however, shall the drift limitations for seismic forces be exceeded.

1613.7.9.5. Distribution of Lateral Forces.

1613.7.9.5.1. General.

The design lateral force shall be distributed to lateral-force-resisting elements of varying heights in accordance with the stiffness of each individual element.

1613.7.9.5.2. Wood Structural Panel Sheathed Walls.

The stiffness of a stepped wood structural panel shear wall may be determined by dividing the wall into adjacent rectangular elements, subject to the same top of wall deflection. Deflections of shear walls may be estimated by Section 2305.3.2. Sheathing and fastening requirements for the stiffest section shall be used for the entire wall. Each section of wall shall be anchored for shear and uplift at each step. The minimum horizontal length of a step shall be eight feet (2438 mm) and the maximum vertical height of a step shall be two feet, eight inches (813 mm).

1613.7.9.5.3. Reinforced Concrete or Masonry Shear Walls.

Reinforced concrete or masonry shear walls shall have forces distributed in proportion to the rigidity of each section of the wall.

1613.7.9.6. Limitations.

The following lateral force-resisting-elements shall not be used as part of the lateral-resisting force system below the base level diaphragm in the direction normal to the downhill direction:

1. Cement plaster and lath,
2. Gypsum wallboard, and
3. Tension-only braced frames.

Braced frames designed in accordance with the requirements of Chapter 22 of this Code may be designed as lateral-force-resisting elements in the direction normal to the downhill direction, provided lateral forces do not induce flexural stresses in any member of the frame. Deflections of frames shall account for the variation in slope of diagonal members when the frame is not rectangular.

1613.7.10. Specific Design Provisions.

1613.7.10.1. Footings and Grade Beams.

All footings and grade beams shall comply with the following:

1. Grade beams shall extend at least 12 inches (305 mm) below the lowest adjacent grade and provide a minimum 24-inch (610 mm) distance horizontally from the bottom outside face of the grade beam to the face of the descending slope.

2. Continuous footings shall be reinforced with at least two No. 4 reinforcing bars at the top and two No. 4 reinforcing bars at the bottom.

3. All main footing and grade beam reinforcement steel shall be bent into the intersecting footing and fully developed around each corner and intersection.

4. All concrete stem walls shall extend from the foundation and reinforced as required for concrete or masonry walls.

1613.7.10.2. Protection Against Decay and Termites.

All wood to earth separation shall comply with the following:

1. Where a footing or grade beam extends across a descending slope, the stem wall, grade beam, or footing shall extend up to a minimum 18 inches (457 mm) above the highest adjacent grade.

EXCEPTION: At paved garage and doorway entrances to the building, the stem wall need only extend to the finished concrete slab, provided the wood framing is protected with a moisture proof barrier.

2. Wood ledgers supporting a vertical load of more than 100 pounds per lineal foot (1.46 kN/m) and located within 48 inches (1219 mm) of adjacent grade are prohibited. Galvanized steel ledgers and anchor bolts, with or without wood nailers, or treated or decay resistant sill plates supported on a concrete or masonry seat, may be used.

1613.7.10.3. Sill Plates.

All sill plates and anchorage shall comply with the following:

1. All wood framed walls, including nonbearing walls, when resting on a

footing, foundation, or grade beam stem wall, shall be supported on wood sill plates bearing on a level surface.

2. Power-driven fasteners shall not be used to anchor sill plates except at interior nonbearing walls not designed as shear walls.

1613.7.10.4. Column Base Plate Anchorage.

The base of isolated wood posts (not framed into a stud wall) supporting a vertical load of 4000 pounds (17.8 kN) or more and the base plate for a steel column shall comply with the following:

1. When the post or column is supported on a pedestal extending above the top of a footing or grade beam, the pedestal shall be designed and reinforced as required for concrete or masonry columns. The pedestal shall be reinforced with a minimum of four No. 4 bars extending to the bottom of the footing or grade beam. The top of exterior pedestals shall be sloped for positive drainage.

2. The base plate anchor bolts or the embedded portion of the post base, and the vertical reinforcing bars for the pedestal, shall be confined with two No. 4 or three No. 3 ties within the top five inches (127 mm) of the concrete or masonry pedestal. The base plate anchor bolts shall be embedded a minimum of 20 bolt diameters into the concrete or masonry pedestal. The base plate anchor bolts and post bases shall be galvanized and each anchor bolt shall have at least two galvanized nuts above the base plate.

1613.7.10.5. Steel Beam to Column Supports.

All steel beam to column supports shall be positively braced in each direction.

Steel beams shall have stiffener plates installed on each side of the beam web at the column. The stiffener plates shall be welded to each beam flange and the beam web. Each brace connection or structural member shall consist of at least two 5/8 inch (15.9 mm) diameter machine bolts.

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, Section 12.8.1.1.

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

$C_s = \cancel{0.01}\ 0.044\ S_{DS}\ I \geq 0.01$ (Eq. 12.8-5)

1614.1.3 - 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)	0.75

1614.1.4 - ASCE 7, Section 12.8.7.

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

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

(12.8-16)

1614.1.5 - 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 percent of the maximum diaphragm shear.

1614.1.6 - 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:

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

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

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

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 analyses.

1614.1.7 - 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.

SECTION 7. Chapter 17 is hereby amended to read as follows:

CHAPTER 17

STRUCTURAL TESTS AND SPECIAL INSPECTIONS

. . .

SECTION 1704

SPECIAL INSPECTIONS

1704.1 General.

. . .

EXCEPTIONS:

. . .

~~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.

. . .

1704.4 Concrete Construction.

. . .

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).

. . .

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.

. . .

SECTION 1709

STRUCTURAL OBSERVATIONS

1709.1 General.

Where required by the provisions of Section 1709.2 or 1709.3 the owner shall employ ~~a~~ the registered design professional responsible for the structural design, or another registered design professional designated by the registered design professional responsible 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 responsible 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. The structural observer shall submit to the building official a written statement, in the form prescribed by the building official, at each significant construction stage stating that the required 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.

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:

. . .

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, provided the adjacent grade is not steeper than 1 unit vertical in 10 units horizontal (10% sloped), assigned to Seismic Design Category D.

. . .

1709.3 Structural observations for wind requirements.

. . .

SECTION 8. Table 1805.4.2 is hereby 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)
. . .	. . .	. . .

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

. . .

~~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.~~

. . .

~~g. Plain concrete footings for Group R-3 occupancies are permitted to be 6 inches thick.~~

SECTION 9. Section 1805.4.5 is hereby amended to read as follows:

1805.4.5 ~~**Timber footings.**~~

~~Timber footings are permitted for buildings of Type V construction and as otherwise approved by the building official. Such footings shall be treated in~~

~~accordance with AWPA U1 (Commodity Specification A, Use Category 4B). Treated timbers are not required where placed entirely below permanent water level or where used as capping for wood piles that project above the water level over submerged or marsh lands. The compressive stresses perpendicular to the grain in untreated timber footings supported upon treated piles shall not exceed 70 percent of the allowable stresses for the species and grade of timber as specified in the AF&PA NDS.~~

[Reserved.]

SECTION 10. Section 1805.4.6 is hereby amended to read as follows:

1805.4.6 ~~**Wood foundations.**~~

~~Wood foundation systems shall be designed and installed in accordance with AF&PA Technical Report No. 7. Lumber and plywood shall be treated in accordance with AWPA U1 (Commodity Specification A, Use Category 4B and Section 5.2) and shall be identified in accordance with Section 2303.1.8.1.~~Reserved.

SECTION 11. Section 1805.5 is hereby deleted in its entirety.

SECTION 12. Section 1805.5 is hereby added to read as follows:

1805.5 Foundation walls.

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

SECTION 13. Chapter 19 is hereby amended to read as follows:

CHAPTER 19

CONCRETE

. . .

SECTION 1908

MODIFICATIONS TO ACI 318

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) as follows.

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):

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

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

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

where:

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

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

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 contra-flexure 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.

. . .

SECTION 14. Chapter 22 is hereby amended to read as follows:

CHAPTER 22

STEEL

. . .

SECTION 2205

STRUCTURAL STEEL

. . .

2205.3 Seismic requirements for composite construction.

. . .

2205.4 Modifications to AISC 341, Part I, Section 13, Special Concentrically Braced Frames (SCBF) Modifications.

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.

SECTION 15. Chapter 23 is hereby amended to read as follows:

CHAPTER 23

WOOD

. . .

SECTION 2305

GENERAL DESIGN REQUIREMENTS FOR LATERAL-FORCE-RESISTING SYSTEMS

. . .

2305.2 Design of wood diaphragms.

. . .

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.~~

. . .

~~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.~~

. . .

2305.3 Design of wood shear walls.

. . .

2305.3.7 Overturning restraint.

. . .

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.

2305.3.8 Shear walls with openings.

. . .

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 are 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.

SECTION 2306

ALLOWABLE STRESS DESIGN

. . .

2306.3 Wood diaphragms.

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.

. . .

2306.4 Shear walls.

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 Office.

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.

2306.4.2 Lumber sheathed shear walls.

. . .

Shear walls sheathed with other materials.

Shear 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 of this code 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 materials in category 1. are limited to 90 pound per foot (1.31 kN/m); material in category 2. through 4. are limited to 30 pounds 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.

. . .

SECTION 2308

CONVENTIONAL LIGHT-FRAME CONSTRUCTION

. . .

2308.3 Braced wall lines.

. . .

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.~~

. . .

2308.12 Additional requirements for conventional construction in Seismic Design Category D or E.

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.~~

2308.12.2. Concrete or masonry.

. . .

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. . . .

5. 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 (1524 mm) above the first story finished floor.

. . .

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 percent of its length.

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]	$S_{DS} < 0.50$	$0.50 \leq S_{DS} < 0.75$	$0.75 \leq S_{DS} \leq 1.00$	$S_{DS} > 1.00$
One Story	G-P[c]	10 feet 8 inches	14 feet 8 inches	18 feet 8 inches	25 feet 0 inches
	S-W[d]	5 feet 4 inches	8 feet 0 inches	9 feet 4 inches	12 feet 0 inches
~~Story Below top story~~	~~G-P[c,d]~~	~~18 feet 8 inches[d]~~	~~NP~~	~~NP~~	~~Np~~

~~[HCD 1]~~	~~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.

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.

SECTION 16. Table 2306.3.1 is hereby deleted in its entirety.

SECTION 17. Table 2306.3.1 is hereby added to read as follows:

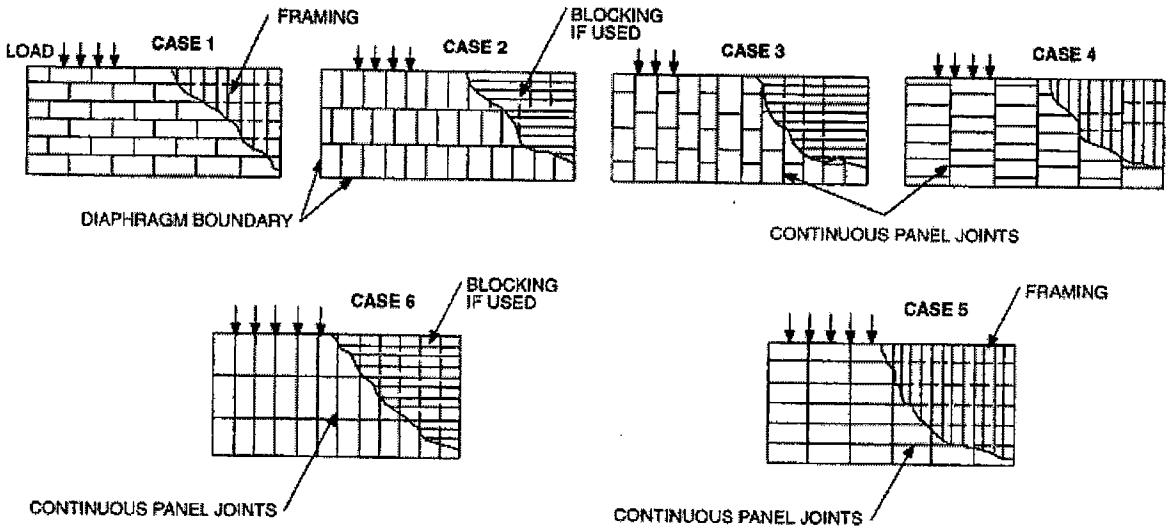
TABLE 2306.3.1
ALLOWABLE SHEAR (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL DIAPHRAGMS WITH FRAMING OF DOUGLAS FIR-LARCH OR SOUTHERN PINE[a] FOR WIND OR SEISMIC LOADING[h]

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]	Case 1 (No unblocked edges or continuous joints parallel to load)	All other configurations (Cases 2, 3, 4, 5, and 6)
					Fastener spacing (inches) at other panel edges (Cases 1,2,3 and 4)[b]					
					6	6	4	3		
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

(Continued)

TABLE 2306.3.1—continued
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]



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 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 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 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. Reserved.
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.

SECTION 18. Table 2306.3.2 is hereby deleted in its entirety.

SECTION 19. Table 2306.3.2 is hereby added to read as follows:

TABLE 2306.3.2
ALLOWABLE SHEAR (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL BLOCKED DIAPHRAGMS UTILIZING MULTIPLE ROWS OF FASTENERS (HIGH 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	15/32	3	2	605	815	875	1150
				4	2	700	915	1005	1290
				4	3	875	1220	1285	1395
			19/32	3	2	670	880	965	1255
				4	2	780	990	1110	1440
				4	3	965	1320	1405	1790
			23/32	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 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. Reserved.
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.

SECTION 20. Table 2306.4.1 is hereby deleted in its entirety.

SECTION 21. Table 2306.4.1 is hereby added to read as follows:

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

Notes to Table 2306.4.1

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 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 *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 *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 *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. Reserved
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).

SECTION 22. Table 2306.4.5 is hereby deleted in its entirety.

SECTION 23. Table 2306.4.5 is hereby added to read as follows:

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 16 Ga. Galv. Staple, 7/8" legs
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 16 Ga. Galv. Staple, 1-1/8" long 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 16 Ga. Galv. Staple, 1-3/4" long
	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 16 Gage Staple, 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 16 Gage Staple, 1-1/2" legs, 1-5/8" 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 1-5/8" 16 Ga. Galv. Staple Face ply-8d cooler (2-3/8" x 0.113") or wallboard 0.120" Nail, min. 3/8" head, 2-3/8" long 15 Ga. Galv. Staple, 2-1/4" long
		Unblocked	8/12[h]	30	70	No. 6- 1-1/4" screws[i]
		Blocked[g]	8/12[h]	30	90	

Notes to Table 2306.4.5

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.
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.
l. This construction shall not be used below the top level of wood construction in a multi-level building.

SECTION 24. Chapter 34 is hereby amended to read as follows:

CHAPTER 34

EXISTING STRUCTURES

. . .

SECTION 3403

ADDITIONS, ALTERATIONS OR REPAIRS

. . .

3403.4 Stairways.

An alteration or the replacement of an existing stairway in an existing structure shall not be required to comply with the requirements of a new stairway as outlined in Section 1009 where the existing space and construction will not allow a reduction in pitch or slope.

3403.5 Parapets and Appendages.

3403.5.1. Whenever the building official determines by inspection that, as a result of inadequate construction or bracing to resist horizontal forces, an existing parapet or appendage attached to and supported by an exterior wall of a building is likely to become a hazard to life or property in the event of earthquake disturbance, and such parapet or appendage is not an immediate hazard or danger as described in Section 102 of this code, the building official may provide the owner of the building or other person or agent in control of the building where such parapet or other appendage exists, with a written notice specifying the hazards and the inadequacies of construction or bracing. The owner of the building or other person or agent in control of the building

shall, within 12 months from the date of such written notice, eliminate the hazard as set forth below. Any person receiving notice as set out in this section may appeal, in the manner provided by Section 102.4 of this code, to the building board of appeals.

3403.5.2. The parapet or appendage shall be removed and the remainder of the wall anchored at the roof line, or it shall be reconstructed so that it will conform structurally as near as it is practicable to do so with requirements of Chapter 16 of this code, or it shall be otherwise braced and strengthened in a manner satisfactory to the building official, so that it will resist a reasonable degree of horizontal forces without becoming dislodged with danger of falling.

3403.5.3. Where, in the opinion of the building official, it is necessary to open a portion of roof, wall or ceiling of a building in order to determine the structural condition of any parapet or appendage, the building official may order the owner to make such opening and the owner shall comply with said order at the owners sole cost and expense.

3403.6 Existing Glass.

Whenever the building official determines by inspection that an existing glass installation in rooms having an occupant load of more than 100 persons or in exit ways serving an occupant load of more than 100 persons, as determined by Chapter 10, is likely to become a hazard in the event of accidental human impact and such installation does not comply with the provisions of this code for glazing in such locations, the building official may provide the owner of the building or other person or agent in control of the building where such glazing exists with a written notice of such condition. The

owner of the building or other person or agent in control of the building shall, within 90 days after receiving said notice, replace such glass or otherwise cause the installation to conform with the requirements of this code.

3403.7 Security Bars or Grilles.

Every person who owns, operates or maintains a hotel, apartment house, lodging house or dwelling on which security bars or grilles exist at exterior doors or windows shall remove or modify such bars or grilles as necessary to conform with the specific requirements of this section. This section shall apply only to the main entrance door to the dwelling unit and to exterior doors and windows at sleeping rooms.

EXCEPTIONS:

1. Sleeping rooms above the third floor.

2. Main entrance door of a dwelling unit where each sleeping room contains an exterior door or an exterior window with a net clear openable area of not less than 5 square feet (0.46 m2) with no dimension less than 22 inches (559 mm) and with a sill height not more than 48 inches (1219 mm) above the floor. Where bars or grilles exist at these openings, they shall be openable from the inside without use of a key, tool or excessive force.

Bars or grilles shall be modified, or installed, to be removable or openable from the inside without the use of a key, tool or excessive force. When in the removed or open position, the net opening shall not be less than that which would be available through the door or window if such bars or grilles were not installed.

SECTION 3404

FIRE ESCAPES

. . .

SECTION 3422

REPAIRS TO BUILDINGS AND STRUCTURES DAMAGED BY THE OCCURRENCE OF A NATURAL DISASTER

3422.1 Purpose.

The purpose of this division is to provide a defined level of repair for buildings damaged by a natural disaster in jurisdictions where a formal state of emergency has been proclaimed.

3422.2 General.

Required repair levels shall be based on the ratio of the estimated value of the repairs required to restore the structural members to their pre-event condition to the estimated replacement value of the building or structure.

3422.3 Structural repairs.

3422.3.1. When the damage ratio does not exceed 0.1 (10 %), buildings and structures, except essential service facilities included as Category I buildings and structures in Table 1604.5, shall at a minimum be restored at their pre-event condition.

3422.3.2. When the damage ratio is greater than 0.10 (10 %) but less than 0.5 (50 percent), buildings and structures, except essential service facilities included as Category IV buildings and structures in Table 1604.5, shall have the

damaged structural members including all critical ties and connections associated with the damaged structural members, all structural members supported by the damaged member, and all structural members supporting the damaged members repaired and strengthened to bring them into compliance with the force levels and connection requirements of the Building Code. This criteria shall apply to essential service facilities when the damage ratio is less than 0.3 (30 %).

Exception: For buildings with rigid diaphragms where the above-required repair and strengthening increases the rigidity of the resisting members, the entire lateral-force-resisting system of the building shall be investigated. When, in the opinion of the building official, an unsafe or adverse condition has been created as a result of the increase in rigidity, the condition shall be corrected, as approved by the building official.

3422.3.3. When the damage ratio is greater than 0.5 (50 %), buildings and structures, except essential service facilities included as Category IV buildings and structures in Table 1604.5, shall at a minimum have the entire building or structure strengthened to comply with the force levels and connection requirements of the Building Code. This criteria shall apply to essential service facilities when the damage ratio is greater or equal to 0.3 (30 %).

3422.4 Nonstructural repairs to light fixtures and suspended ceilings.

Under all damage ratios, when light fixtures and the suspension system of suspended ceiling are damaged, the damaged light fixtures and suspension systems

shall be repaired to fully comply with the requirements of this code and Standard 25-2 of the Uniform Building Code, 1997 Edition, as published by the International Conference of Building Officials. Undamaged light fixtures and suspension systems shall have the additional support and bracing, as may be required by Standard 25-2 of the Uniform Building Code, 1997 Edition, as published by the International Conference of Building Officials.

SECTION 25. Chapter 65 is hereby amended to read as follows:

CHAPTER ~~26.~~65

SIGNS

. . .

SECTION 6502 -- GENERAL REQUIREMENTS

. . .

6502.6 Materials.

Signs and their supports may be constructed of any material allowed in this Chapter for the classification and location of sign to be erected.

. . .

EXCEPTION: Surfaces of signs not more than 55 feet (16764 mm) above grade may be of plastic material which has a flame-spread rating of ~~225~~25 or less when tested in accordance with ~~Uniform Building Code~~ Standard 8-1, of the Uniform Building Code, 1997 Edition, as published by the International Conference of Building Officials, in the way intended for use.

. . .

SECTION 26. Chapter 66 is hereby amended to read as follows:

CHAPTER ~~26.~~66

SPECIAL SAFETY PROVISIONS

. . .

SECTION 6602 -- AMUSEMENT DEVICES

6602.1 General.

Amusement devices or structures shall be regulated by this Section. Amusement devices or structures located within amusement buildings must also comply with the requirements of Sections ~~408~~411, and ~~904.2.3.6 and 1007.2.7~~903.2.13.

. . .

SECTION 27. Chapter 67 is hereby amended to read as follows:

CHAPTER ~~26~~67

SPECIAL PROVISIONS

. . .

SECTION 6703 -- LIMITATIONS

No provisions of this chapter shall require or be construed to require devices on exit doors or on sleeping room emergency exits contrary to the requirements specified in ~~Chapter 10 and~~ Section ~~310.4~~1026.

. . .

SECTION 6709 -- DOORS—SWINGING DOORS

. . .

6709.2 A single swinging door, the active leaf of a pair of doors, and the bottom leaf of Dutch doors shall be equipped with a deadbolt and a latch. If a key-locking feature is incorporated in the latching mechanism, a dead latch shall be used. The deadbolt and latch may be activated by one lock or by individual locks. Deadbolts shall contain hardened inserts, or equivalent, so as to repel cutting tool attack. The deadbolt lock or locks shall be key operated from the exterior side of the door and engaged or disengaged from the interior side of the door by a device not requiring a key, tool or excessive force.

EXCEPTIONS:

. . .

4. In residential occupancies, doors not required by Section ~~310.4~~1026 or ~~1003.3.1~~1008 may be equipped with security-type hardware which requires a key to release from the interior side of the door if the sleeping rooms are protected with a fire-warning system as set forth in Section ~~310.9~~903.2.7.

. . .

SECTION 6710 -- DOORS—SLIDING GLASS DOORS

. . .

Locking devices installed on sliding glass doors providing the exit required by Section 1003 or providing for the emergency escape or rescue required by Section ~~310.4~~1026 shall be releasable from the inside without the use of a key, tool or excessive force.

. . .

SECTION 6715 -- LIGHTS—LOCKING DEVICES

6715.1 Locking devices installed on windows providing the emergency egress required by Section ~~310.4~~1026 shall be releasable from the inside without use of a key, tool or excessive force.

. . .

SECTION 28. Chapter 71 is hereby amended to read as follows:

CHAPTER ~~26~~71

WATER-EFFICIENT LANDSCAPING

. . .

SECTION 7105 -- ELEMENTS OF LANDSCAPE DOCUMENTATION PACKAGE

. . .

7105.9 Landscape Irrigation Audit Schedules.

A schedule of landscape irrigation audits of at least once every five years must be established, for all but single-family residences, and other projects with a landscape area less than 1 acre (.405 ha). As required in Chapter 20.09 in Title 20 (Utilities Code), an audit satisfying the following conditions shall be submitted to the County as part of the landscape documentation package.

7105.9.1 At a minimum, audits shall be in accordance with the latest ~~State of California Landscape Water Management Program as described in the latest Landscape Irrigation Auditor Handbook, prepared for the California Department of Water Resources, Water Conservation Office,~~Irrigation Audit Guidelines provided by the

Irrigation Association. ~~t~~The ~~entire document, which is~~Irrigation Audit Guidelines in their entirety are hereby incorporated by reference.

7105.9.2 The schedule shall provide for landscape irrigation audits to be conducted by a qualified individual ~~as determined by the Director~~registered or certified under the Business and Professions Code to perform such work at least once every five years in accordance with the requirements of Title 20, Division 1 of the Los Angeles County Code.

7105.10 Grading Design Plan.

Grading design plans satisfying the following conditions shall be submitted as part of the landscape documentation package.

7105.10.1 If a grading design plan is subject to the provisions of Appendix ~~Chapter 33~~J, it shall have a grading permit and be drawn to the satisfaction of the building official. Grading design plans not required to have a grading permit under Appendix ~~Chapter 33~~J shall be a part of the landscape permit. All grading design plans shall be separate from, but use the same format as, the landscape design plan.

7105.10.2 The grading design plan shall indicate finished configurations (contours) and elevations of the landscaped area, in accordance with Appendix ~~Chapter 33~~J of this code and the requirements of Section 7105.5.3, Item 7.

7105.10.3 A grading plan check and grading permit may be required in accordance with Chapter 1 and Appendix ~~Chapter 33~~J of this Code.

7105.11 Soils Analysis.

. . .

7105.11.3 The provisions of this Chapter shall not impact the stability of compacted fills or cut slopes prepared under the provisions of Appendix ~~Chapter 33~~J.

7105.12 Certification of Landscaping.

7105.12.1 Upon completing the installation of the landscaping and the irrigation system, an irrigation system flow test shall be performed to verify irrigation system performance prior to approval of the certificate of substantial conformance. This shall be conducted by a qualified individual ~~as determined by the Director of Public Works~~registered or certified under the Business and Professions Code to perform such work using the ~~Landscape Irrigation Auditor Handbook~~Irrigation Audit Guidelines as referenced in Section 7105.9.1.

. . .

SECTION 29. Chapter 94 is hereby amended to read as follows:

CHAPTER ~~26~~94

REPAIR OF WELDED STEEL MOMENT FRAME BUILDINGS LOCATED IN HIGH EARTHQUAKE DAMAGED AREAS

. . .

SECTION 9403 -- DEFINITIONS

For the purposes of this Chapter, the applicable definitions in ~~Sections 1602 and 1627~~Chapter 16 of this Code and the following definition shall apply:

. . .

SECTION 9405 -- GENERAL REQUIREMENTS

. . .

The owner shall submit the required structural analysis, obtain any necessary permits and commence and complete the required ~~alteration~~construction or demolition within the time limits set forth in Table 94-A. These time limits shall run from the date the Inspection and Repair Compliance Order is served.

. . .

SECTION 30. Chapter 95 is hereby amended to read as follows:

CHAPTER ~~26~~95

EARTHQUAKE HAZARD REDUCTION FOR EXISTING CONCRETE TILT-UP BUILDINGS

. . .

SECTION 9502 -- SCOPE

The provisions of this Chapter shall apply to all ~~publicly- and privately-owned~~ buildings constructed, under construction, or for which a building permit was issued prior to April 13, 1975, and which on the effective date of this ordinance have concrete tilt-up bearing walls as defined herein.

SECTION 9503 -- DEFINITIONS

For purposes of this Chapter, the applicable definitions in ~~Sections 1602 and 1627~~Chapter 16 of this Code and the following definitions shall apply.

ESSENTIAL ~~BUILDING~~FACILITIES is defined as any building conforming to the definition of essential facilities as set forth in Section ~~1627~~1602.1 of this Code.

. . .

SECTION 9506 -- ANALYSIS AND DESIGN

9506.1 Wall Panel Anchorage.

Concrete 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 45 percent of the tributary wall weight for essential ~~buildings~~facilities, and 30 percent of the tributary wall weight for all other buildings, or a minimum force of 250 pounds per linear foot (3.65 kN/m) of wall, whichever is greater. The required anchorage shall be based on the tributary wall panel assuming simple supports at floors and roof.

9506.2 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 ~~1612.3.2~~1605.3.2 shall not be permitted for materials using allowable stress design methods.

The strength design specified in Section ~~1923.2~~1912, using a load factor of 2.0 in lieu of 1.4 for earthquake loading, shall be used for design of embedments in concrete.

. . .

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 engineer or architect can establish tension values for the existing anchors through the use of approved as-built plans or testing, and ~~through~~thorough analysis showing that

the bolts are capable of resisting the total shear load while being acted upon by the maximum tension force due to earthquake. Criteria for analysis and testing shall be determined by the Building Official.

. . .

Minimum Roof Member Size.

Wood members used to develop anchorage forces to the diaphragm shall not be less than 3-inch (76mm) nominal thickness when damaged members are replaced. All such members must be checked for earthquake loads as part of the wall anchorage system in addition to dead and live loads. For existing buildings, the member check shall be without the one-third stress increase per Section ~~1612.3.2~~1605.3.2.

. . .

SECTION 31. Chapter 98 is hereby amended to read as follows:

CHAPTER ~~26~~98

UNOCCUPIED BUILDINGS AND STRUCTURES

. . .

SECTION 9804 -- POSTING

A copy of the notice shall be posted in a conspicuous place on the building~~ or~~, structure, or premises (property) which is the subject of the notice. Such notice shall remain posted until the building is lawfully occupied. No person shall remove such notice without the written permission of the Building Official. No person, other than a person having the right of occupancy shall enter the building.

Further, the Building Official may cause to be posted on such building a sign or signs to read: VACATED BUILDING, DO NOT ENTER OR DAMAGE BY ORDER OF THE DEPARTMENT OF PUBLIC WORKS, BUILDING AND SAFETY~~/LAND DEVELOPMENT~~ DIVISION, COUNTY OF LOS ANGELES.

~~Such sign may contain additional information and warnings as, in the opinion of the Building Official are expedient. Such notice shall remain posted until the building again is lawfully occupied A person shall not remove such notice without the written permission of the Building Official. A person, other than a person having the right of occupancy, shall not enter the building.~~

SECTION 9805 -- SERVICE

. . .

In the event the Building Official is unable to serve any notice on any person as specified above, proper service on such person shall be by posting the notice in a conspicuous place on the building, ~~or~~ structure, or premises (property).

. . .

SECTION 9807 -- NOTICE OF HEARING

Upon receiving a request for hearing, the Building Official shall set the matter for hearing before the Building Rehabilitation Appeals Board or the Code Enforcement Appeals Board and shall serve notice not less than 10 days prior thereto upon the person requesting such hearing and upon every person upon whom the notice provided for in Section 9801 was served.

SECTION 9808 -- HEARING PROCEDURE

Except ~~as~~to the extent inconsistent with any ~~other~~ provisions of this Chapter, ~~all~~the procedures ~~taken shall be, and~~for the hearing before the Building Rehabilitation Appeals Board or the Code Enforcement Appeals Board ~~and the County~~ shall ~~proceed and collect costs, as~~be the same as the procedures provided in this ~~Ordinance~~Code ~~in the case of~~for the hearings relating to substandard and unsafe buildings.

SECTION 9809 -- SECURING STRUCTURES BY COUNTY

~~If a person is properly served a notice pursuant to Section 9801 to secure or close a building so as to prevent unauthorized persons from gaining access thereto and neither that person nor any other persons request a hearing, or, after a hearing, the Building Rehabilitation Appeals Board determines that such person is obliged to so secure or close such building, if such building is not so secured or closed within 10 days after service of notice, if no hearing is requested, or within the time specified by the Building Rehabilitation Appeals Board, the County may perform the work as provided in this ordinance in the case of substandard or unsafe buildings.~~

9809.1 If, as of the tenth day following service of the notice described in Section 9801, no hearing has been requested pursuant to Section 9806 and the building has not been secured or closed in compliance with said notice, the County may perform the work required to secure or close the building. The record owner and any other person on whom the notice described in Section 9801 was served shall be liable for the costs incurred by the County in performing such work.

9809.2 If, after a hearing pursuant to this Chapter, the Building Rehabilitation Appeals Board or the Code Enforcement Appeals Board determines that the building must be secured or closed in compliance with the notice given pursuant to Section 9801, and the building has not been secured or closed within the time specified by the Building Rehabilitation Appeals Board or the Code Enforcement Appeals Board, the County may perform the work required to secure or close the building. The record owner and any other person on whom the notice described in Section 9801 was served shall be liable for the costs incurred by the County in performing such work.

. . .

SECTION 32. Chapter 99 is hereby amended to read as follows:

CHAPTER ~~2~~699

BUILDING AND PROPERTY REHABILITATION

. . .

SECTION 9902 -- DEFINITIONS

. . .

9902.5 PARTY CONCERNED.

As used in this Chapter, "party concerned" means the person, if any, in real or apparent charge and control of the premises involved, the record owner, the holder of any mortgage, trust deed or other lien or encumbrance of record, the owner or holder of any lease of record, the record holder of any other estate or interest in or to the building or structure or the land upon which it is located. As used in this paragraph all reference to "record" means matters of record ~~in the Department of~~with the Registrar-Recorder ~~of~~

~~the County of Los Angeles~~/County Clerk which definitely and specifically describes the premises involved.

. . .

SECTION 9905 -- SUBSTANDARD PROPERTY

. . .

9905.18 Grading which does not meet the minimum standards set forth in Appendix ~~Chapter 33~~J of this Code or which is done in violation of this Code or any other County or State law regulating grading.

. . .

SECTION 9914 -- OTHER INTERESTED PARTIES

If the Notice of Substandard Building or Property requires the repair or demolition of any building and if the demolition or other work necessary to remove the substandard conditions set forth in such notice is not completed within the time specified in such notice and the Building Official intends to directly proceed to demolish the substandard building or portions thereof, or cause such other work to be done to the extent necessary to eliminate the hazard or other substandard conditions which have been found to exist and, by a document recorded in the office of the ~~Department of~~ Registrar-Recorder/County Clerk prior to the recordation of the Declaration of Substandard Building or Property, whether such document describes the property or not, it appears that a person other than a party concerned has any right, title, lien or interest in the property or any portion thereof, and such person has not previously been notified of the substandard building or property conditions or previously been served a copy of the

Notice of Substandard Building or Property and the address of such person is known to the Building Official or can be ascertained by the exercise of due diligence, the Building Official shall serve a copy of the Notice of Substandard Building or Property on such person as provided in this Chapter. Such person may request a hearing before the Building Rehabilitation Appeals Board. The request must be made in writing to the Board within 10 days of the receipt of the copy of the notice of substandard building or property. If a Notice of Substandard Property does not require the repair or demolition of any building, no notice need be given to any person other than a party concerned.

SECTION 9915 -- DECLARATION OF SUBSTANDARD BUILDING OR PROPERTY

The ~~b~~Building ~~o~~Official may file with the ~~Department of~~ Registrar-Recorder/County Clerk a declaration that a substandard building or substandard property or both have been inspected and found to be such, as defined in this Chapter, and that all parties concerned have been or will be so notified. The costs incurred by the ~~b~~Building ~~o~~Official in the investigation of such properties and the processing of the declaration and notification of concerned parties shall be as specified in Table 1-F. After the ~~b~~Building ~~o~~Official finds that the public nuisance had been abated and either that such abatement has been accomplished at no cost to the County, or that such costs have been placed upon the tax rolls as a special assessment pursuant to Section 25845 of the Government Code, or when the ~~b~~Building ~~o~~Official's jurisdiction has been prompted by government acquisition of the property, the ~~b~~Building ~~o~~Official shall record

~~in~~with the ~~Department of~~ Registrar-Recorder/County Clerk a document terminating the above declaration.

SECTION 9916 -- POSTING OF SIGNS

The Building Official may cause to be posted at such substandard building or property a notice of substandard building or property and/or a sign to read: SUBSTANDARD BUILDING, DO NOT ENTER OR DAMAGE, BY ORDER OF THE DEPARTMENT OF PUBLIC WORKS, BUILDING AND SAFETY/~~LAND DEVELOPMENT~~ DIVISION, COUNTY OF LOS ANGELES. Such sign may contain such additional information and warnings as in the opinion of the Building Official are expedient. Such notice or sign shall remain posted until the required repairs, demolition, removal, barricading or property cleanup are completed. Such notice or sign shall not be removed without permission of the Building Official and if the substandard building has been ordered vacated, no person shall enter except for the purpose of making the required repairs or of demolishing the substandard building.

. . .

SECTION 9920 -- NOTICE OF HEARING

If either the Building Official, or any other person, requests a hearing within the proper time as provided in Section 9917 of this Code, the Building Rehabilitation Appeals Board shall hold such hearing. Not less than 10 days prior to the hearing the Building Official shall serve or cause to be served either in the manner required by law for the service of summons or by first class mail, postage prepaid, a copy of the Notice

of Hearing upon every person to whom this Chapter requires that the Notice of Substandard Building or ~~Substandard~~ Property be served.

. . .

SECTION 33. Appendix J is hereby amended to read as follows:

APPENDIX J

GRADING

SECTION J101

GRADING

J101.1 Scope.

The provisions of this chapter apply to grading, excavation and earthwork construction, including fills and embankments~~. Where conflicts occur between the technical requirements of this chapter and the soils report, the soils report shall govern~~and the control of runoff from graded sites, including erosion sediments and construction-related pollutants.

The purpose of this appendix is to safeguard life, limb, property, and the public welfare by regulating grading on private property.

J101.2 Flood hazard areas.

The provisions of this chapter shall not apply to grading, excavation and earthwork construction, including fills and embankments, in floodways within flood hazard areas established in Section 1612.3 or in flood hazard areas where design flood elevations are specified but floodways have not been designated, unless it has been

demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed work will not result in any increase in the level of the base flood.

J101.3 General Hazards.

Whenever the Building Official determines that any existing excavation, embankment or fill on private property has become a hazard to life and limb, or endangers property, or adversely affects the safety, use or stability of a public way or drainage channel, the Building Official may give written notice thereof to the owner of the property upon which the excavation, embankment or fill is located, or other person or agent in control of said property. Upon receipt of said notice, the owner or other person or agent in control of the property shall repair or eliminate such excavation, embankment or fill so as to eliminate the hazard, in conformance with the requirements of this code, within the period specified in said notice.

J101.4 Safety Precautions.

If at any stage of the work the Building Official determines by inspection that further grading as authorized is likely to endanger any public or private property or result in the deposition of debris on any public way or interfere with any existing drainage course, the Building Official may order the work stopped by notice in writing served on any persons engaged in doing or causing such work to be done, and any such person shall immediately stop such work. The Building Official may authorize the work to

proceed if the Building Official finds adequate safety precautions can be taken or corrective measures incorporated in the work to avoid likelihood of such danger, deposition or interference.

If the grading work as done has created or resulted in a hazardous condition, the Building Official shall give written notice requiring correction thereof as specified in section J101 of this code.

J101.5 Protection of Utilities.

The permittee and the owner of the property on which the grading is performed shall be responsible for the prevention of damage to any public utilities or services.

J101.6 Protection of Adjacent Property.

The permittee and the owner of the property on which the grading is performed shall be responsible for the prevention of damage to adjacent property. No person shall excavate on land sufficiently close to the property line to endanger any adjoining public street, sidewalk, alley, or other public or private property without taking adequate measures to support and protect such property from settling, cracking or other damage that might result. Any person performing any grading that involves imported or exported materials shall take special precautions, as approved by the Building Official, to prevent such materials from being deposited on the adjacent public way and/or drainage courses.

J101.7 Storm Water Control Measures.

The permittee and the owner of the property on which the grading is performed shall put into effect and maintain all precautionary measures necessary to protect

adjacent water courses and public or private property from damage by erosion, flooding, and deposition of mud, debris, and construction-related pollutants originating from the site during grading and related construction activities.

J101.8 Maintenance of Protective Devices and Rodent Control.

All drainage structures and other protective devices and all burrowing rodent control structures, as shown on the grading plans approved by the building official, shall be maintained in a good condition and, when necessary, promptly repaired by the owner of the property on which grading has been performed or by any other person or agent in control of such property.

J101.9 Correlation with Other Sections.

The provisions of this chapter are independent of the provisions of Chapter 99 of this code relating to building and property rehabilitation. This section may be applied even though the same facts have been used to determine that there is substandard property subject to the provisions of Chapter 99.

J101.10 Conditions of Approval.

In granting any permit under this code, the Building Official may include such conditions as may be reasonably necessary to prevent creation of a nuisance or hazard to public or private property. Such conditions may include, but shall not be limited to:

1. Improvement of any existing grading to comply with the standards of this code.

2. Requirements for fencing of excavations or fills which would otherwise be hazardous.

SECTION J102

DEFINITIONS

J102.1 Definitions.

For the purposes of this appendix chapter, the terms, phrases and words listed in this section and their derivatives shall have the indicated meanings.

APPROVAL. When the proposed work or completed work conforms to this chapter, as determined by and to the satisfaction of the Building Official.

AS-BUILT. See Section J105.12.

BEDROCK. The relatively solid, undisturbed rock in place either at the ground surface or beneath superficial deposits of alluvium, colluvium and/or soil.

BENCH. A relatively level step excavated into earth material on which fill is to be placed.

BEST MANAGEMENT PRACTICE (BMP). A stormwater pollution mitigation measure that is required to be employed in order to comply with the requirements of the NPDES permit issued to the County of Los Angeles (see section 106.4.3 of this code).

BORROW. Earth material acquired from an off-site location for use in grading on a site.

CIVIL ENGINEER. A professional engineer registered in the state of California to practice in the field of civil works.

CIVIL ENGINEERING. The application of the knowledge of the forces of nature, principles of mechanics and the properties of materials to the evaluation, design, and construction of civil works.

COMPACTION. The densification of a fill by mechanical means.

CUT. See "Excavation".

DESILTING BASINS. Physical structures, constructed for the removal of sediments from surface water runoff.

DESIGN ENGINEER. The Civil Engineer responsible for the preparation of the grading plans for the site grading work.

DOWN DRAIN. A device for collecting water from a swale or ditch located on or above a slope, and safely delivering it to an approved drainage facility.

EARTH MATERIAL. Any rock, natural soil or fill or any combination thereof.

ENGINEERING GEOLOGIST. A geologist experienced and knowledgeable in engineering geology. Shall mean a person holding a valid certificate of registration as a geologist in the specialty of engineering geology issued by the state of California under the applicable provisions of the Geologist and Geophysicist Act of the Business and Professions Code.

ENGINEERING GEOLOGY. The application of geologic knowledge and principles in the investigation and evaluation of naturally occurring rock and soil for use in the design of civil works.

EROSION. The wearing away of the ground surface as a result of the movement of wind, water, or ice.

EXCAVATION. The removal of earth material by artificial means, also referred to as a cut.

FIELD ENGINEER. The Civil Engineer responsible for performing the functions as set forth in Section J105.3.

FILL. Deposition of earth materials by artificial means.

GEOTECHNICAL ENGINEER. See "Soils Engineer."

GEOTECHNICAL HAZARD. An adverse condition due to landslide, settlement, and/or slippage. These hazards include but are not limited to loose debris, slopewash, and mud flows from natural or graded slopes.

GRADE. The vertical location of the ground surface.

GRADE, EXISTING. The grade prior to grading.

GRADE, FINAL. See Section J105.7.

GRADE, FINISHED. The grade of the site at the conclusion of all grading efforts.

GRADE, INITIAL. See Section J105.7.

GRADE, ROUGH. See Section J105.7.

GRADING. An excavation or fill or combination thereof.

KEY. A compacted fill placed in a trench excavated in earth material ~~beneath~~generally constructed at the toe of a slope.

LANDSCAPE ARCHITECT. A person who holds a certificate to practice landscape architecture in the state of California under the applicable landscape architecture provisions of Division 3, Chapter 3.5 of the Business and Professions Code.

LINE. The horizontal location of the ground surface.

PERMITTEE. See Section J105.6.

PRIVATE SEWAGE DISPOSAL SYSTEM. A septic tank with effluent discharging into a subsurface disposal field, into one or more seepage pits or into a combination of subsurface disposal field and seepage pit or of such other facilities as may be permitted in accordance with the procedures and requirements set forth in Title 28.

PROJECT CONSULTANTS. The professional consultants required by this code which may consist of the design engineer, field engineer, soils engineer, engineering geologist, and landscape architect as applicable to this chapter.

PROFESSIONAL INSPECTION. The inspection required by this code to be performed by the Project Consultants. Such inspections shall be sufficient to form an opinion relating to the conduct of the work.

SITE. A lot or parcel of land or contiguous combination thereof, under the same ownership, where grading is performed or permitted.

SLOPE. An inclined ground surface the inclination of which is expressed as a ratio of horizontal distance to vertical distance.

SOIL. Naturally occurring superficial deposits overlying parent bedrock.

SOILS ENGINEER (GEOTECHNICAL ENGINEER). A civil engineer experienced and knowledgeable in the practice of soils engineering.

SOILS ENGINEERING (GEOTECHNICAL ENGINEERING). The application of the principals of soils mechanics in the investigation, evaluation, and design of civil works involving the use if earth materials and the inspection or testing of construction thereof.

STORM DRAIN SYSTEM. A conveyance or system of conveyances, including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, and man-made channels, designed or used for collecting and conveying stormwater.

STORM WATER POLLUTION PREVENTION PLAN. A site drawing with details, notes, and related documents that identify the measures proposed by the permittee to (1) control erosion and prevent sediment and construction-related pollutants from being carried offsite by stormwater, and (2) prevent non-stormwater discharges from entering the storm drain system.

SURFACE DRAINAGE. Flows over the ground surface.

SOIL TESTING AGENCY. An agency regularly engaged in the testing of soils and rock under the direction of a civil engineer experienced in soil testing.

TERRACE. A relatively level step constructed in the face of a graded slope for drainage and maintenance purposes.

SECTION J103

PERMITS REQUIRED

J103.1 Permits required.

Except as exempted in Section J103.2, no grading shall be performed without first having obtained a permit ~~therefore~~ from the Building Official. A grading permit does not include the construction of retaining walls or other structures. A separate permit shall be obtained for each site and may cover both excavations and fills. Any Engineered Grading as described in Section J104 shall be performed by a contractor

licensed by the State of California to perform the work described hereon. Regular Grading less than 5,000 cubic yards may require a licensed contractor if the Building Official determines that special conditions or hazards exist.

J103.2 Exemptions.

A grading permit shall not be required for the following:

1. When approved by the Building Official, grading in an isolated, self-contained area, provided there is no danger to the public, and that such grading will not adversely affect adjoining properties.

. . .

7. Exploratory excavations performed under the direction of a ~~registered design professional~~Soils Engineer or Engineering Geologist. This shall not exempt grading of access roads or pads created for exploratory excavations. Exploratory excavations must not create a hazardous condition to adjacent properties or the public in accordance with Section J101.3. Exploratory excavations must be restored to existing conditions, unless otherwise approved by the Building Official.

8. An excavation that does not exceed 50 cubic yards (38.3 m^3) and complies with one of the following conditions:

(a) Is less than 2 feet (0.6 m) in depth.

(b) Does not create a cut slope greater than 5 feet (1.5 m) measured vertically upward from the cut surface to the surface of the natural grade and is not steeper than 2 units horizontal to 1 unit vertical (50 percent slope).

9. A fill not intended to support a structure, that does not obstruct a drainage course and complies with one of the following conditions:

(a) Is less than 1 foot (0.3 m) in depth and is placed on natural terrain with a slope flatter than 5 units horizontal to 1 unit vertical (20 percent slope).

(b) Is less than 3 feet (0.9 m) in depth at its deepest point measured vertically upward from natural grade to the surface of the fill, does not exceed 50 cubic yards, and creates a fill slope no steeper than 2 units horizontal to 1 unit vertical (50 percent slope).

(c) Is less than 5 feet (1.5 m) in depth at its deepest point measured vertically upward from natural grade to the surface of the fill, does not exceed 20 cubic yards, and creates a fill slope no steeper than 2 units horizontal to 1 unit vertical (50 percent slope).

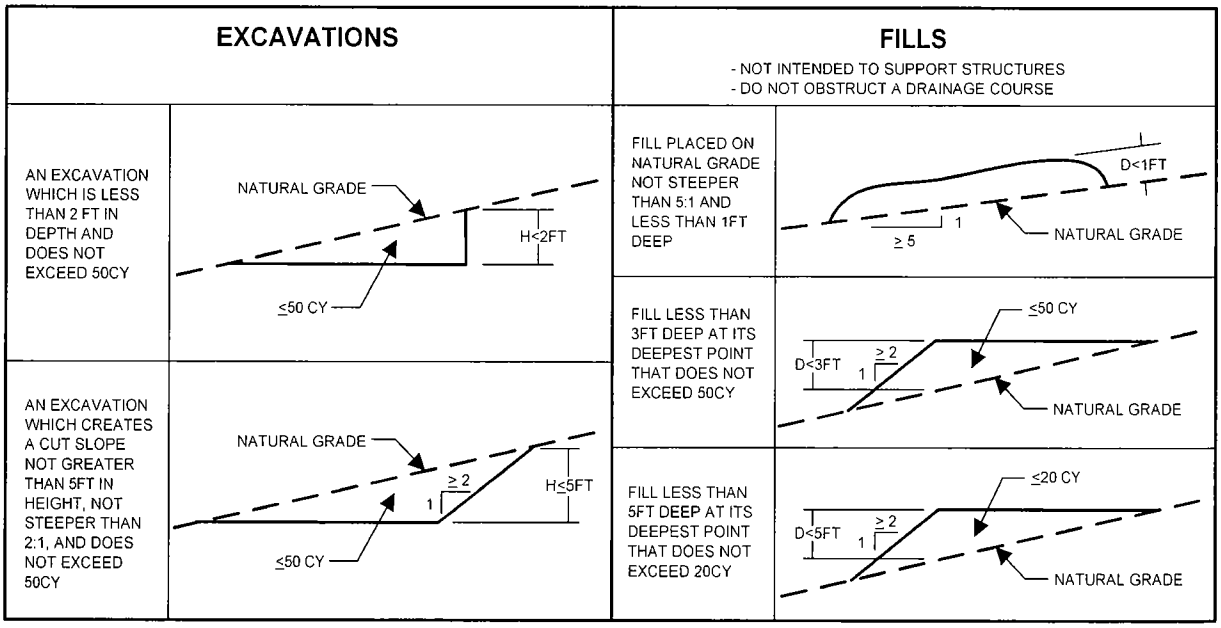


FIGURE J103.2

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

J103.3 Unpermitted Grading.

A person shall not own, use, occupy or maintain any site containing unpermitted grading. For the purposes of this Code, unpermitted grading shall be defined as any grading that was performed, at any point in time, without the required permit(s) having first been obtained from the Building Official, pursuant to Section J103.1.

J103.4 Availability of Permit at Site.

No person shall perform any grading that requires a permit under this chapter unless a copy of the grading permit and approved grading plans is in the possession of a responsible person and available at the site for the Building Official.

J103.5 Grading Fees.

Fees shall be assessed in accordance with the provisions of this section. The amount of the fees shall be as specified in Section 107 of this code.

1. Plan Review Fees. When a plan or other data are required to be submitted, a plan review fee shall be paid at the time of submitting plans and specifications for review. Separate plan review fees shall apply to retaining walls or major drainage structures as required elsewhere in this code. For excavation and fill on the same site, the fee shall be based on the volume of excavation or fill, whichever is greater.

2. Permit Fees. A fee for each grading permit shall be paid to the Building Official at the time of issuance of the permit. Separate permits and fees shall apply to retaining walls or major drainage structures as required elsewhere in this code.

3. Site Inspection Fee. When the Building Official finds that a visual inspection of the site is necessary to establish drainage requirements for the protection of property, existing buildings or the proposed construction, a site inspection shall be made during plan check of grading plans. A fee for such inspection shall be paid to the Building Official at the time of submitting plans and specifications for review.

J103.6 Compliance with Zoning Code.

The Building Official may refuse to issue a grading permit for work on a site if either the proposed grading or the proposed land use for the site shown on the grading plan application does not comply with the provisions of Title 22, entitled "Planning and Zoning," of the Los Angeles County Code.

J103.7 Grading Security.

J103.7.1 Purpose.

The Building Official may require permittees or owners to provide security, as a condition of the issuance of a grading permit, in an amount sufficient to mitigate the hazardous conditions that may be created if the grading is not completed in accordance with the approved plans and specifications.

J103.7.2 Security Required.

A permit shall not be issued for grading involving more than 1,000 cubic yards (764.6 m^3) unless the owner posts with the Building Official a security in an amount

determined by the Building Official in accordance with Section J103.7.3 and in one of the following forms:

1. A bond furnished by a corporate surety authorized to do business in this state.

2. A cash bond.

3. Savings and loan certificates or shares deposited and assigned to the County as provided in Chapter 4.36 of Title 4 of the Los Angeles County Code.

4. An instrument of credit from a financial institution subject to regulation by the state or federal government and pledging that the funds necessary to carry out the grading are on deposit and guaranteed for payment, or a letter of credit issued by such a financial institution.

Where unusual conditions or special hazards exist, the Building Official may require security for grading involving less than 1,000 cubic yards (764.6 m^3).

Security required by this Section may include incidental off-site grading on property contiguous with the site to be developed, provided written consent of the owner of such contiguous property is filed with the Building Official.

The Building Official may waive the requirements for a security for the following:

1. Grading being done by or for a governmental agency.

2. Grading necessary to remove a geotechnical hazard, where such work is covered by an agreement and security posted pursuant to the provisions of Title 21, entitled "Subdivision Ordinance," of the Los Angeles County Code.

3. Grading on a site, not exceeding a slope of three horizontal to one vertical, provided such grading as determined by the Building Official will not affect drainage from or to adjacent properties.

4. Filling of holes or depressions, provided such grading will not affect the rainage from or to adjacent properties.

J103.7.3 Amount of Security.

The amount of security shall be based on the number of cubic yards of material in either excavation or fill, whichever is greater, and the cost of all drainage or other protective devices or work necessary to eliminate potential geotechnical hazards. That portion of the security valuation based on the volume of material in either excavation or fill shall be computed as follows:

100,000 cubic yards or less - 50 percent of the estimated cost of grading work.

Over 100,000 cubic yards - 50 percent of the cost of the first 100,000 cubic yards plus 25 percent of the estimated cost of that portion in excess of 100,000 cubic yards.

When the rough grading has been completed in conformance with the requirements of this code, the Building Official may, at his or her discretion, consent to a proportionate reduction of the security to an amount estimated to be adequate to ensure completion of the grading work, site development or planting remaining to be performed. The costs referred to in this section shall be as estimated by the Building Official.

J103.7.4 Conditions.

All security shall include the conditions that the principal shall:

1. Comply with all of the provisions of this code, applicable laws, and ordinances;

2. Comply with all of the terms and conditions of the grading permit;

3. Complete all of the work authorized by the permit.

J103.7.5 Term of Security.

The term of each security shall begin upon the filing with the Building Official and the security shall remain in effect until the work authorized by the grading permit is completed and approved by the Building Official.

J103.7.6 Default Procedures.

In the event any grading for which a permit has been issued is not completed in accordance with the approved plans and specifications for said work or with all terms and conditions of the grading permit, the Building Official may declare that a default has occurred. The Building Official shall give notice thereof to the principal and surety or financial institution executing the security, or to the owner in the case of a cash bond or assignment. The Building Official may thereafter determine the work that is necessary to mitigate any hazardous or unsafe conditions on the site and cause such work to be performed. Where the security consists of a bond or instrument of credit, the surety or financial institution executing the security shall be responsible for the payment of all costs and expenses incurred by the Building Official in causing such work to be performed, up to the full amount of the security. In the case of a cash bond or

assignment, the Building Official may pay all costs and expenses incurred in causing such work to be performed from the funds deposited, and return any unused portion of such deposit or funds to the person making said deposit or assignment.

J103.7.7 Right of Entry.

The Building Official or the authorized representative of the surety company or financial institution executing the security shall have access to the premises described in the permit for the purpose of inspecting the work.

In the event of default, as described in Section J103.7.6, the surety or financial institution executing the security or the Building Official, or any person employed or engaged on the behalf of any of these parties, shall have the right to go upon the premises to perform the mitigation work, as described in Section J103.7.6.

Neither the owner any other person shall interfere with or obstruct the ingress into or egress from any such premises, of any authorized representative of the surety or financial institution executing the security or the Building Official engaged to perform the mitigation work, as described in Section J103.7.6.

SECTION J104

PERMIT APPLICATION AND SUBMITTALS

J104.1 Submittal requirements.

In addition to the provisions of Section ~~105.3~~106, Appendix Chapter 1, the applicant shall state the following:

1. ~~t~~The estimated quantities of excavation and fill.

2. The proposed land use for the site on which the grading is to be performed.

J104.2 Site plan requirements.

In addition to the provisions of Section 106, Appendix Chapter 1, a grading plan shall show the existing grade and finished grade in contour intervals of sufficient clarity to indicate the nature and extent of the work and show in detail that it complies with the requirements of this code. The plans shall show the existing grade on adjoining properties in sufficient detail to identify how grade changes will conform to the requirements of this code.

J104.2.1 Grading Designation.

Grading in excess of 5,000 cubic yards (3825 m^3) or that is proposed to support any structure shall be designated as "engineered grading." All engineered grading shall be performed in accordance with an approved grading plan and specifications prepared by a civil engineer, unless otherwise required by the Building Official.

Grading involving less than 5,000 cubic yards (3825 m^3) and that will not support any structure shall be designated "regular grading" unless the permittee chooses to have the grading be designated as engineered grading, or the Building Official determines that, due to the existence of special conditions or unusual hazards, the grading should be designated as engineered grading.

J104.2.2 Regular Grading Requirements.

In addition to the provisions of Section 106, and Section 104.2, an application for a regular grading permit shall be accompanied by two sets of plans in sufficient clarity to indicate the nature and extent of the work. The plans shall give the location of the work, the name of the owner, and the name of the person who prepared the plan. The plan shall include the following information:

1. General vicinity of the proposed site.

2. Limits and depths of cut and fill.

3. Location of any buildings or structures where work is to be performed, and the location of any buildings or structures within 15 feet (4.6 m) of the proposed grading.

4. Contours, flow areas, elevations, or slopes which define existing and proposed drainage patterns.

5. Storm water provisions in accordance with the requirements of Section 106.4.3 of this code. See Section J111 for specific requirements.

J104.2.3 Engineered Grading Requirements.

In addition to the provisions of Section 106, and Section J104.2, an application for a permit for engineered grading shall be accompanied by four sets of plans and specifications, and supporting data consisting of a soils engineering report and engineering geology report.

Specifications shall contain information covering construction and material requirements. Plans shall be drawn to scale upon substantial paper or cloth and shall be of sufficient clarity to indicate the nature and extent of the work proposed and shall

show in detail that the proposed work will conform to the provisions of this code and all relevant laws, ordinances, rules, and regulations. The first sheet of each set of plans shall depict the location of the proposed work, the name and address of the owner, and the person by whom they were prepared.

The plans shall include or be accompanied by 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, 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. A map showing the drainage area and the estimated runoff of the area served by any drains shall also be provided.

5. Location of any existing or proposed buildings or structures located on the property on which the work is to be performed and the location of any buildings or structures on adjacent properties that are within 15 feet (4.6 m) of the property or that may be affected by the proposed grading operations.

6. Recommendations in the soils engineering report and the engineering geology report shall be incorporated into the grading plans or specifications. When approved by the Building Official, specific recommendations contained in the soils

engineering report and the engineering geology report, that are applicable to grading, may be included by reference.

7. 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.

8. A statement of the quantities of material to be excavated and/or filled. Earth work quantities shall include quantities for geotechnical and geological remediation. In addition, a statement of the quantities of material to be imported or exported from the site.

9. A statement of the estimated starting and completion dates for proposed work.

10. A statement signed by the owner, acknowledging that a field engineer, soils engineer and engineering geologist, when appropriate, will be employed to perform the services required by this code, when the Building Official requires that such professional persons be so employed. These acknowledgments shall be on a form furnished by the Building Official.

11. Storm water provisions are required to be shown on the grading plan in accordance with the requirement of Section 106.4.3 of the code. See Section J111 for specific requirements.

12. A drainage plan for those portions of property proposed to be utilized as a building site (building pad), including elevations of floors with respect to finish site grade and locations of proposed stoops, slabs and fences that may affect drainage.

13. Location and type of any proposed private sewage disposal system, including the location of the expansion area.

14. Location of existing and proposed utilities, drainage facilities, and recorded public and private easements.

15. Location of all recorded floodways as established by Chapter 11.60 of Title 11 of the Los Angeles County Code.

16. Location of all Special Flood Hazard Areas as designated and defined in Title 44, Code of Federal Regulations.

J104.3 Soils Engineering and Engineering Geology Reports.

~~A soils report prepared by registered design professionals shall be provided which shall identify the nature and distribution of existing soils; conclusions and recommendations for grading procedures; soil design criteria for any structures or embankments required to accomplish the proposed grading; and, where necessary, slope stability studies, and recommendations and conclusions regarding site geology.~~The soils engineering report required by Section J104.2.3 shall include data regarding the nature, distribution and strength of existing soils, conclusions and recommendations for grading procedures and design criteria for corrective measures, including buttress fills, when necessary, and an opinion on the adequacy for the intended use of sites to be developed by the proposed grading as affected by soils engineering factors, including the stability of slopes. All reports shall conform with the requirements of Section 111 of this Code and shall be subject to review by the Building

Official. Supplemental reports and data may be required as the Building Official may deem necessary. Recommendations included in the reports and approved by the Building Official shall be incorporated in the grading plan or specifications.

The engineering geology report required by Section J104.2.3 shall include an adequate description of the geology of the site, conclusions and recommendations regarding the effect of geologic conditions on the proposed development, and an opinion on the adequacy for the intended use of sites to be developed by the proposed grading, as affected by geologic factors. The engineering geology report shall include a geologic map and cross sections utilizing the most recent grading plan as a base. All reports shall conform with the requirements of Section 111 of this Code and shall be subject to review by the Building Official. Supplemental reports and data may be required as the Building Official may deem necessary. Recommendations included in the reports and approved by the Building Official shall be incorporated in the grading plan or specifications.

EXCEPTION: A soils engineering or engineering geology report is not required where the Building Official determines that the nature of the work applied for is such that a report is not necessary.

J104.4 Liquefaction study.

For sites with mapped maximum considered earthquake spectral response accelerations at short periods (S_s) greater than 0.5g as determined by Section 1613, a

study of the liquefaction potential of the site shall be provided, and the recommendations incorporated in the plans. A geotechnical investigation will be required when the proposed work is a "Project" as defined in California Public Resources Code Section 2693, and is located in an area designated as a "Seismic Hazard Zone" as defined in Title 14 of the California Code of Regulations Section 3722 on Seismic Hazard Zone Maps issued by the State Geologist under Public Resources Code Section 2696.

. . .

SECTION J105

INSPECTION

J105.1 General.

Grading ~~I~~inspections shall be governed by Section ~~109, Appendix Chapter 1~~108 of this code and as indicated herein. Grading operations for which a permit is required shall be subject to inspection by the Building Official. In addition, professional inspection of grading operations shall be performed by the Field Engineer, Soils Engineer and the Engineering Geologist retained to provide such services in accordance with this Section for engineered grading and as required by the Building Official for regular grading.

J105.2 Special and Supplemental inspections.

The special inspection requirements of Section 1704.7 shall apply to work performed under a grading permit where required by the Building Official. In addition to the called inspections specified in Section 105.7, the Building Official may make such

other inspections as may be deemed necessary to determine that the work is being performed in conformance with the requirements of this code. The Building Official may require investigations and reports by an approved soil testing agency, Soils Engineer and/or Engineering Geologist, and Field Engineer. Inspection reports shall be provided when requested in writing by the Building Official.

The Building Official may require continuous inspection of drainage devices by the Field Engineer in accordance with this section when the Building Official determines that the drainage devices are necessary for the protection of the structures in accordance with Section 110 of this code.

J105.3 Field Engineer.

The Field Engineer shall provide professional inspection of those parts of the grading project within such engineer's area of technical specialty, oversee and coordinate all field surveys, set grade stakes, and provide site inspections during grading operations to ensure the site is graded in accordance with the approved grading plan and the appropriate requirements of this code. During site grading, and at the completion of both rough grading and final grading, the Field Engineer shall submit statements and reports as required by Sections J105.11 and J105.12. If revised grading plans are required during the course of the work they shall be prepared by a Civil Engineer and approved by the Building Official.

J105.4 Soils Engineer.

The Soils Engineer shall provide professional inspection of those parts of the grading project within such engineer's area of technical specialty, which shall include

observation during grading and testing for required compaction. The Soils Engineer shall provide sufficient observation during the preparation of the natural ground and placement and compaction of the fill to verify that such work is being performed in accordance with the conditions of the approved plan and the appropriate requirements of this chapter. If conditions differing from the approved soils engineering and engineering geology reports are encountered during grading, the Soils Engineer shall provide revised recommendations to the permittee, the Building Official and the Field Engineer.

J105.5 Engineering Geologist.

The Engineering Geologist shall provide professional inspection of those parts of the grading project within such engineer's area of technical specialty, which shall include professional inspection of the bedrock excavation to determine if conditions encountered are in conformance with the approved report. If conditions differing from the approved engineering geology report are encountered, the Engineering Geologist shall provide revised recommendations to the soils engineer.

J105.6 Permittee.

The permittee shall be responsible for ensuring that the grading is performed in accordance with the approved plans and specifications and in conformance with the provisions of this code. The permittee shall engage project consultants, if required under the provisions of this code, to provide professional inspections on a timely basis. The permittee shall act as a coordinator between the project consultants, the contractor

and the Building Official. In the event of changed conditions, the permittee shall be responsible for informing the Building Official of such change and shall provide revised plans for approval.

J105.7 Required Inspections.

The permittee shall call for an inspection by the Building Official at the following various stages of work and shall obtain the approval of the Building Official prior to proceeding to the next stage of work:

Pre-grade. Before any construction or grading activities occur at the site. Permittee shall schedule a pregrade inspection with the Building Official. The permittee shall ensure that all project consultants are present at the pre-grade inspection.

Initial. When the site has been cleared of vegetation and unapproved fill and has been scarified, benched or otherwise prepared for fill. No fill shall have been placed prior to this inspection.

Rough. When approximate final elevations have been established; drainage terraces, swales and other drainage devices necessary for the protection of the building sites from flooding have been installed; berms have been installed at the top of the slopes; and the statements required by Section J105.12 have been received.

Final. When grading has been completed; all drainage devices necessary to drain the building pad have been installed; slope planting has been established, irrigation systems have been installed; and the as-built plans and required statements and reports have been submitted.

J105.8 Notification of Noncompliance.

If, in the course of fulfilling their respective duties under this chapter, the Field Engineer, the Soils Engineer or the Engineering Geologist determines that the work is not being done in conformance with this chapter or the approved grading plans, the Field Engineer, Soils Engineer or the Engineering Geologist shall immediately report, in writing, the discrepancies and the recommended corrective measures to the permittee and to the Building Official.

J105.9 Transfer of Responsibility.

If the Field Engineer, the Soils Engineer, or the Engineering Geologist of record is changed after grading has commenced, the Building Official may stop the grading until the permittee has identified a replacement and the replacement has agreed in writing to assume responsibility for those parts of the grading project that are within the replacement's area of technical competence. It shall be the duty of the permittee to notify the Building Official in writing of such change prior to the recommencement of such grading.

J105.10 Non-inspected grading.

No person shall own, use, occupy or maintain any non-inspected grading. For the purposes of this code, non-inspected grading shall be defined as any grading for which a grading permit was first obtained, pursuant to Section J103, supra, but which has progressed beyond any point requiring inspection and approval by the Building Official without such inspection and approval having been obtained.

J105.11 Routine Field Inspections and Reports.

Unless otherwise directed by the Building Official, the Field Engineer for all engineered grading projects shall prepare routine inspection reports and shall file these reports with the Building Official as follows:

Bi-weekly during all times when grading of 400 cubic yards or more per week is occurring on the site;

1. Monthly, at all other times; and

2. At any time when requested in writing by the Building Official.

Such reports shall certify to the Building Official that the Field Engineer has inspected the grading site and related activities and has found them in compliance with the approved grading plans and specifications, the building code, all grading permit conditions, and all other applicable ordinances and requirements. The reports shall conform to a standard "Report of Grading Activities" form which shall be provided by the Building Official.

J105.12 Completion of work.

Upon completion of the rough grading work and at the final completion of the work, the following reports and drawings and supplements thereto are required for engineered grading or when professional inspection is otherwise required by the Building Official:

1. An "As–Built" grading plan prepared by the Field Engineer retained to provide such services in accordance with Section J105.3 showing all plan revisions as approved by the Building Official. This shall include original ground surface elevations,

as-built ground surface elevations, lot drainage patterns, and the locations and elevations of surface drainage facilities and the outlets of subsurface drains. As-built locations, elevations and details of subsurface drains shall be shown as reported by the soils engineer.

The As-built grading plan shall be accompanied by a certification by the Field Engineer that to the best of his or her knowledge, the work within the Field Engineer's area of responsibility was done in accordance with the final approved grading plan.

2. A report prepared by the Soils Engineer retained to provide such services in accordance with Section J105.4, including locations and elevations of field density tests, summaries of field and laboratory tests, other substantiating data, and comments on any changes made during grading and their effect on the recommendations made in the approved soils engineering investigation report. The report shall include a certification by the Soils Engineer that, to the best of his or her knowledge, the work within the Soils Engineer's area of responsibility is in accordance with the approved soils engineering report and applicable provisions of this chapter. The report shall contain a finding regarding the safety of the completed grading and any proposed structures against hazard from landslide, settlement, or slippage.

3. A report prepared by the Engineering Geologist retained to provide such services in accordance with Section J105.5, including a final description of the geology of the site and any new information disclosed during the grading and the effect of such new information, if any, on the recommendations incorporated in the approved grading plan. The report shall contain a certification by the Engineering Geologist that, to the

best of his or her knowledge, the work within the Engineering Geologist's area of responsibility is in accordance with the approved engineering geology report and applicable provisions of this Chapter. The report shall contain a finding regarding the safety of the completed grading and any proposed structures against hazard from landslide, settlement, or slippage. The report shall contain a final as-built geologic map and cross-sections depicting all the information colleted prior to and during grading.

4. The grading contractor shall certify, on a form prescribed by the Building Official, that the grading conforms to said as-built plan and the approved specifications.

J105.13 Notification of completion.

The permittee shall notify the Building Official when the grading operation is ready for final inspection. Final approval shall not be given until all work, including installation of all drainage facilities and their protective devices, and all erosion–control measures have been completed in accordance with the final approved grading plan, and all required reports have been submitted and approved.

J105.14 Change of Ownership.

Unless otherwise required by the Building Official, when a grading permit has been issued on a site and the owner sells the property prior to final grading approval, the new property owner shall be required to obtain a new grading permit.

SECTION J106

EXCAVATIONS

J106.1 Maximum cut slope.

The slope of cut surfaces shall be no steeper than is safe for the intended

use, and shall be no steeper than 2 units horizontal to 1 unit vertical (50 percent) unless the applicant furnishes a soils engineering or an engineering geology report, or both justifying a steeper slope. The reports must contain a statement by the soils engineer or engineering geologist that the site was investigated and an opinion that a steeper slope will be stable and will not create a hazard to public or private property, in conformance with the requirements of Section 111. The Building Official may require the slope of the cut surfaces to be flatter in slope than 2 units horizontal to 1 unit vertical if the Building Official finds it necessary for the stability and safety of the slope.

EXCEPTIONS:

1. A cut surface may be at a slope of 1.5 units horizontal to 1 unit vertical (67 percent) provided that all the following are met:

. . .

1.3 It is no more than 8 feet (~~2438 mm~~ 2.4 m) in height.

. . .

~~2. A cut surface in bedrock shall be permitted to be at a slope of 1 horizontal to 1 vertical (100 percent).~~

J106.2 Drainage.

Drainage, including drainage terraces and overflow protection, shall be provided as required by Section J109.

SECTION J107

FILLS

J107.1 General.

Unless otherwise recommended in the soils report, fills shall conform to provisions of this section.

EXCEPTION: The Building Official may permit a deviation from the provisions of this chapter for minor fills not intended to support structures, where no soils engineering report has been prepared.

J107.2 ~~Surface~~ Preparation of Ground.

Fill slopes shall not be constructed on natural slopes steeper than 2 units horizontal to 1 unit vertical (50 percent slope). The ground surface shall be prepared to receive fill by removing vegetation, topsoil and other unsuitable materials (including any existing fill that does not meet the requirements of this chapter), and scarifying the ground to provide a bond with the fill material.

Subdrains shall be provided under all fills placed in natural drainage courses and in other locations where seepage is evident, except where the Soils Engineer or Engineering Geologist recommends otherwise. Such sub-drainage systems shall be of a material and design approved by the Soils Engineer and acceptable to the Building Official. The Soils Engineer shall provide continuous inspection during the process of subdrain installations. The location of the subdrains shall be shown on a plan prepared by the Soils Engineer. Excavations for the subdrains shall be inspected by the

Engineering Geologist when such subdrains are included in the recommendations of the Engineering Geologist.

J107.3 Benching.

Where existing grade is at a slope steeper than 5 units horizontal to 1 unit vertical (20 percent) and the depth of the fill exceeds 5 feet (~~1524 mm~~ 1.5 m) benching shall be provided into sound bedrock or other competent material as determined by the Soils Engineer. The ground preparation shall be in accordance with Figure J107.3 or as determined by the Soils Engineer. When fill is to be placed over a cut, a key shall be provided which is at least 10 feet (~~3048 mm~~ 3.0 m) in width and 2 feet (~~610 mm~~0.6 m) in depth. The area beyond the toe of fill shall be sloped for sheet overflow or a paved drain shall be constructed thereon. The Soils Engineer or Engineering Geologist or both shall inspect and approve the cut as being suitable for the foundation and placement of fill material before any fill material is placed on the excavation.

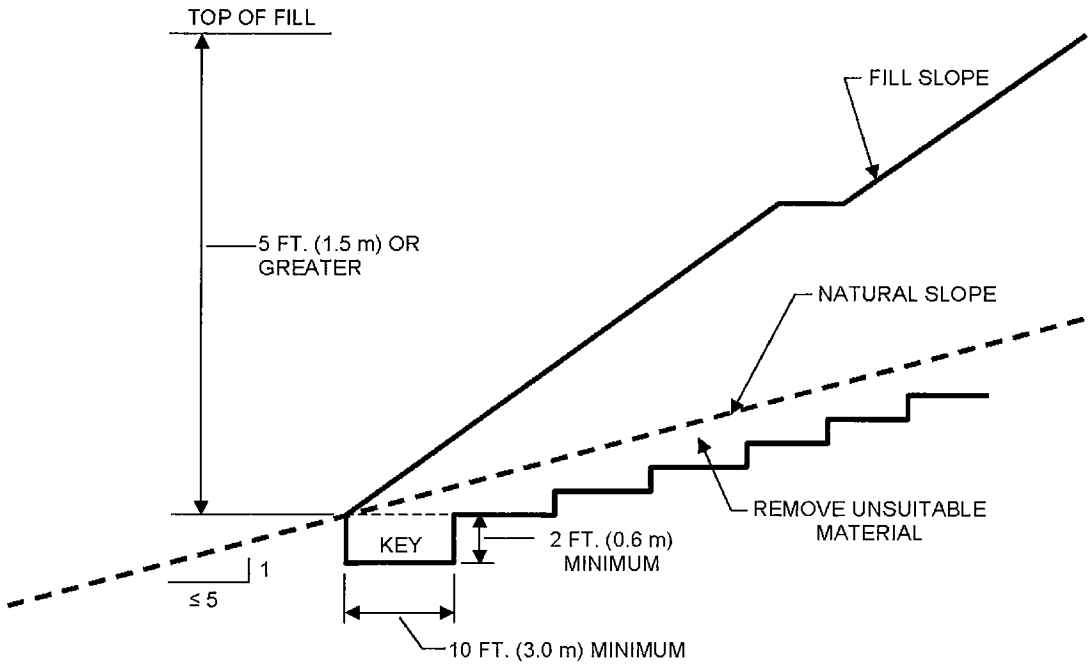


FIGURE J107.3
BENCHING DETAILS

J107.4 Fill material.

Fill material shall not include organic, frozen or other deleterious materials. Unless approved by the Building Official, no rock or similar irreducible material greater than 12 inches (~~305 mm~~ 0.3 m) in any dimension shall be included in fills.

EXCEPTION: The Building Official may permit placement of larger rock when the soils engineer properly devises and recommends a method of placement, and continuously inspects the placement and approves the fill stability. The following requirements shall also apply:

1. Prior to issuance of the grading permit, potential rock disposal areas shall be delineated on the grading plan.
2. Rock sizes greater than 12 inches (0.3 m) in maximum dimension shall be 10 feet (3.0 m) or more below grade, measured vertically.
3. Rocks shall be placed so as to assure filling of all voids with well-graded soil.
4. The reports submitted by the soils engineer shall acknowledge the placement of the oversized material and whether the work was performed in accordance with the engineer's recommendations and the approved plans.
5. The location of oversized rock dispersal areas shall be shown on the as-built plan.

J107.5 Compaction.

All fill material shall be compacted to a minimum of 90 percent of maximum density as determined by ASTM D 1557, Modified Proctor, in lifts not exceeding 12 inches (~~305 mm~~ 0.3 m) in depth within 40 feet (12.2 m) below finished grade and 93 percent of maximum dry density deeper than 40 feet (12.2 m) below finished grade, unless a lower relative compaction (not less than 90 percent of maximum dry density) is justified by the soils engineer and approved by the Building Official. Where ASTM D 1557, Modified Proctor is not applicable, a test acceptable to the Building Official shall be used.

Field density shall be determined by a method acceptable to the Building Official. However, not less than ten percent of the required density tests, uniformly distributed, shall be obtained by the Sand Cone Method.

Fill slopes steeper than 2 units horizontal to 1 unit vertical (50 % slope) shall be constructed by the placement of soil a sufficient distance beyond the proposed finish slope to allow compaction equipment to operate at the outer surface limits of the final slope surface. The excess fill is to be removed prior to completion or rough grading. Other construction procedures may be utilized when it is first shown to the satisfaction of the Building Official that the angle of slope, construction method and other factors will comply with the intent of this Section.

J107.6 Maximum fill slope.

The slope of fill surfaces shall be no steeper than is safe for the intended use. Fill slopes steeper than 2 units horizontal to 1 unit vertical (50 %) shall be justified by soils engineering report~~s or engineering data.~~ conforming with the requirements of Section 111, containing a statement by the soils engineer that the site has been investigated and an opinion that a steeper fill slope will be stable and will not create a hazard to public or private property. Substantiating calculations and supporting data may be required where the Building Official determines that such information is necessary to verify the stability and safety of the proposed slope. The Building Official may require the fill slope to be constructed with a face flatter in slope than 2 units horizontal to 1 unit vertical (50 % slope) if the Building Official finds it necessary for stability and safety of the slope.

J107.7 Slopes to Receive Fill.

Where fill is to be placed above the top of an existing slope steeper than 3 units horizontal to 1 unit vertical (33 % slope), the toe of the fill shall be set back from the top edge of the existing slope a minimum distance of 6 feet (1.8 m) measured horizontally or such other distance as may be specifically recommended by a Soil Engineer or Engineering Geologist and approved by the Building Official.

J107.8 Inspection of Fill.

For engineered grading, the Soils Engineer shall provide sufficient inspections during the preparation of the natural ground and the placement and compaction of the fill to ensure that the work is performed in accordance with the conditions of plan approval and the appropriate requirements of this chapter. In addition to the above, the Soils Engineer shall provide continuous inspection during the entire fill placement and compaction of fills that will exceed a vertical height or depth of 30 feet (9.1 m) or result in a slope surface steeper than 2 units horizontal to 1 unit vertical (50 % slope).

J107.9 Testing of Fills.

Sufficient tests of the fill soils shall be made to determine the density and to verify compliance of the soil properties with the design requirements. This includes soil types and shear strengths in accordance with Section J112 Referenced Standards.

SECTION J108

SETBACKS

J108.1 General.

Cut and fill slopes shall be set back from the property lines in accordance with this section. Setback dimensions shall be horizontal distances measured perpendicular to the property line and shall be as shown in Figure J108.1, unless substantiating data is submitted justifying reduced setbacks and reduced setbacks are recommended in a soils engineering and engineering geology report approved by the Building Official.

J108.2 Top of slope.

The setback at the top of a cut slope shall not be less than that shown in Figure J108.1, or than is required to accommodate any required interceptor drains, whichever is greater. For graded slopes the property line between adjacent lots shall be at the apex of the berm at the top of the slope. Property lines between adjacent lots shall not be located on a graded slope steeper than 5 units horizontal to 1 unit vertical (20 % slope).

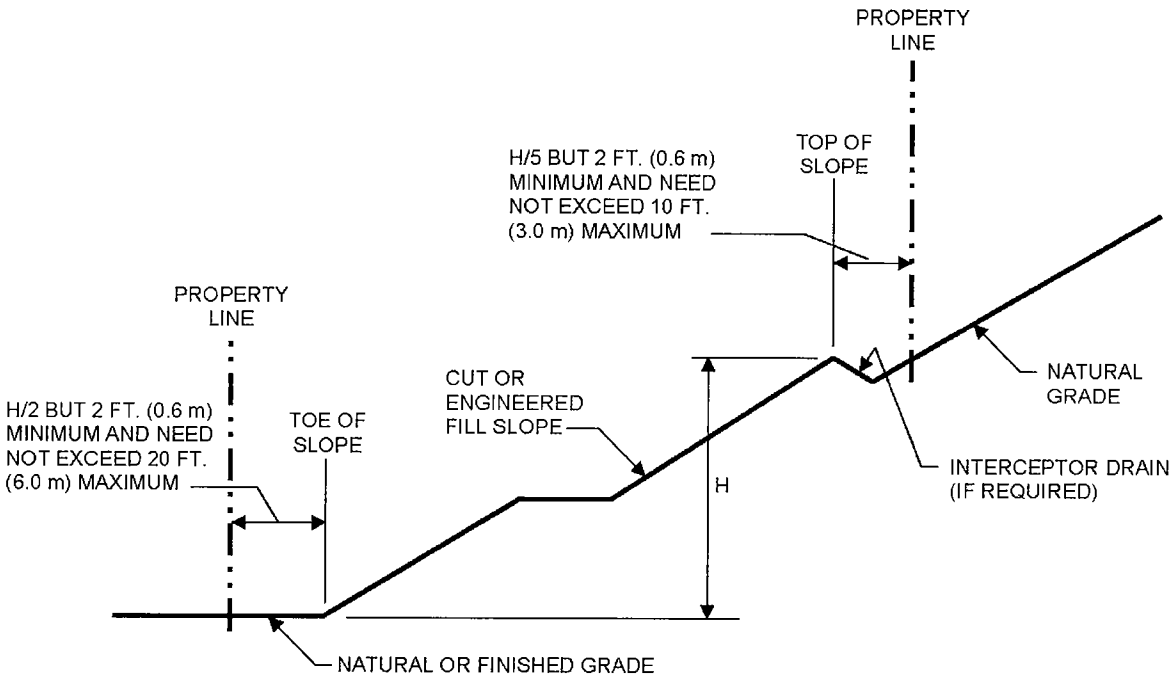


FIGURE J108.1

~~DRAINAGE~~ SETBACK DIMENSIONS

J108.3 ~~Slope Protection~~Toe of Fill Slope.

The setback from the toe of a fill slope shall not be less than that shown by figure J108.1. Where required to protect adjacent properties at the toe of a slope from adverse effects of the grading, additional protection, approved by the Building Official, shall be included. Such protection may include but shall not be limited to:

1. Setbacks greater than those required by Figure J108.1.

2. Provisions for retaining walls or similar construction.

3. Erosion protection of the fill slopes.

4. Provision for the control of surface waters

J108.4 Alternate Setbacks.

The Building Official may approve alternate setbacks if he or she determines that no hazard to life or property will be created or increased. The Building Official may require an investigation and recommendation by a qualified engineer or engineering geologist to justify any proposed alternate setback.

SECTION J109

DRAINAGE AND TERRACING

J109.1 General.

Unless otherwise recommended by a ~~registered design professional~~ Civil Engineer and approved by the Building Official, drainage facilities and terracing shall be provided in accordance with the requirements of ~~this~~Section J109.2 for all cut and fill slopes steeper than 3 units horizontal to 1 unit vertical (33 % slope).

> ~~**EXCEPTION:** Drainage facilities and terracing need not be provided where the ground slope is not steeper than 3 horizontal to 1 vertical (33 percent).~~

For slopes flatter than 3 units horizontal to 1 unit vertical (33 percent slope) and steeper than 5 units horizontal to 1 unit vertical (20 % slope) a paved swale or ditch shall be installed at 30 foot (9.1 m) vertical intervals to control surface drainage and debris. Swales shall be sized based on contributory area and have adequate capacity to convey intercepted waters to the point of disposal as defined in Section J109.5.

Swales must be paved with reinforced concrete not less than 3 inches (0.08 m) in thickness, reinforced with 6-inch (0.2 m) by 6-inch (0.2 m) No. 10 by No. 10 welded wire fabric or equivalent reinforcing centered in the concrete slab or an equivalent approved by the Building Official. Swales must have a minimum flow line depth of 1-foot (0.3 m) and a minimum paved width of 18 inches (0.5 m). Swales shall have a minimum gradient of not less than 5 percent. There shall be no reduction in grade along the direction of flow unless the velocity of flow is such that slope debris will remain in suspension on the reduced grade.

~~**J109.2 Terraces.**~~

~~Terraces at least 6 feet (1829 mm) in width shall be established at not more than 30-foot (9144 mm) vertical intervals on all cut or fill slopes to control surface drainage and debris. Suitable access shall be provided to allow for cleaning and maintenance.~~

~~Where more than two terraces are required, one terrace, located at approximately mid-height, shall be at least 12 feet (3658 mm) in width.~~

~~Swales or ditches shall be provided on terraces. They shall have a minimum gradient of 20 horizontal to 1 vertical (5 percent) and shall be paved with concrete not less than 3 inches (76 mm) in thickness, or with other materials suitable to the application. They shall have a minimum depth of 12 inches (305 mm) and a minimum width of 5 feet (1524 mm).~~

~~A single run of swale or ditch shall not collect runoff from a tributary area exceeding 13,500 square feet (1256 m2) (projected) without discharging into a down drain.~~

J109.2 Drainage Terraces.

Drainage terraces at least 8 feet (2.4 m) in width shall be established at not more than 30-foot (9.1 m) vertical intervals on all cut or fill slopes to control surface drainage and debris. When only one terrace is required, it shall be at midheight. For cut or fill slopes greater than 100 feet (30.5 m) and up to 120 feet (36.6 m) in vertical height, one terrace at approximately midheight shall be 20 feet (6.1 m) in width. Terrace widths and spacing for cut and fill slopes greater than 120 feet (36.6 m) in height shall be designed by the Civil Engineer and approved by the Building Official. Suitable access shall be provided to permit proper cleaning and maintenance.

Drainage swales on terraces shall have a longitudinal grade of not less than 5 percent nor more than 12 percent and a minimum depth of 1-foot (0.3 m) at the flow line. There shall be no reduction in grade along the direction of flow unless the velocity of flow is such that slope debris will remain in suspension on the reduced grade. Drainage swales must be paved with reinforced concrete not less than 3 inches (0.08 m) in thickness, reinforced with 6-inch (0.2 m) by 6-inch (0.2 m) No. 10 by No. 10 welded wire fabric or equivalent reinforcing centered in the concrete slab or an approved equal paving. Drainage swales shall have a minimum depth at the deepest point of 1 foot (0.3 m) and a minimum paved width of 5 feet (1.5 m). Drainage terraces exceeding 8 feet (2.4 m) in width need only be so paved for a width of 8 feet (2.4 m) provided such pavement provides a paved swale at least 1 foot (0.3 m) in depth. Downdrains or drainage outlets shall be provided at approximately 300-foot (91.4 m)

intervals along the drainage terrace or at equivalent locations. Downdrains and drainage outlets shall be of approved materials and of adequate capacity to convey the intercepted waters to the point of disposal as defined in Section J109.5.

J109.3 Interceptor drains and overflow protection.

Berms, interceptor drains, swales or other devices shall be provided at the top of cut or fill slopes to prevent surface waters from overflowing onto and damaging the face of a slope. Berms used for slope protection shall not be less than 12 inches (3.0 m) above the level of the pad and shall slope back at least 4 feet (1.2 m) from the top of the slope.

Interceptor drains shall be installed along the top of ~~cut~~graded slopes greater than 5 feet in height receiving drainage from a slope with a tributary width greater than ~~40 feet (12 192 mm)~~, 30 feet (9.1 m) measured horizontally. They shall have a minimum depth of 1 foot (0.3 m) and a minimum width of 3 feet (0.9 m). The slope shall be approved by the Building Official, but shall not be less than 50 units horizontal to 1 unit vertical (2 percent). The drain shall be paved with concrete not less than 3 inches (0.08 m) in thickness, or by other materials suitable to the application and reinforced as required for drainage terraces. Discharge from the drain shall be accomplished in a manner to prevent erosion and shall be approved by the Building Official.

J109.4 Drainage across property lines.

Drainage across property lines shall not exceed that which existed prior to grading. Excess or concentrated drainage shall be contained on site or

directed to an approved drainage facility. Erosion of the ground in the area of discharge shall be prevented by installation of nonerosive down drains or other devices.

J109.5 Disposal.

All drainage facilities shall be designed to convey waters to the nearest practicable street, storm drain, or natural watercourse or drainage way approved by the Building Official or other appropriate governmental agency provided that the discharge of such waters at that location will not create or increase a hazard to life or property. Erosion of the ground in the area of discharge shall be prevented by installation of non-erosive down drains or other devices. Desilting basins, filter barriers or other methods, as approved by the Building Official, shall be utilized to remove sediments from surface waters before such waters are allowed to enter streets, storm drains, or natural watercourses. If the drainage device discharges onto natural ground, riprap or a similar energy dissipator may be required.

Building pads shall have a minimum drainage gradient of 2 percent toward an approved drainage facility or a public street unless otherwise directed by the Building Official. A lesser slope may be approved by the Building Official for sites graded in relatively flat terrain, or where special drainage provisions are made, when the Building Official finds such modification will not result in a hazard to life or property.

SECTION J110

SLOPE PLANTING AND EROSION CONTROL

J110.1 General.

The faces of cut and fill slopes shall be prepared and maintained to control erosion. ~~This control shall be permitted to consist of effective planting.~~This control shall consist of effective planting, erosion control blankets, soil stabilizers or other means as approved by the Building Official.

> **EXCEPTION:** Erosion control measures need not be provided on cut slopes not subject to erosion due to the erosion-resistant character of the materials as approved by the Project Consultants, to the satisfaction of the Building Official.

. . .

J110.2 Other devices. Where necessary, check dams, cribbing, riprap or other devices or methods shall be employed to control erosion and provide safety.

J110.3 Planting.

The surface of all cut slopes more than 5 feet (1.5 m) in height and fill slopes more than 3 feet (9.1 m) in height shall be protected against damage from erosion by planting with grass or ground cover plants. Slopes exceeding 15 feet (4.6 m) in vertical height shall also be planted with shrubs, spaced at not to exceed 10 feet (3.0 m) on centers; or trees, spaced at not to exceed 20 feet (6.1 m) on centers; or a combination

of shrubs and trees at an equivalent spacing, in addition to the grass or ground cover plants. The plants selected and planting methods used shall be suitable for the soil and climatic conditions of the site.

Plant material shall be selected which will produce a coverage of permanent planting to effectively control erosion. Consideration shall be given to deep-rooted plant material needing limited watering, maintenance, high root to shoot ratio, wind susceptibility and fire-retardant characteristics. All plant materials must be approved by the Building Official.

Planting may be modified for the site if specific recommendations are provided by both the Soils Engineer and a Landscape Architect. Specific recommendations must consider soils and climatic conditions, irrigation requirements, planting methods, fire retardant characteristics, water efficiency, maintenance needs, and other regulatory requirements. Recommendations must include a finding that the alternative planting will provide a permanent and effective method of erosion control. Modifications to planting must be approved by the Building Official prior to installation.

J110.4 Irrigation.

Slopes required to be planted by Section J 110.3 shall be provided with an approved system of irrigation that is designed to cover all portions of the slope. Irrigation system plans shall be submitted to and approved by the Building Official prior to installation. A functional test of the system may be required.

For slopes less than 20 feet (6.1 m) in vertical height, hose bibs to permit hand watering will be acceptable if such hose bibs are installed at conveniently accessible locations where a hose no longer than 50 feet (15.2 m) is necessary for irrigation.

Irrigation requirements may be modified for the site if specific recommendations are provided by both the Soils Engineer and a Landscape Architect. Specific recommendations must consider soils and climatic conditions, plant types, planting methods, fire retardant characteristics, water efficiency, maintenance needs, and other regulatory requirements. Recommendations must include a finding that the alternative irrigation method will sustain the proposed planting and provide a permanent and effective method of erosion control. Modifications for irrigation systems must be approved by the Building Official prior to installation.

J110.5 Plans and Specifications.

Planting and irrigation plans shall be submitted for slopes required to be planted and irrigated pursuant to Sections J110.3 and J110.4. Except as otherwise required by the Building Official for minor grading, the plans for slopes 20 feet (6.1 m) or more in vertical height shall be prepared and signed by a civil engineer or landscape architect. If requested by the Building Official, planting and irrigation details shall be included on the grading plan.

J110.6 Rodent Control.

Fill slopes shall be protected from potential slope damage by a preventative program of rodent control.

J110.7 Release of Security.

The planting and irrigation systems required by this section shall be installed as soon as practical after rough grading. Prior to final approval of grading and before the release of the grading security, the planting shall be well established and growing on the slopes and there shall be evidence of an effective rodent control program.

SECTION J111
~~REFERENCED STANDARDS~~
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) COMPLIANCE

~~ASTM D 1557-e01~~

~~Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort [56,000 ft-lb/ft3 (2,700kN-mlm3)].~~

~~J 107.6~~

J111.1 General.

All grading plans and permits and the owner of any property on which such grading is performed shall comply with the provisions of this section for NPDES compliance

All best management practices shall be installed before grading begins. As grading progresses, all best management practices shall be updated as necessary to prevent erosion and to control constructed related pollutants from discharging from the site. All best management practices shall be maintained in good working order to the

satisfaction of the Building Official until final grading approval has been granted by the Building Official and all permanent drainage and erosion control systems, if required, are in place.

J111.2 Storm Water Pollution Prevention Plan (SWPPP).

The Building Official may require a SWPPP. The SWPPP shall contain details of best management practices, including desilting basins or other temporary drainage or control measures, or both, as may be necessary to control construction-related pollutants which originate from the site as a result of construction related activities. When the Building Official requires a SWPPP, no grading permit shall be issued until the SWPPP has been submitted to and approved by the Building Official.

J111.3 Wet Weather Erosion Control Plans (WWECP).

Where a grading permit is issued and the Building Official determines that the grading will not be completed prior to November 1, the owner of the site on which the grading is being performed shall, on or before October 1, file or cause to be filed with the Building Official a WWECP. The WWECP shall include specific best management practices to minimize the transport of sediment and protect public and private property from the effects of erosion, flooding or the deposition of mud, debris or construction related pollutants. The best management practices shown on the WWECP shall be installed on or before October 15. The plans shall be revised annually or as required by the Building Official to reflect the current site conditions.

The WWECP shall be accompanied by an application for plan checking services and plan-checking fees equal in amount to 10 percent of the original grading permit fee.

J111.4 Storm Water Pollution Prevention Plan, Effect of Noncompliance.

Should the owner fail to submit the SWPPP or the WWECP as required by this Section J111 or fails to install the best management practices required by this Section J111, it shall be deemed that a default has occurred under the conditions of the grading permit security. The Building Official may thereafter enter the property for the purpose of installing, by County forces or by other means, the drainage, erosion control and other devices shown on the approved plans, or if there are no approved plans, as the Building Official may deem necessary to protect adjoining property from the effects of erosion, flooding, or the deposition of mud, debris or constructed related pollutants.

The Building Official shall also have the authority to impose and collect the penalties imposed by this section. Payment of a penalty shall not relieve any persons from fully complying with the requirements of this Code in the execution of the work.

The amount of the penalties shall be as follows:

1. If a SWPPP or a WWECP is not submitted as prescribed in Sections J111.2 and/or J111.3:

Grading Permit Volume	Penalty
1--10,000 cubic yards (1--7645.5 m^3)	$ 50.00 per day
10,001--100,000 cubic yards (7646.3--76455 m^3)	$250.00 per day
More than 100,000 cubic yards (76455 m^3)	$500.00 per day

2. If the best management practices for storm water pollution prevention and wet weather erosion control, as approved by the Building Official, are not installed as prescribed in this Section J111:

Grading Permit Volume	Penalty
1--10,000 cubic yards (1--7645.5 m^3)	$100.00 per day
10,001--100,000 cubic yards (7646.3--76455 m^3)	$250.00 per day
More than 100,000 cubic yards (76455 m^3)	$500.00 per day

NOTE: See Section 108 for inspection request requirements.

SECTION J112

REFERENCED STANDARDS

These regulations establish minimum standards and are not intended to prevent the use of alternate materials, methods or means of conforming to such standards, provided such alternate has been approved.

The Building Official shall approve such an alternate provided he or she determines that the alternate is, for the purpose intended, at least the equivalent of that prescribed in this Code in quality, strength, effectiveness, durability and safety.

The Building Official shall require that sufficient evidence or proof be submitted to substantiate any claims regarding the alternate.

The standards listed below are recognized standards. Compliance with these recognized standards shall be prima facie evidence with the standard of duty set forth in Section J107

ASTM D 1557	Laboratory Characteristics Compaction of Soil Using Modified Effort
ASTM D 1556	Density and Unit Weight of Soils In Place by the Sand Cone Method
ASTM D 2167	Density and Unit Weight of Soils In Place by the Rubber--Balloon Method
ASTM D 2937	Density of Soils in Place by the Drive-Cylinder Method
ASTM D 2922	Density of Soil and Soil Aggregate In Place by Nuclear Methods
ASTM D 3017	Water Content of Soil and Rock in Place by Nuclear Methods

SECTION 34. Appendix Chapter A1 is hereby amended to read as follows:

APPENDIX CHAPTER A1

SEISMIC STRENGTH PROVISIONS

FOR UNREINFORCED MASONRY BEARING WALL BUILDINGS

. . .

SECTION A115

ENFORCEMENT PROVISIONS

A115.1 Compliance Orders.

A115.1.1 General.

The Building Official shall, in accordance with the priorities set forth in Table A1-J, issue a compliance order as provided in this Section to the owner of each building within the scope of this appendix Chapter.

Prior to the service of a compliance order as set forth in Table A1-J, a bulletin may be issued to the owner as shown upon the last equalized assessment roll of a building considered by the Building Official to be within the scope of this appendix Chapter. The bulletin may contain information the Building Official deems appropriate. The bulletin may be issued by mail or in person.

A115.1.2 Priority of Service.

Priorities for the service of the compliance order for buildings within the scope of this appendix Chapter shall be in accordance with the rating classification as shown in Table A1-J. Within each separate rating classification, the priority of the compliance order shall normally be based on the occupant load of the building. The owner of

buildings housing the largest occupant loads shall be served first. The minimum time period prior to the service of the compliance order as shown in Table A1-J shall be measured from the effective date of this appendix Chapter. The Building Official may, upon receipt of a written request from the owner, order such owner to bring the building into compliance with this appendix Chapter prior to the normal service date for such building set forth in this appendix Chapter.

A115.1.3 Contents.

The compliance order shall be in writing and shall state that the building has been determined by the Building Official to be within the scope of this appendix Chapter and, therefore, is required to meet the minimum seismic standards of this appendix Chapter. The compliance order shall specify the rating classification of the building and shall be accompanied by a copy of Section A115.2, which sets forth the owner's alternatives and time limits for compliance.

A115.1.4 Service.

The compliance order shall be in writing and shall be served either personally or by certified or registered mail upon the owner as shown on the last equalized assessment roll of the building.

A115.1.5 Appeal from Order.

The owner of the building may appeal the Building Official's initial determination that the building is within the scope of this appendix Chapter to the Building Board of Appeals established by Section 105. Such appeal shall be filed with the Board within 60 days from the service date of the order described in Sections A115.1.1 through

A115.1.4. Any such appeal shall be decided by the Board no later than 90 days after the date that the appeal is filed. Such appeal shall be made in writing and the grounds thereof shall be stated clearly and concisely. Appeals or requests for modifications from any other determinations, orders or actions by the building official pursuant to this appendix Chapter shall be made in accordance with the procedures established in Sections 104.2.7 and 105.

A115.1.6 Recordation.

At the time that the Building Official serves the compliance order, the Building Official shall also file with the office of the County Recorder a certificate stating that the subject building is within the scope of this appendix chapter and is a potentially earthquake hazardous building. The certificate shall also state that the owner thereof has been ordered to structurally analyze the building and to structurally alter or demolish it where compliance with this appendix Chapter has not been demonstrated.

If the building is either demolished, found not to be within the scope of this appendix Chapter, or is structurally capable of resisting minimum seismic forces required by this appendix Chapter as a result of structural alterations or an analysis, the Building Official shall file with the office of the County Recorder a form terminating the status of the subject building as being classified within the scope of this appendix Chapter.

A115.2 Compliance by owner.

A115.2.1 The owner of each building within the scope of this appendix Chapter shall, upon service of a compliance order and within the time limits set forth in

this appendix Chapter, cause a structural analysis to be made of the building by a licensed civil or structural engineer or architect and, if the building does not comply with the standards specified in this appendix Chapter, the owner shall either cause the building to be structurally altered so as to conform to such standards or shall cause the building to be demolished.

A115.2.2 The owner of a building within the scope of this appendix Chapter shall comply with the requirements set forth above by submitting the following to the Building Official for review within the time limits specified, as follows:

1. Within 270 days after service of the compliance order, a structural analysis, which is subject to approval by the building official and which shall demonstrate that the building meets the minimum requirements of this appendix Chapter; or

2. Within 270 days after service of the compliance order, the structural analysis and plans for structural alterations of the building to comply with this appendix Chapter; or

3. Within 120 days after service of the compliance order, plans for the installation of wall anchors in accordance with the requirements specified in Section A113.1; or

4. Within 270 days after service of the compliance order, plans for the demolition of the building.

A115.2.3 After plans are submitted and approved by the Building Official, the owner shall obtain a building permit and then commence and complete the

required alteration or demolition within the time limits set forth in Table A1-I. These time limits shall begin to run from the date the compliance order is served in accordance with Section A115.1, except that the time limit to commence structural alterations or demolition shall begin to run from the date the building permit is issued.

A115.2.4 An owner electing to comply with Item (3) of Section A115.2.2 is also required to comply with Item (2) or (4) of that Section provided, however, that the 270-day period provided for in Item (2) or (4) and the time limits for obtaining a building permit and to complete structural alterations or building demolition set forth in Table A1-I shall be extended in accordance with Table A1-J. Each such extended time limit shall begin to run from the date the compliance order is served in accordance with Section A115.1, except that the time limit to commence structural alterations or demolition shall begin to run from the date the building permit is issued.

A115.3 Violation and Abatement.

A115.3.1 Violation.

It shall be unlawful to own, use, occupy, maintain, or be in control of a building for which a compliance order has been served where said order has not been complied with.

A115.3.2 Prosecution.

In case the owner shall fail, neglect or refuse to comply with the directions in the compliance order (if neither the owner nor any other person requests a hearing) or with any order of the Building Board of Appeals, the owner shall be guilty of a misdemeanor

and the Building Official may cause such owner of the building or property to be prosecuted as a violator of this Code.

A115.3.3 Abatement Orders.

If the owner of a building fails to comply with a compliance order issued by the Building Official pursuant to Section A115.1 of this appendix Chapter within any of the time limits set forth therein, the Building Official shall verify that the owner of this building has been served in accordance with Section A115.1. If the compliance order has been served in accordance with Section A115.1, the Building Official may issue an order that the entire building be vacated and that the building remain vacated until such order has been complied with. If compliance with such abatement order has not been accomplished within 90 days after the date the building has been ordered vacated or such additional time as may have been granted by the Building Board of Appeals, the Building Official may order its demolition in accordance with the provisions of Section 102.1 of this Code.

A115.3.4 Hearing.

An owner who has been served with an abatement order as described in Section A115.3.3 may request a hearing before the Building Board of Appeals to request postponement of County action leading to demolition, vacation of building or other abatement procedure. All such requests shall be accompanied by a rehearing fee as specified in Section 105. At such a rehearing, the Board will consider all evidence submitted and after such consideration may find that a postponement is warranted and so order, or may find that further postponement is unwarranted and order any

abatement work considered necessary to be performed by a specified date after which date the Building Official shall cause such work to be performed or completed without further notice. Nothing in this section shall prevent the Board itself or the Building Official from bringing any matter before the Board for rehearing.

A115.3.5 Other Abatement Procedures.

The provisions of this appendix Chapter shall not in any manner limit or restrict the County or the District Attorney from enforcing County Ordinances or abating public nuisances in any other manner provided by law.

A115.4 Rating classifications.

The rating classifications identified in Table A1-H are hereby established and each building within the scope of this appendix Chapter shall be placed in one such rating classification by the Building Official. The total occupant load of the entire building as determined by Section 1004 of this Code shall be used to determine the rating classification.

> **EXCEPTION:** For purposes of this appendix Chapter, portions of buildings constructed to act independently when resisting seismic forces may be placed in separate rating classifications.

A115.5 Historical buildings.

A115.5.1 General.

The standards and procedures established by this appendix Chapter shall apply in all aspects to a historical building except that as a means to preserve original

architectural elements and facilitate restoration, a historical building may, in addition, comply with the special provisions set forth in this Section.

A115.5.2 Unburned Clay Masonry or Adobe.

Existing or re-erected walls of adobe construction shall conform to the following:

A115.5.2.1 Unreinforced adobe masonry walls shall not exceed a height or length-to-thickness ratio of five for exterior-bearing walls and must be provided with a reinforced bond beam at the top, interconnecting all walls. Minimum beam depth shall be 6 inches (152 mm) and a minimum width of 8 inches (203 mm) less than the wall width. Minimum wall thickness shall be 18 inches (457 mm) for exterior-bearing walls and 10 inches (254 mm) for adobe partitions. No adobe structures shall exceed one story in height unless the historic evidence indicates a two-story height. In such cases, the height-to-thickness ratio shall be the same as above for the first floor based on the total two-story height, and the second floor wall thickness shall not exceed the ratio five by more than 20 percent. Bond beams shall be provided at the roof and second-floor levels.

A115.5.2.2 Foundation footings shall be reinforced concrete under newly reconstructed walls and shall be 50 percent wider than the wall above, soil conditions permitting, except that the foundation wall may be 4 inches (102 mm) less in width than the wall above if a rock, burned brick, or stabilized adobe facing is necessary to provide authenticity.

A115.5.2.3 New or existing unstabilized brick and adobe brick masonry shall have an average compressive strength of 225 pounds per square inch (1551 kPa)

when tested in accordance with American Society for Testing and Materials designation C 67. One sample out of five may have a compressive strength of not less than 188 pounds per square inch (1296 kPa). Unstabilized brick may be used where existing bricks are unstabilized and where the building is not susceptible to flooding conditions or direct exposure. Adobe may be allowed a maximum value of 3 pounds per square inch (21 kPa) for shear with no increase for lateral forces.

A115.5.2.4 Mortar may be of the same soil composition and stabilization as the brick in lieu of cement mortar.

A115.5.2.5 Nominal tension stresses due to seismic forces normal to the wall may be neglected if the wall meets thickness requirements and shear values allowed by this section.

A115.5.2.6 Archaic Materials.

Allowable stresses for archaic materials not specified in this Code shall be based on substantiating research data or engineering judgment, subject to the Department's satisfaction.

A115.5.2.7 Alternative Materials and State Historical Building Code Advisory Review.

Alternative materials, design or methods of construction will be considered as set forth in Section 104.2.8. In addition, when a request for an alternative proposed design, material or method of construction is being considered, the Department may file a written request for an opinion to the State Historical Building Code Advisory Board for its consideration, advice or findings in accordance with the State Historical Building Code.

TABLE A1- H

RATING CLASSIFICATIONS

TYPE OF BUILDING	CLASSIFICATION
Essential building	IV
High-risk building	III
Medium-risk building	II
Low-risk building	I

TABLE A1- I

TIME LIMITS FOR COMPLIANCE

REQUIRED ACTION BY OWNER	OBTAIN BUILDING PERMIT WITHIN[1]	COMMENCE ALTERATION WITHIN	COMPLETE ALTERATION WITHIN[1]
Structural alterations or building demolition	1 year	180 days[2]	3 years
Wall anchor	180 days	270 days[1]	1 year

[1] Measured from date of service of the order.
[2] Measured from date of building permit issuance.

TABLE A1- J
EXTENSIONS OF TIME AND SERVICE PRIORITIES

RATING CLASSIFICATION	OCCUPANT LOAD	EXTENSION OF TIME IF WALL ANCHORS ARE INSTALLED	MINIMUM TIME PERIODS FOR SERVICE OF ORDER
IV (Highest priority)	Any	1 year	90 days
III	100 or more	1 year	180 days
II-A	100 or more	1 year	1 year
II-B	More than	1 year	2 years

	50, but less than 100		
II-C	More than 19, but less than 51	1 year	3 years
I (Lowest priority)	Less than 20	1 year	4 years

SECTION 35. The provisions of this ordinance contain various changes, modifications and additions to the 2007 California Building Code. Some of those changes are administrative in nature in that they do not constitute changes or modifications to requirements contained in the building standards published in the California Building Standard Code.

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

BUILDING CODE AMENDMENTS

Code Section	Condition	Explanation of Amendment
Chapter 7A	Climatic	States that Chapter 7A requirements are applicable to all occupancy groups as wildfire exposure impacts all types of buildings and structures. This amendment is needed due to the high fire severity zones caused by low humidity, strong winds and dry vegetation.
701A.1	Climatic	Clarifies the application of Chapter 7A to include additions, alterations and/or relocated buildings. This would be consistent with our currently adopted Chapter 64. Additions, alterations, and/or relocated buildings have the same fire risk as new buildings.
701A.1 Exception	Climatic	Greenhouses do not pose a great risk to fire loads as habitable structures.
701A.3	Climatic	Clarifies the application of Chapter 7A to include additions, alterations and/or

		relocated buildings. This would be consistent with our currently adopted Chapter 64. Additions, alterations, and/or relocated buildings have the same fire risk as new buildings.
704A1.2	Climatic	Due to low humidity, strong winds and dry vegetation in high fire severity zones, the Fire Department could not find sufficient evidence to allow the use of wood-shingle / wood-shake roof. Matches our currently adopted Chapter 64.
1403.3	Climatic Geological	Section amended to limit the deflection of lateral support of veneer and prohibit its usage as part of the structural design strength of walls. The Structural Engineers Association of Southern California (SEAOSC) and LA City Post Northridge E.Q. committee discovered significant loss of veneer from buildings due to inadequate design and construction. As deflection limitation in out-of-plane direction is not covered in this code, this amendment will prevent loosening and spalling of veneer.
1405.6 through 1405.6.2	Geological	Section amended to require proper anchorage of masonry or stone veneer. Investigations following the Northridge earthquake discovered numerous cases where veneer pulled away from wood stud framing. Most of it was due to corrosion and weakness in the anchor ties and mesh connections to the framing. Where sheathing was beneath the veneer, nail attachments were often not attached to the wall framing below. SEAOSC/LA City Post Northridge Earthquake committee findings indicated significant loss of veneer from buildings due to inadequate design and construction. Therefore, additional reinforcement for heavy veneer, stone and masonry veneer is needed.
1507.3.1	Geological	Section amended to require concrete and clay tiles to be installed over solid structural sheathing boards only. The changes in Section 1507.3.1 is needed, because there were numerous observations of tile roofs pulling away from wood framed buildings following the 1994 Northridge Earthquake. Where sheathing beneath the tile roofs was not nailed adequately or the nails were not attached on each side of each tile or the nail just pulled out over a period of time because the shank of the nails were smooth. Northridge SEAOSC/LA City Post Northridge Earthquake committee findings indicated significant problems with tile roof due to inadequate design and/or construction.
Table 1507.3.7	Geological	Table amended to require proper anchorage for clay or concrete tiles from sliding or rotating due to the effect of earthquakes. Design provisions developed based on detailed study of the 1994 Northridge and the 1971 Sylmar earthquakes need to be incorporated into the local building code.
1613.6.1	Geological	Section is amended based on research conducted by City of Los Angeles and SEAOSC after the 1994 Northridge earthquake. 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.
1613.7	Geological	Section is added to improve seismic safety of buildings constructed on or into

	Topographical	hillsides. Due to the local topographical and geological conditions of the sites within the Los Angeles/Long Beach region and their probabilities for earthquakes, this amendment is required to address and clarify special needs for buildings constructed on the hillside locations. A joint Structural Engineers Association of Southern California (SEAOSC), Los Angeles County and Los Angeles City Task Force investigated the performance of hillside building failures after the Northridge earthquake. Numerous hillside failures resulted in loss of life and millions of dollars in damage. These criteria were developed to minimize the damage to these structures and have been in use by the City of LA for several years. The proposed modification, which is an administrative revision of a previous 1999 and 2002 LARUCP provision, is amended here to clarify any issues that are omitted or left out of the California Building Code.
1614.1.1	Geological	Section is added to amend ASCE 7, Section 12.2.3.1, Exception 3. 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.
1614.1.2	Geological	Section is added to amend ASCE 7, Section 12.8.1.1. 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.
1614.1.3	Geological	Section is added to amend ASCE 7, Table 12.8-2. 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.
1614.1.4	Geological	Section is added to amend ASCE 7, Section 12.8.7. 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.
1614.1.5	Geological	Section is added to amend ASCE 7, Section 12.11.2.2.3 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, sub-diaphragm 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.
1614.1.6	Geological	Section is added to amend ASCE 7, Section 12.12.3. 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 ($\square_x$) 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 amendment 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.
1614.1.7	Geological	Section is added to amend ASCE 7, Section 12.12.4. 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 of entrance canopies need to be addressed. This decision was made due to the frequency of this type of failure during the past

		significant earthquakes.
1704.1	Geological Topographical	Section amended to remove the exemption of Group R-3 and U from special inspection requirements. One of the significant problems discovered from the studies after the Northridge Earthquake was the extent of poor quality in construction, especially for residential wood frame buildings and/or accessories structures. The requirement to require that special inspectors be provided for work listed under Section 1704 to observe the actual construction will ensure that acceptable standards of workmanship are provided.
1704.4	Geological Topographical	Section amended to limit exemption of special inspection for isolated spread concrete footings to f'_c, no greater than 2,500 PSI. Results from studies after the 1994 Northridge Earthquake indicated that a lot of the damages were attributed to lack of quality control during construction resulting in poor performance of the building or structure.
1704.8	Geological	Section is amended to include grade beams as part of the pile foundation for special inspection requirements. 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.
1709.1	Geological Topographical	Section is amended to require the registered design professional in responsible charge for the structural design to perform structural observations. 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, who is the most familiar with the structural system of the building, observe the actual construction will ensure acceptable standards of workmanship and 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.
1709.2	Geological Climatic	Section is amended to clearly define the type of structure where structural observations are required. 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. 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 California Building Code.
Table 1805.4.2	Geological	Table is amended to remove footnotes c and g. 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
1805.4.5 1805.4.6	Geological Climatic	Sections are amended to prohibit the use of timber and wood for footings and foundations. 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. Due to local climatic conditions of Southern California, 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 or retaining earth lateral pressure 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.
1805.5	Geological	Section is amended to prohibit the use of plain or under-reinforced foundation 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 that addresses the problem of poor performance of plain or under-reinforced footings during a seismic event 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.
1908.1.15	Geological	Section is added to amend ACI 318, Section 22.10. 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 that addresses the problem of poor performance of plain or under-reinforced footings during a seismic event 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
1908.1.17	Geological	Section is added to amend ACI 318, Section 14.8. 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.

1908.1.18	Geological	Section is added to amend ACI 318, Section 21.4.4.1. 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.
1908.1.19	Geological	Section is added to amend ACI 318, Section 21.4.4. 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.
1908.1.20	Geological	Section is added to amend ACI 318, Section 21.7.4. 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.
1908.1.21	Geological	Section is added to amend ACI 318, Section 21.9.4. 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.
2205.4	Geological	Section is added to amend AISC 341, Part I, Section 13. 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.
2305.2.5	Geological	Section is amended to prevent excessive cantilevered diaphragms that do not perform well as observed in past earthquakes. The proposed amendment continues the application of existing LARUCP amendment 23-2 by prohibiting the use of wood diaphragms in rotation based on numerous failures observed in the 1994 Northridge Earthquake.
2305.3.7.1	Geological	Section is amended to require hold-downs to be designed using approved cyclic loading values based on tests which simulate loading during earthquakes, or for hold-downs to be designed with 75 percent of the allowable loading of the product. Many of the hold-down devices currently used still do not have any acceptance report based on dynamic testing protocol. The amendment limits 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.
2305.3.12	Geological	Section is amended to (a) require mechanically driven nails used in wood structural panel shear walls to have the same dimensions as that required for hand-driven nails, and (b) prohibit the use of clipped head or box nails in new construction. The amendment continues the application of existing LARUCP amendment LARUCP 23-7. The word "tolerances" is too broad a term and thus, is 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 conducted 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 lower level of lateral deflection than those using same size hand driven nails.
2306.3.1	Geological	Section is amended to prohibit the determination of allowable shear capacities of wood structural panel diaphragms based on calculations alone. 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. The allowable shear values for wood structural panel diaphragms with stapled nails are based on monotonic testing. Earthquakes load diaphragms in a repeating fully reversible manner. The use of staples as fasteners for structural panel diaphragm shall not be permitted without being substantiated by cyclic testing. Allowable shear values as tabulated in Table 2306.3.1 of the 2007 CBC include staples along with common nails as fasteners. In September 2007, limited cyclic testing performed by Ben Schmid, S.E. showed 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 appear much lower in strength and drift than the nailed wood structural shear panel test results.
2306.4.1	Geological	Section is amended to (a) prohibit the determination of allowable shear capacities of wood structural panel shear walls based on calculations alone, (b) require minimum plywood thickness of 3/8-inch and to require adequate edge distance for anchors. One of the primary modes of shear wall failure was nails pulling out of the edges of plywood, (c) limit allowable shear value for three-ply plywood resisting seismic load to 200 pounds per foot maximum, (d) require wood structural panel sheathing used for shear walls

		that are part of the seismic-load-resisting system to be applied directly to framing members. This local amendment puts additional restrictions on the design of wood shear walls. 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. 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. 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. 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 use of staples as fasteners for structural shear wall panels shall not be permitted without being substantiated by cyclic testing. Wood structural shear panel design values as tabulated in Table 2306.4.1 of the 2007 CBC includes staples along with common nails and galvanized box nails as fasteners. Wood structural shear panels attached with nails (common and box) have been tested using various cyclic testing protocols that substantiate their associated design values in Table 2306.4.1. In September 2007, limited cyclic testing performed by Ben Schmid, S.E. showed 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 appear much lower in strength and drift than the nailed wood structural shear panel test results.
Table 2306.4.1	Geological	Table is amended to reduce the allowable shear values for 3/8" thick wood structural panel shear walls, and wood structural panels fasten with staples. 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. 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. 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 reduce the allowable shear capacity of shear wall with stapled nail by 25% 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."
Table 2306.4.5	Geological	Table is amended to reduced allowable shear when materials other than wood structural panels are used to resist loads from earthquakes. This is intended to reduce earthquake damage as observed in past earthquakes. 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.
2308.3.4	Geological	Section is amended to prohibit braced walls to be constructed without continuous footings. It would prohibit an interior wall line to transfer its lateral forces through a nonstructural concrete slab floor or wood floor. Interior wall lines in a simple building could easily be resisting 50 percent of the total lateral force on the structure. Raised wood floor diaphragms and perimeter sill bolting may be inadequate for the horizontal shear imposed by these wall lines. This is intended to reduce earthquake damage as observed in past

		earthquakes. The amendment is based on the recommendations of LARUCP and SEAOC to reduce future earthquake damage due to the high seismicity in this region.
2308.12.1	Geological	Section is amended to remove the amendment by HCD 1, which in effect would allow conventional construction for one- and two-family dwellings up to two stories high. The propose amendment is to reinstate the original language proposed by the IBC and continues the previous 1999 and 2002 LARUCP amendment to limit the use of conventional wood frame construction to simple one story residential buildings in Seismic Design Category D or E. Near source earthquake conditions subject most local buildings and structures to loads in excess of base code lateral forces. Large number of multilevel wood frame buildings, especially those with split-level, cantilevered floors and complex shaped wind attachments, suffered extensive damages in the Northridge Earthquake, therefore, larger or more complex buildings must be designed by a registered design professional.
2308.12.2	Geological	Section is amended to limit use of stone and masonry anchored veneer when using conventional framing design. Additional weight attributed to use of heavy veneer substantially increases seismic load of conventionally braced wall panels. In addition, normal to wall loads may overstress wood frame bearing walls in combined loading. This is intended to reduce earthquake damage as observed in past earthquakes. The amendment is based on the recommendations of LARUCP and SEAOC to reduce future earthquake damage due to the high seismicity in this region.
2308.12.4	Geological	Section is amended to limit the use of wall bracing system in conventional construction to the type of bracing systems intended to reduced earthquake damage as observed in past earthquakes. The amendment is based on the recommendations of LARUCP and SEAOC to reduce future earthquake damage due to the high seismicity in this region.
Table 2308.12.4	Geological	Table is amended to remove the amendment by HCD 1, which in effect would allow conventional construction for one- and two-family dwellings up to two stories high. The propose amendment is to reinstate the original language proposed by the IBC and continues the previous 1999 and 2002 LARUCP amendment to limit the use of conventional wood frame construction to simple one story residential buildings in Seismic Design Category D or E. Table is also amended to prohibit the use of fiberboard, particleboard, and diagonal wood sheathing for wall bracing 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.
2308.12.5	Geological	Section is amended to require all braced wall panels to extend to the roof

		sheathing in order to create a complete load path. The amendment is based on the recommendations of LARUCP and SEAOC to reduce future earthquake damage due to the high seismicity in this region.
J101.1	Geological Topographical Climate	Subsection revised to include erosion and sediment control measures to address the complex and diverse set of soil types and geologic conditions that exist in the Los Angeles County region.
J103.1	Administrative	Subsection revised to provide administrative control and authority.
J103.2	Geological Topographical Climate	Subsection revised to provide adequate control of grading operations typical to the Los Angeles County region.
J106.1	Geological Topographical Climate	Subsection revised to require more stringent cut slope ratios to address the complex and diverse set of soil types and geologic conditions that exist in the Los Angeles County region.
J106.2	Geological Topographical Climate	Subsection revised to require drainage terraces to address the complex and diverse set of soil types and geologic conditions which exist in the Los Angeles County region.
J107	Geological Topographical Climate	Section revised to provide more stringent fill requirements to address the complex and diverse set of soil types and geologic conditions which exist in the Los Angeles County region.
J108	Geological Topographical Climate	Section revised to provide more stringent slope setback requirements to address the complex and diverse set of soil types and geologic conditions which exist in the Los Angeles County region.
J109	Geological Topographical Climate	Section revised to provide more stringent drainage and terracing requirements to address the complex and diverse set of soil types and geologic conditions which exist in the Los Angeles County region.
J110	Geological Topographical Climate	Section revised to provide more stringent slope planting and erosion control requirements to address the complex and diverse set of soil types and geologic conditions that exist in the Los Angeles County region.
J111	Geological Topographical Climate	Section on NPDES Compliance amended to provide for the State requirements of storm water pollution prevention and erosion control.

SECTION 36. This ordinance shall become operative on January 1, 2008.

[26MTYCC]