



**CITY OF LONG BEACH**  
 Department of Development Services  
 Building And Safety Bureau  
**2013 CALIFORNIA RESIDENTIAL CODE**  
**PLAN REVIEW CHECKLIST**



**DATE:**

<b>INFORMATION</b>	PROJECT NO.:		EXPIRATION DATE:		STATUS: <b>1<sup>st</sup> Review</b>	
	PROJECT ADDRESS:				VALUATION: \$	
	WORK DESCRIPTION:					
	APPLICANT'S NAME:					
	TEL. NO.:					
	USE	OCCUPANCY GROUP	FLOOR AREA	OCCUPANT LOAD	TYPE OF CONSTR.	NO. OF STORIES
Residential	R-3			V-B		

<b>INSTRUCTIONS</b>	<p>Your application for a permit, together with plans and specifications, has been examined and you are advised that the issuance of a permit is withheld for the reasons hereinafter set forth. The approval of plans and specifications does not permit the violation of any sections of the Building Code or other local ordinances or state laws.</p> <p>In an effort to streamline the plan review process, please follow the steps outlined below to ensure that there is no delay in processing your application and reviewing your responses to these plan check comments.</p> <ul style="list-style-type: none"> <li>• <u>Comments with circled item numbers apply to this plan check.</u></li> <li>• Revised plans and calculations shall incorporate or address all comments marked on the original checked set of plans, calculations, and this plan review checklist. <b>Provide a written response to each comment and show where and how it has been addressed.</b> Identify the sheet number and detail or reference note on the revised plans where the corrections are made. Time spent searching for the corrected items on the revised plans or calculations will delay the review and approval process. Once all comments on the plans, calculations, and this checklist have been addressed, contact the plan check staff to <b>SCHEDULE AN APPOINTMENT</b> to review the changes made.</li> </ul>
	<p>PLAN REVIEWER: _____ TEL. NO.: <u>562-570-</u></p> <p>ADDRESS: <u>333 W Ocean Blvd. 4<sup>th</sup> Floor, Long Beach, CA 90802</u></p> <p>EMAIL: <u>@longbeach.gov</u> WEBSITE: <u>www.lbds.info</u></p> <ul style="list-style-type: none"> <li>• Should you have any questions or need clarification pertaining to the comments made on your project, you may contact the plan check staff by telephone from 7:30 AM (8:30 AM Wed) to 4:30 PM (M T W TH F).</li> <li>• Bring the original checked set of plans and calculations along with this checklist to the appointment meeting. Do not schedule an appointment meeting with the plan check staff until all comments have been addressed.</li> <li>• We will ensure that the appointment meeting or re-submittal of the plans for recheck will proceed as expeditiously as possible. If an impasse is reached during the appointment meeting, you may request that the plan check supervisor be summoned for a 2<sup>nd</sup> opinion or to attempt to resolve and/or clarify the matter.</li> <li>• Major revisions to the plans that necessitate additional review time may be subject to re-submittal and additional plan check fees as authorized by Section 18.06.030 of the Long Beach Municipal Code.</li> <li>• Reviewed plans and/or calculations not picked up within 60 days of notice will be discarded.</li> </ul>

<b>NOTE</b>	<p>Numbers within the parenthesis ( ) refer to the section of the applicable code. 2013 California Residential Code (CRC) 2013 California Building Code (CBC). 2013 California Green Building Standard Code (CALGreen). 2013 California Plumbing Code (CPC). 2013 California Mechanical Code (CMC). Long Beach Municipal Code (LBMC). Health and Safety Code (HSC). Table (T). 2013 Energy Efficiency Standard.</p>
-------------	---



## **PART 1 – ARCHITECTURAL DESIGN**

### **CHAPTER 1 SCOPE AND APPLICATION**

#### **A. PERMIT APPLICATION**

1. Provide a fully dimensioned plot plan (similar to the site plan on the construction document) to scale, in ink and copy it to the plot plan sheet provided by the department. Include the following information as applicable: project address, type of construction, number of stories, use and occupancy of the building, fire separation distance or setback of building to property lines or other buildings on the lot, lot size and dimensions, street center line, alley, # of parking spaces, location of all other buildings on the lot, legal description, and permit application number.
2. Valuation provided or determined during the initial submittal process was not accurate. Valuation is revised to \$\_\_\_\_\_. Pay additional required plan check fee of \$\_\_\_\_\_.
3. Provide complete and correct legal description (i.e., Tract, Lot, Block, APN, metes and bounds, etc.) onto the first sheet or title sheet of the construction documents.
4. Provide complete information for (applicant) (owner) (engineer) (architect) (contractor) (\_\_\_\_\_).
5. Separate permit application is required for the following items:
  - a. Retaining walls or block fence walls
  - b. Grading work
  - c. Swimming pools
  - d. Demolition
  - e. Fire sprinkler systems
  - f. Others\_\_\_\_\_
6. When all required approvals are obtained, the permit application must be signed by the property owner, licensed contractor, or authorized agent at the time the permit is to be issued:
  - a. For owner-builder permits: Owner's signature can be verified with owner's driver license. Owner's representatives must present owner's approval with a notarized letter from the owner.
  - b. For contractor building permits: Prior to the issuance of a building permit, the contractor shall have the following:
    - i. Certificate of workers Compensation Insurance made out to the Contractors State License Board.

- ii. Copy of Contractors State License or pocket ID.
- iii. Copy of city business tax registration certificate or a newly paid receipt for one.
- iv. Notarized letter of authorization for agents.

#### **B. ADMINISTRATION**

1. Obtain all approvals/clearances from the following department/bureau/agency noted below. It is necessary to apply immediately for the signoff or approval as it can take weeks or months for some departments/bureaus/agencies to review and approve the project. All required approvals or clearances must be secured prior to permit issuance.
  - a. Planning Bureau
  - b. Fire Prevention Bureau
  - c. Public Works
  - d. Historic Preservation
  - e. Marine Bureau
  - f. Oil Well Special Inspection
  - g. C & D Recycling Program (IB DS-002)
  - h. LA County Sanitation
  - i. Long Beach Unified School District
  - j. Dept of Conservation, DOGGER
  - k. Others\_\_\_\_\_
2. For further information regarding approvals/clearances from the previous department/bureau/agency noted above, please call the following:
  - a. Planning Bureau (562) 570-6194
  - b. Fire Prevention Bureau (562) 570-7086
  - c. Public Works (562) 570-6383
  - d. Historic Preservation (562) 570-6194
  - e. Marine Bureau (562) 570-3215
  - f. Oil Well Special Inspection (562) 570-5237
  - g. C & D Recycling Program (562) 570-6721
  - h. LA County Sanitation (562) 908-4288
  - i. Long Beach Unified School Dist. (562) 997-7550
  - j. Dept of Conservation, DOGGER (714) 816-6553
  - k. Others\_\_\_\_\_
3. The final set of construction documents must be stamped by the following department/bureau/agency:
  - a. Planning Bureau
  - b. Fire Prevention Bureau
  - c. Historic Preservation
  - d. Others\_\_\_\_\_
4. Each sheet of the construction documents must bear the signatures, registration number and expiration date of the registered design professional in responsible charge licensed in the State of California.
5. The address of the project and the name/address of the owner are required on the first sheet or title sheet



- of the construction documents. Include the name/address of the registered design professionals and/or consultants on the construction documents where applicable.
6. Two final set(s) of construction documents will be required during permit issuance.
  7. Provide the following type of information with each set of construction documents:
    - a. Topography Survey Map
    - b. Grading Plans
    - c. Floor Plans
    - d. Two Elevations
    - e. Construction Sections
    - f. Foundation Plans
    - h. Framing Plans
    - i. Structural Details
    - j. Others \_\_\_\_\_
  8. Show the building area, occupancy group(s), use(s), type of construction(s), number of story(ies), height, type of fire sprinklers system provided, and the number of parking space(s) on the first sheet or title sheet of the construction documents.
  9. Show on site plans the natural and finish grade elevations around the perimeter of the building. Show elevations for all floors and top of roof. Survey map signed by a licensed Surveyor or Civil Engineer may be required by the department.
  10. This project is subject to NPDES and SUSMP regulations per LBMC 18.95. Provide the following:
    - a. The project architect or engineer of record, or authorized qualified designee, shall sign a statement on the plans to the effect:
 

“As the architect/engineer of record, I have selected appropriate BMPs to effectively minimize the negative impacts of this project’s construction activities on storm water quality. The project owner and contractor are aware that the selected BMPs must be installed, monitored, and maintained to ensure their effectiveness. The BMPs not selected for implementation are redundant or deemed not applicable to the proposed construction activities.”

Name	Position	Date
    - b. One or more acres. In addition to the above requirements, developments located adjacent to or directly discharging into environmentally sensitive areas, in a hillside area, or those that will result in the disturbance of one acre or more in size, shall have their construction plans include features meeting the applicable construction activities BMPs (CA-1 through CA-40) and erosion and sediment control BMPs (ESC-1 through ESC-56) published in the “California Storm Water Best Management Practice Handbooks (Construction Activity) (1993)” to ensure that every construction site meets the requirement of these regulations during the time of construction. Furthermore, these projects shall be required to prepare and submit to the city a storm water pollution prevention plan (SWPPP). The SWPPP shall include appropriate construction site BMPs listed in this subsection.
  11. For storm water drainage and retention, the project which disturbs less than one acre of soil and not part of larger plan of development shall manage storm water during construction per California Green Building Code chapter 4, division 4.1 (R300.1)
  12. Construction plans shall indicate how the site grading or drainage system will manage all surface water flow to keep water from entering building per California Green Building Code chapter 4, division 4.1 (R300.2)
  13. This project is subject to the collection of school developer fees per Education Code 17620 and Government Code section 65995. Take the “Developer Fee” letter attached to LBUSD for assessment. A valid “Certificate of Compliance” issued by LBUSD shall be presented to the Department prior to permit issuance.
  14. Prior to permit issuance, under penalty of perjury, the owner or agent having the property owner’s consent shall sign a statement on the plans to the effect stating that:
 

“I certify that the proposed work will not destroy or unreasonably interfere with any access or utility easement belonging to others and located on my property, but in the event such work does destroy or unreasonably interfere with such easement, a substitute easement(s) satisfactory to the holder(s) of the easement will be provided.”

Signature	Title
Print Name	Date
  15. Remove all plans, details or notes that do not pertain to the project from the final set of construction documents.

### C. APPLICATION

1. The residential code shall apply to occupancies of R3 and U (when accessory to occupancy R3) (R1.1.3).
2. The proposed construction exceeds the number of stories allowed for conventional construction methods. Therefore, plans and specifications must be prepared by a registered design professional. (R301.1.3)
3. The proposed construction does not conform to the conventional construction methods. Therefore, the plans and specifications must be prepared by a registered design professional. (R301.1.3).

### D. FLOOD DAMAGE PREVENTION (LBMC 18.73)

1. This site is in a designated flood zone. The flood designation is \_\_\_\_\_ zone. The regulation for flood damage prevention is found in Chapter 18.73 of the LBMC.
2. Specify on the construction documents the required finish floor elevations of all structures and reference the elevation datum used (e.g. NGVD 1929 or NAVD 1988).
3. For new building and addition/alteration improvement that exceed 50% of existing value of the structure, an Elevation Certification is required. Show the elevation of the lowest floor per Flood Elevation Certificate on the construction documents.
4. Note to plans: "A final Flood Elevation Certificate executed by a licensed survey or civil engineer must be furnished to the City Inspector prior to the approval of the lowest floor framing." (LBMC 18.73.230.C.2.d)
5. In all areas of special flood hazard, the following standards are required: (LBMC 18.73.230)
  - a. All new construction and substantial improvements shall be adequately anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.
  - b. All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.
  - c. Electrical, heating, ventilation, plumbing, and air-conditioning equipment and other service facilities shall be designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

d. If within Zones AH, AO, AR/AH, or AR/AO, there shall be adequate drainage paths around structures on slopes to guide floodwaters around and away from the proposed structures.

6. Residential construction, new or substantial improvement, shall have the lowest floor, including basement: (LBMC 18.73.230.C.2)
  - a. In an AO Zone, elevated above the highest adjacent grade to a height equal to or exceeding the depth number specified in feet on the FIRM, or elevated at least two feet (2') above the highest adjacent grade if no depth number is specified.
  - b. In an A Zone, elevated to or above the base flood elevation, as determined by the City.
  - c. In all other zones, elevated to or above the base flood elevation.
7. Provide a minimum of two (2) openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding. The bottom of all openings shall be no higher than one foot (1') above grade. (LBMC 18.73.230.C.4.b)
8. Show on the exterior elevations the locations and sizes of openings. (LBMC 18.73.230.C.4.b)

## CHAPTER 3 BUILDING PLANNING

### E. EXTERIOR WALLS

1. Exterior walls with a fire separation distance less than (3) (5) feet shall have a fire-resistance rating of not less than one hour with exposure from both sides, per Table R302.1 (R302.1).
2. Permitted projections with a fire separation distance of less than (3) (5) feet shall have not less than one-hour fire-resistive construction on the underside per Table R302.1 (R302.1).
3. Projections beyond the exterior wall shall comply with Table R302.1 and shall not extend to a point closer than 2 feet from interior lot line.
4. Except for approved foundation vents, openings in exterior walls of dwellings or accessory buildings with less than 3 feet fire separation distance per Table R302.1 are not permitted (R302.1).
5. Openings in exterior walls of non-sprinklered building at least 3 feet but less than 5 feet fire separation distance shall not exceed 25 percent of the wall area per Table R302.1 (R302.1).

6. Penetrations of the exterior wall located with less than (3) (5) feet fire separation distance shall be protected per Table R302.1 (R302.1).

#### F. TWO-FAMILY DWELLINGS

1. Dwelling units in two-family dwellings shall be separated by not less than 1-hour fire-resistance rated wall and/or floor assemblies (R302.3).
2. Floor assemblies providing the separation shall be supported by construction having an equal or greater fire-resistive rating (R302.3.1).
3. Fire-resistance-rated floor shall extend to exterior wall, and wall shall extend from the foundation to the underside of the roof sheathing. See Exceptions (R302.3).
4. Penetrations of fire-resistance rated wall or floor/ceiling assemblies shall be in accordance with Section R302.2, R302.3, and R302.4.

#### G. LIGHT, VENTILATION, AND HEATING

1. All habitable rooms shall have aggregate glazing of not less than 8 percent of the floor area to provide natural light, or they shall be provided with artificial light per Section R303.1.
2. All habitable rooms shall be provided with natural ventilation through openings to the outdoor air, or they shall be provided with mechanical ventilation in accordance with Section R303.1.
3. Provide bathroom exhaust fan for each bathroom containing a bathtub, shower, or combination for purpose of humidity control (R303.3.1).  
  
Note: Window operation is not a permissible method for providing bathroom exhaust for humidity control.
4. All interior and exterior stairways shall be illuminated. Exterior stairway illumination shall be controlled from inside of the dwelling (R303.6).
5. Required glazed openings shall open onto a street or alley, or a yard or court on the same lot as the building (R303.8).
6. When the winter design temperature is below 60°F, every dwelling unit shall be provided with heating facilities capable of maintaining a temperature of 68°F at 3 feet above the floor and 2 feet from exterior walls in all habitable rooms (R303.9).

#### H. ROOM AREAS AND CEILING HEIGHT

1. Every dwelling unit shall have at least one habitable room with at least 120 square feet of gross floor area (R304.1).
2. Habitable rooms, except kitchens, shall have a floor area of at least 70 square feet and not be less than 7 feet in any horizontal dimension (R304.2, 3).
3. The minimum ceiling height for habitable space, hallways, bathrooms, toilet rooms, laundry rooms and portions of basements containing these spaces shall be not less than 7 feet (R305.1).
4. Bathrooms shall have a minimum ceiling height of 6 feet, 8 inches at the center of the front clearance area for fixtures. The ceiling height above fixtures shall be such that the fixture is capable of being used for its intended purpose. A shower or tub equipped with a showerhead shall have a minimum ceiling height of 6 feet, 8 inches above a minimum area 30 inches by 30 inches at the showerhead (R305.1, Exception 2).
5. The minimum ceiling height for portions of a basement without habitable spaces must be 6 feet, 8 inches, except that 6 feet, 4 inches shall be permitted under beams, ducts and other obstructions (R305.1.1).

#### I. SANITATION

1. Kitchen sinks, lavatories, bathtubs, showers, bidets, laundry tubs and washing machine outlets shall be provided with hot and cold water and connected to an approved water supply (R306.4).
2. Bathrooms, water closet compartments, and other similar rooms shall be provide with minimum glazing area of 3 square feet, one half openable. The glazed areas are not required where artificial light and mechanical ventilation of 50 CFM intermittent or 25 CFM continuous ventilation provided (R303.3).
3. Dimension 30 inches clear width and 24 inches clear front of water closet (PC 407.5)
4. Shower door shall swing out. Net area of shower receptor shall not be less than 1,204 square inches of floor area, and encompass 30 inches diameter circle minimum (PC 411.7)
5. Bathtub and shower floors, walls above bathtubs with a showerhead, and shower compartments shall be finished with a nonabsorbent surface. Such wall

surfaces shall extend to a height of not less than 6 feet above the floor (R307.2).

#### **J. GLAZING**

1. Identification of safety glazing shall be in accordance with Section R308.1.
2. Glazing in the following locations shall be safety glazing conforming to the human impact loads of Section R308.3 and R308.4:
  - a. Fixed and operable panels of swinging, sliding and bifold door assemblies.
  - b. Glazing in an individual fixed or operable panel adjacent to a door where the nearest vertical edge is within a 24-inch arc of the door in a closed position and whose bottom edge is less than 60 inches above the floor or walking surface.
  - c. Glazing in an individual fixed or operable panel that meets all of the following conditions:
    - i. Exposed area of an individual pane greater than 9 square feet.
    - ii. Bottom edge less than 18 inches above the floor.
    - iii. Top edge greater than 36 inches above the floor.
    - iv. One or more walking surfaces within 36 inches horizontally of the glazing.
  - d. Glazing in railings.
  - e. Glazing in enclosures for or walls facing hot tubs, whirlpools, saunas, steam rooms, bathtubs and showers where the bottom edge of the glazing is less than 60 inches measured vertically above any standing or walking surface.
  - f. Glazing in walls and fences adjacent to indoor and outdoor swimming pools, hot tubs and spas where the bottom edge of the glazing is less than 60 inches above a walking surface and within 60 inches, measured horizontally and in a straight line, of the water's edge.
  - g. Glazing adjacent to stairways, landings and ramps within 36 inches horizontally of a walking surface when the surface of the glazing is less than 60 inches above the plane of the adjacent walking surface.
3. Require safety glazing if glazing is less than 60 inches measured horizontally from water's edge of a bathtub or shower (R308.4.5).

4. Skylights and sloped glazing shall comply with Section R308.6.

5. In dwelling units where the opening of an operable window is located more than 72 inches above the finished grade or surface below, the lowest part of the clear opening of the window shall be a minimum of 24 inches above the finished floor of the room in which the window is located (R612.2).

#### **K. GARAGE AND CARPORT**

1. Openings from a private garage directly into a room used for sleeping purposes is not permitted (R302.5.1).
2. Permitted openings between the garage and the dwelling shall be equipped with 1-3/8 inches in thickness, solid wood doors, solid or honeycomb core steel doors, or 20-minute fire-rated doors (R302.5.1).
3. The garage shall be separated from the dwelling and its attic area in accordance with Table R302.6.
4. Ducts penetrating the walls or ceilings separating the dwelling from the garage shall be constructed of a minimum No. 26 gage (0.48 mm) sheet steel or other approved material (R302.5.2).
5. Other penetrations of garage/dwelling ceilings and walls are to be protected (R302.11, Item 4).
6. Garage floor surfaces shall be of an approved noncombustible material, and the area used to park vehicles shall be sloped to a drain or toward the main vehicle entry (R309.1).

#### **L. EMERGENCY ESCAPE AND RESCUE OPENINGS**

1. Basements (except those only for mechanical equipment and not over 200 square feet in floor area), habitable attics and every sleeping room shall have at least one operable emergency escape and rescue opening (R310.1).
2. All emergency escape and rescue openings shall have a minimum clear opening of 5.7 square feet with a minimum net clear opening height of 24 inches and width of 20 inches (R310.1.1, R310.1.2 and R310.1.3).
3. Emergency escape and rescue openings shall be clear of any obstruction and operational from the inside of the room without the use of keys, tools or special knowledge (R310.1.4).

4. Window wells for emergency escape and rescue openings below grade shall have a minimum horizontal area of 9 square feet, with a minimum horizontal projection and width of 36 inches. The well area shall allow the emergency escape and rescue opening to be fully opened (R310.2).
5. Ladders or steps for window wells greater than 44 inches deep shall comply with Section R310.2.1.
6. Bars, grills, covers and screens placed over emergency escape and rescue openings, bulkhead enclosures or window wells shall comply with Section R310.4.

#### **M. MEANS OF EGRESS**

1. Provide at least one side-hinged egress door from each dwelling unit not less than 3 feet wide and 6.5 feet high with minimum 32 inches width clear. Egress door shall be readily openable from inside without the use of a key or special knowledge or effort (R311.2).
2. Landing or floor at required egress door shall not be more than 1 ½ inches threshold (R311.3.1).
3. Landings shall be at least as wide as the door or stairway served and shall be 36 inches minimum in the direction of travel (R311.3).
4. Stairways shall have a minimum clear width of 36 inches above the permitted handrail height and below the required headroom height (R311.7.1).
5. Stairways shall have a minimum clear width at and below the handrail of 31-1/2 inches where only one side and 27 inches where on both sides (R311.7.1)
6. A continuous handrail shall be provided on at least one side of each continuous run of treads or flight with four or more risers (R311.7.8).
7. Handrail height, measured vertically from the sloped plane adjoining the tread nosing or finish surface of ramp slope, shall be not less than 34 inches and not more than 38 inches. Handrails adjacent to a wall shall have a space of at least 1-1/2 inches between the wall and the handrail (R311.7.1).
8. Enclosed accessible space under stairs shall have walls, under-stair surface and any soffits protected on the enclosed side with 1/2 inch gypsum board (R302.7).
9. Stairway headroom shall be a minimum of 6 feet, 8 inches measured vertically from the sloped line

adjoining the tread nosing or from the floor surface of the landing or platform on that portion of the stairway (R311.7.2).

10. Treads shall be at least 10 inches deep, risers shall not be greater than 7-3/4 inches in height and the tread or riser variance shall not exceed 3/8 inch within any flight of stairs (R311.7.5.1 and R311.7.5.2).
11. A landing shall be provided at the top and bottom of stairways. See Exception for top of an interior flight of stairs and stairs in an enclosed garage (R311.7.6).
12. The walking surface of treads and landings of stairways shall be sloped no steeper than one unit vertical to 48 units horizontal (2 percent slope) (R311.7.7).
13. Winder treads shall comply with Section R311.7.3.
14. Spiral stairs shall comply with Section R311.7.10.1.
15. Ramps shall have a maximum slope of 1 unit vertical in 12 units horizontal (8.3 percent slope). Ramps with a slope in excess of 1 unit vertical in 12 units horizontal shall be provided with handrails on at least one side (R311.8.1, 3)

#### **N. GUARDS**

1. Guards of minimum 42 inches high are required at open-sided walking surfaces that are more than 30 inches above the floor or grade below within 36 inches horizontally to the edge of the open side (R312.2)
2. Required guards on the open side of stairs shall have a height not less than 34 inches measured vertically from a line connecting the leading edges of the treads (R312.2).
3. Require guard (min 24 inches high) at operable window located more than 72 inches high above grade below and less than 24 inches above finished floor of the room (R312.2.1).
4. Required guards shall not have openings which allow passage of a sphere 4 inches in diameter. The triangular opening at the open side of a stair, formed by the riser, tread and bottom rail of a guard shall not allow passage of a sphere 6 inches in diameter. Guards on the open sides of stairs shall not have openings which allow passage of a sphere 4-3/8 inches in diameter (R321.3).

5. Wood/plastic composite guards shall comply with Section R317.4

#### **O. AUTOMATIC FIRE SPRINKLER SYSTEMS**

1. Automatic residential fire sprinkler system shall be installed in new one- and two- family dwellings (R313.1).
2. Automatic residential fire sprinkler systems shall be designed and installed in accordance with NFPA 13D (R313.2.1).

#### **P. SMOKE AND CARBON MONOXIDE ALARMS**

1. Single- and multiple-station smoke alarms shall be installed in the following locations (R314.3):
  - a. In each sleeping room.
  - b. Outside of each separate sleeping area in the immediate vicinity of the bedrooms.
  - c. On each additional story of the dwelling, including basements and habitable attics, but not including crawl spaces and uninhabitable attics.
2. Smoke alarms shall be hardwired with battery backup and alarms interconnected (R314.5).
3. Battery operated smoke alarms are permitted in lieu of interconnection / hard-wiring of smoke alarms in existing areas where the construction does not involve the removal of interior finishes (R314.4).
4. An approved carbon monoxide alarm shall be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms and on every level including basement in dwelling units that have fuel-fired appliances or attached garages (R315.1).
5. Battery operated carbon monoxide alarm is permitted in existing areas where the construction does not involve the removal of interior finishes (R315.2).

#### **Q. MISCELLANEOUS**

1. Foam plastic insulation shall comply with Section R316.5.
2. Wood burning fire place is prohibited per AQMD Rule 445.
3. Provide approved model (ICC or UL number) for factory-built gas fireplace.

4. Draftstops shall be installed when there is usable space both above and below the concealed space of a floor/ceiling assembly, so that the area of concealed space does not exceed 1000 square feet and is divided into approximately equal areas. Draftstopping material shall be as specified in Section R302.12.

5. Fireblocking shall be provided in accordance with Section R302.11:
- a. In concealed spaces of stud walls and partitions, including furred spaces and parallel rows of studs or staggered studs at the ceiling and floor level, and at maximum 10-foot horizontal intervals. Batts or blankets of mineral or glass fiber or other approved nonrigid materials shall be permitted for compliance with the 10-foot horizontal fireblocking in walls constructed using parallel rows of studs or staggered studs
  - b. At all interconnections between concealed vertical and horizontal spaces such as occur at soffits, drop ceilings and cove ceilings.
  - c. In concealed spaces between stair stringers at the top and bottom of the run.
  - d. At openings around vents, pipes, ducts, cables and wires at ceiling and floor level, with an approved material to resist the free passage of flame and products of combustion. For the fireblocking of chimneys and fireplaces, see Section R1003.16.

6. Fireblocking materials shall consist of one of the following (R302.11):
- a. 2-inch nominal lumber.
  - b. Two thicknesses of 1-inch nominal lumber with broken lap joints.
  - c. One thickness of 23-inch wood structural panels with joints backed by 23/32 inch wood structural panels.
  - d. One thickness of 3/4-inch particle board with joints backed by 3/4 inch particle board, 1/2 inch gypsum board or 1/4 inch cement-based millboard.
  - e. Batts or blankets of mineral wool or glass fiber or other approved materials installed in such a manner as to be securely retained in place.

#### **R. PROTECTION AGAINST DECAY & TERMITES**

1. The following locations subject to decay damage require the use of approved decay-resistant or



preservative-treated lumber in accordance with Section R317.1:

- a. Wood joists or the bottom of a wood structural floor less than 18 inches or wood girders less than 12 inches from exposed ground in crawl spaces or unexcavated area located within the building foundation.
  - b. All wood framing members that rest on concrete or masonry exterior foundation walls and are less than 8 inches from exposed ground.
  - c. Sills and sleepers on a concrete or masonry slab that is in direct contact with the ground unless separated from such slab by an impervious moisture barrier.
  - d. The ends of wood girders entering exterior masonry or concrete walls having clearances of less than 1/2 inch on tops, sides and ends.
  - e. Wood siding, sheathing and wall framing on the exterior of a building having a clearance of less than 6 inches from the ground or less than 2 inches from concrete steps, porch slabs, patio slabs and similar horizontal surfaces exposed to the weather.
  - f. Wood structural members supporting moisture-permeable floors or roofs that are exposed to the weather, such as concrete or masonry slabs, unless separated from such floors or roofs by an impervious moisture barrier.
  - g. Wood furring strips or other wood framing members attached directly to the interior of exterior masonry walls or concrete walls below grade except where an approved vapor retarder is applied between the wall and the furring strips or framing members
2. Wood in contact with the ground or embedded in concrete in direct contact with the ground that supports permanent structures for human occupancy shall be approved pressure-preservative-treated (R317.1.2).
  3. Wood columns to be of approved of natural decay resistant wood or approved pressure-preservative treated wood, unless supported in accordance with Section R317.1.4.

## CHAPTER 4 FOUNDATIONS

## S. DRAINAGE, SLOPE & WATERPROOFING

1. Lots shall be graded to drain surface water away from foundation walls with a minimum fall of 6 inches within the first 10 feet (R401.3).
2. Footings shall be stepped where it is necessary to change the elevation of the top surface of the footings or where the slope of the bottom surface of the footing exceeds one unit vertical in ten units horizontal (10% slope) (R403.1.5).
3. Concrete or masonry foundations that retain earth and enclose habitable or usable spaces located below grade shall have drains provided in accordance with Section R405.1.
4. Foundation walls that retain earth and enclose interior spaces and floors below grade shall be damp proofed from the top of the footing to the finished grade (R406.1).
5. All inside and outside surfaces of steel columns shall be given a shop coat of rust-inhibitive paint, or steel shall be of corrosion-resistant type or treated with coatings to provide corrosion resistance (R407.2).

## T. UNDER-FLOOR SPACE

1. Under-floor spaces, other than space occupied by a basement, shall be provided with ventilation openings through foundation walls or exterior walls (R408.1).
2. A net ventilation area of not less than 1 square foot for each 150 square feet under-floor space area shall be provided (R408.1).
3. One ventilation opening shall be within 3 feet of each corner of the building with the least dimension of the covering not exceed 1/4 inch (R408.1).
4. A minimum access opening of 18 inches by 24 inches through a floor or 16 inches by 24 inches through a perimeter wall shall be provided to the under-floor space (R408.4).
5. Access openings to under-floor spaces where mechanical equipment is located shall be provided (R408.4).

## CHAPTER 7 WALL COVERING

### U. WALL COVERING

1. Interior coverings and wall finishes shall comply with section R702.1
2. Exterior walls shall provide the building with a weather-resistance exterior wall envelope (R703.1)
3. Ceiling finishes shall be installed in accordance with the requirements for interior wall finishes (R805.1)

## CHAPTER 8 ROOF- CEILING CONSTRUCTION

### V. ROOF VENTILATION & ATTIC ACCESS

1. Enclosed attics and enclosed rafter spaces shall have cross ventilation for each separate space by ventilating openings against the entrance of rain. (R806.1)
2. Ventilation openings shall have at least dimension of 1/16 inch minimum and ¼ inch maximum (R806.1).
3. The total net free ventilating area shall not be less than 1/150 of the area of the space ventilated (R806.2).
4. Building with combustible ceiling or roof construction shall have an attic access opening to attic areas that exceed 30 square feet and have a vertical height of 30 inches or greater (R807.1).

## CHAPTER 9 ROOF ASSEMBLIES

### W. ROOF COVERING

1. Specify roof covering as follows (R905.1):
  - a. Roof slope on roof plan.
  - b. Roof material.
  - c. Roof covering shall be class C rated or better.
2. Require base flashing against a vertical sidewall to roof per R905.2.8.3.
3. Require drip edge at eaves and gables of shingle roofs per R908.2.8.5.
4. Show roof/deck drainage per PC 1101.1.
  - a. Size the roof drains and overflow drains
  - b. System shall be sized for min. rain intensity of 3" per hour.
  - c. The roof drain and overflow drain must maintain independent lines to the yard box.

- d. Roof drainage is not permitted to flow over public property.
- e. Secondary roof drains having the same size as the primary roof drains shall be installed with the inlet flow line located a min. 2" above the low point of the roof.
- f. Scuppers through parapet walls adjacent to the low point of the roof may be used as secondary roof drainage. Scupper openings shall be a min. of 4" high and have a width equal to the circumference of the roof drain required for the area served.

5. Provide approved weatherproof walking surface materials at decks and balconies.

## PART 2 – STRUCTURAL DESIGN

### ◆ DESIGN BY A LICENSED ENGINEER OR ARCHITECT

1. Height of the structure is two stories or greater (LBMC R301.1.1.3.2).
2. One story structure with more than 12 feet high measured from floor surface to ceiling above (R301.3).
3. Floor, wall, or roof-ceiling elements are constructed of cold-formed steel, concrete, masonry, or structural insulated panels (R301.1.3.3).
4. Prescriptive lateral design of CRC provision is not applicable.

### ◆ PRESCRIPTIVE LATERAL DESIGN METHODS OF CRC: NOT PERMITTED

1. Height of the structure exceeds three stories (LBMC Table 602.10.1.2(2)).
2. Structure is on hillside with slope exceeding 3:1 (R301.1.3)
3. Irregular portions of structures shall be designed in accordance with accepted engineering practice. Design for remainder of the buildings shall be permitted using the prescriptive provisions (LBMC R301.2.2.2.5).

## CHAPTER 4 FOUNDATIONS

### X. DESIGN AND CONSTRUCTION

1. Wood foundation systems shall not be permitted (LBMC R401.1).
2. Concrete shall have a minimum specified compressive strength as shown in Table R402.2 but not less than 2,500 psi (R402.2).

3. All exterior walls shall be supported on continuous solid or fully grouted masonry or concrete footings (R403.1).
4. Minimum sizes for concrete and masonry footings shall be as set forth in Table R403.1 and Figure R403.1(1).
5. Stepped foundation shall comply with section LBMC R403.1.5.
5. Openings in horizontal framing shall be framed and constructed in accordance with LBMC Figure R503.2.4.
6. Truss design drawings shall be provided to the building official and approved prior to installation (R502.11.4).
  - a. Wood trusses shall be designed in accordance with approved engineering practice, and the drawings shall be prepared by a registered design professional (R502.11.1).
  - b. Truss members and components shall not be cut, notched, spliced or otherwise altered in any way without the approval of a registered design professional (R502.11.3).

#### **Y. SEISMIC REINFORCING & ANCHORAGE**

1. Footings shall have installed a minimum of one No. 4 bar at the top and one No. 4 bar located 3 inches to 4 inches from the bottom of the footing (R403.1.3.1).
2. Wood sole plates at all exterior walls and braced wall panels shall be anchored to the foundation with anchor bolts spaced a maximum of 6 feet on center and within 12 inches, but not less than seven bolt diameters, from the ends of each plate section. (LBMC R403.1.6).
3. Foundation anchor bolts shall be at least ½ inch in diameter and shall extend a minimum of 7 inches into concrete or grouted cells of concrete masonry units. A nut and washer shall be tightened on each anchor bolt to (R403.1.6).
4. Interior bearing wall sole plates that are not part of a braced wall panel shall be positively anchored with approved fasteners (R403.1.6).
5. Columns shall be restrained to prevent lateral displacement at the bottom end (R407.3).
7. Notches and holes in solid lumber joists and beams shall comply with Figure R502.8 and Section R502.8.1.
8. Cuts, notches and holes bored in trusses, laminated veneer lumber, glue-laminated members or I-Joists are not permitted unless the effects of such are specifically addressed (R502.8.2).
9. Decks shall be either self-supporting or positively anchored to the primary structure. Toenails or nails subject to withdrawal shall not be used for such attachment (R502.2.2).
10. Wood/plastic composite deck boards shall be installed in accordance with the manufacturer's instructions (R502.2.2.4).

### **CHAPTER 5 FLOORS**

#### **Z. SEISMIC REINFORCING & ANCHORAGE**

1. Span for floor joists and girders shall be in accordance with Tables R502.3.1(1) and R502.3.1(2) (R502.3).
2. Joists framing from opposite sides over a bearing support shall lap a minimum of 3 inches and shall be nailed together with a minimum of three 10d face nails (R502.6.1).
3. Joists shall be supported laterally at the ends as described in Section R502.7.
4. A load path for lateral forces shall be provided between floor framing and braced wall panels (R502.2.1).

#### **AA. FLOOR SHEATHING & CONCRETE FLOOR (GROUND)**

1. All wood structural panel sheathing shall be identified by a grade mark or certificate of inspection issued by an approved agency (R503.2.1).
2. The maximum span for wood panel structural sheathing shall comply with Table R503.2.1.1(1) or APA E30 (R503.2.2).
3. Concrete slab-on-ground floors shall be a minimum 3.5 inches thick (R506.1).
4. A 6-mil polyethylene or approved vapor retarder shall be installed in accordance with Section R506.2.3.

## CHAPTER 6 WALL CONSTRUCTIONS

### BB. DESIGN AND CONSTRUCTION

1. Load-bearing dimension lumber for studs, plates and headers shall be identified by a grade mark of a lumber grading or inspection agency that has been approved by an accreditation body that complies with DOC PS 20 (R602.1).
2. Drilling and notching of studs and top plates shall be in accordance with Section R602.6.
3. Header spans for bearing walls shall comply with Section R602.7.
4. Foundation cripple walls shall be framed of studs not less in size than the studs above. Cripple walls shall be supported on a continuous foundation (602.9).
5. Cripple walls exceeding 4 feet in height shall be framed with studs as required for an additional story (R602.9).

### CC. BRACED WALL PANELS

1. Diagonal Wood Board (DWB), Structural Fiberboard Sheathing (SFB), Particle Board Sheathing (PBS), Hardboard Panel Siding (SPS), and Portal Frame at Garage (PFG) are not permitted (LBMC R602.10.2).
2. Walls braced to resist wind and seismic forces shall not exceed height to width ratios of 1:1 for gypsum board (GB) and Portland cement plaster (PCP) (LBMC Table R602.10.1.2 (2)).
3. Wood structural panel of minimum 15/32 inch is required (LBMC R602.10.2).
4. Alternate braced wall panels shall comply with LBMC Figure R602.10.3.2.
5. Portal Frame (PFH) at detached garage door openings shall comply with LBMC Figure R602.10.3.3.
6. Braced wall lines shall be provided in accordance with section R602.10.1.
7. Bracing length requirements constructed in accordance with intermittent bracing methods or continuous sheathing methods are per LBMC Table R602.10.1.2 (2).
8. Mixing of bracing method is limited per section R602.10.1.1.

9. At corners, braced wall lines shall be permitted to angle out of plane with limits as set forth in Section R602.10.1.3.
10. All vertical joints of panel sheathing shall occur over, and be fastened to common studs. Horizontal joints in braced wall panels shall occur over, and be fastened to common blocking of a minimum 1-1/2 inch thickness (R602.10.8).
11. In Seismic Design Categories other than D<sub>2</sub>, cripple walls shall be braced with a length and type of bracing per section R602.10.9.
12. Braced walls of stone and masonry veneer shall comply with Section R602.12.

## CHAPTER 8 ROOF-CEILING CONSTRUCTION

### DD. DESIGN AND CONSTRUCTION

1. Spans for ceiling joists and rafters shall be in accordance with section R802.4 and R802.5.
2. Purlins used to reduce rafter spans shall comply with Section R802.5.1.
3. Rafter or ceiling joists shall have at least 1 1/2 inches (38 mm) bearing on wood or metal or 3 inches (76 mm) on masonry or concrete (R802.6).
4. Framing for roof and ceiling openings shall comply with Section R802.9.
5. Ceiling joist and rafter connections shall comply with Section R802.3.1.
6. Ends of ceiling joists shall be lapped a minimum of 3 inches or butted over bearing partitions or beams and toenailed to the bearing member (R802.3.2).
7. Structural members that support rafters and ceiling joists with a roof slope of less than three units vertical in 12 units horizontal (25 percent slope) shall be designed as beams. Structural members include ridge beams, hips and valleys (R802.3).
8. Hip and valley rafters shall be supported at the ridge by a brace to a bearing partition where not designed to carry and distribute the specific load at that point (R802.3).

