



**CITY OF NEWPORT BEACH**  
**COMMUNITY DEVELOPMENT DEPARTMENT**  
**BUILDING DIVISION**

100 Civic Center Drive | P.O. Box 1768 | Newport Beach, CA 92658-8915  
[www.newportbeachca.gov](http://www.newportbeachca.gov) | (949) 644-3200

**COMMERCIAL**  
**PLAN REVIEW COMMENTS**

Project Description:

**Project Address:**

**Plan Check No.:**

Permit App. Date:

Plan Check Expires:

Use:

Occupancy:

Const. Type:

CY Cut/Fill:

No. Stories:

Permit Valuation:

Architect/Engineer:

Phone:

Owner/Tenant:

Phone:

Applicant/Contact:

Phone:

**Plan Check Engineer:**

**Phone:**

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1<sup>st</sup> Review: (date)

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2<sup>nd</sup> Review:

*Italic comments*

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3<sup>rd</sup> Review:

**By Appointment**

**The project plans were reviewed for compliance with the following codes and standards:**

2019 CBC; 2019 CPC; 2019 CEC; 2019 CMC; 2019 Building Energy Efficiency Standards (BEES);  
2019 California Green Building Standards Code (CALGreen); & Chapter 15 of the Newport Beach  
Municipal Code (NBMC).

**The code section references are from the 2019 CBC, unless otherwise stated.**

- **TO EXPEDITE PROJECT APPROVAL:** Please provide a written response indicating how and where each comment was resolved on the plans.
- Resubmit all previously reviewed plans, updated plans and supporting documents with each subsequent review.
- **AFTER 2<sup>nd</sup> PLAN REVIEW:** Please call the plan check engineer listed above to schedule a plan review appointment, to expedite project approval.
- For clarification of any plan review comment, please call the plan check engineer listed above.
- Plan review status is available online at  
**[www.newportbeachca.gov/government/departments/community-development/building-division/plan-check-status](http://www.newportbeachca.gov/government/departments/community-development/building-division/plan-check-status)**. Project status is also available by speaking with a permit technician at 949-718-1888 during business hours.

## **GENERAL**

1. Obtain plan review approval from the following:
  - a. Building Division – EMP Plan Review
  - b. Fire Department
  - c. Grading Plan Review
  - d. Planning Department
  - e. Public Works Department,
  - f. Public Works – Harbor Resources Division
  - g. Orange County Health Department
2. All plan sheets shall be signed by the appropriate design professional(s). If the project scope allows plan preparation by other than a licensed individual, such plan preparer shall sign and date all plan sheets. BPCS 5500, et seq.
3. Identify the individual who will serve as the “Design Professional in Responsible Charge” (DPRC) for the project on the first sheet of the plans. The DPRC is responsible for reviewing and coordinating all submittal documents prepared by others, for compatibility with the building design. (CBC 107.3.4 & NBMC 15.02.010)
4. Provide soils engineer’s name, address, telephone number, reference of report number, date and any supplemental reports, etc. on title sheet. List soils allowable design values on foundation plan.
5. Soils engineer to review and approve final foundation plan, foundation details, shoring plan, precise grading and drainage plan and erosion plan. This correction will remain until the permit is issued.
6. Please note on plan: “ISSUANCE OF A BUILDING PERMIT BY THE CITY OF NEWPORT BEACH DOES NOT RELIEVE APPLICANTS OF THE LEGAL REQUIREMENTS TO OBSERVE COVENANTS, CONDITIONS AND RESTRICTIONS WHICH MAY BE RECORDED AGAINST THE PROPERTY OR TO OBTAIN PLANS. YOU SHOULD CONTACT YOUR COMMUNITY ASSOCIATIONS PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION AUTHORIZED BY THIS PERMIT.”
7. Please note on plan: “PRIOR TO PERFORMING ANY WORK IN THE CITY RIGHT-OF-WAY AN ENCROACHMENT PERMIT MUST BE OBTAINED FROM THE PUBLIC WORKS DEPARTMENT.”
8. Include the following on all plan sheets in the title block:
  - a. Site address,
  - b. Plan preparer’s name, address and telephone number,
  - c. Property owner’s name, address and telephone number.
9. All permits related to the proposed project shall be issued at the same time, or separate plans and plan review will be required for items not issued with this review. Provide additional permit worksheets for the following:
  - a. Accessory structures, detached patio covers and trellises,
  - b. Detached or free-standing trash enclosures,
  - c. Masonry or concrete fences within 3 ft of property line or over 3.5 ft high,
  - d. Retaining walls over 4 ft high from the bottom of the foundation to the top of the wall.
10. New construction projects shall meet all of the requirements of 2019 CalGreen, Divisions 5.1 through 5.5. See attached CalGreen comment list. (CalGreen 301.3)
11. Building additions of 1,000 square feet or greater, and/or building alterations with a permit valuation of \$200,000 or above shall meet all of the requirements of 2019 CalGreen, Divisions 5.1 through 5.5. See attached CalGreen comment list. (CalGreen 301.3)
12. List all deferred submittals on cover sheet and write note: “Deferred submittals to be reviewed by project architect or engineer of record and certified prior to submittal for plan check or approval by the City.”

**BUILDING PLANNING (CHAPTERS 3, 4, 5, 6):**

13. Foundations, basement walls, and their structural supports (caissons) that are located completely below grade may encroach into a required setback area up to twelve (12) inches, provided they are located at least twenty-four (24) inches from any property line. (NBMC Section 20.30.110 Setback Regulations and Exceptions subsection D. Allowed Encroachments into Setback Areas. Item number 10)
14. Provide Building Code Analysis on the title/cover sheet. Include the following code information for each building proposed:
  - a. Description of use, number of stories, occupancy classification for each use in mixed occupancy per Chapter 3, type of required occupancy separation per Chapter 5 based on separated occupancies, type of building construction classification per Chapter 6 and the fire sprinkler requirements based on Chapter 9 or NBMC 15.04.080.
  - b. Allowable/actual floor area, allowable/actual height, number of stories, sprinklers, and fire alarm.
  - c. Specify code fire resistive requirements for exterior walls, roof/floor horizontal assembly, openings, occupancy separation, and shafts/exit enclosures.
  - d. Specify number of required exits per floor and for the building.
15. On the site plan:
  - a. Dimension distances from building(s)/all projecting elements to all property lines, street center lines, and adjacent existing or proposed structures on the site.
  - b. Show the building area, use, occupancy, and type of construction of all new/existing buildings on the site.
  - c. Show all interior assumed lot lines, any designated flood plains, open space easements or development restricted areas.
  - d. Clearly delineate any frontage used to justify allowable area increases per CBC 506.2.
16. Clearly label and identify on the floor plans:
  - a. Fire-resistive corridors, exit enclosures, exit passageways, horizontal exits, occupancy separation walls and floors, fire resistive shafts, fire walls, fire barrier, fire partitions, smoke barriers, and smoke partitions along with their fire-resistive ratings.
  - b. Common path of travel, exit access travel distance, required number of exits, occupant load, & required exit width. (CBC 1001.1)
  - c. Accessible means of egress continuity components. (CBC 1009.2)
17. Accessible means of egress shall be continuous to public way and shall consist of one or more of the following components (CBC 11B-207, 1009.2):
  - a. Accessible routes per CBC 11B-206 & 11B-402.
  - b. Interior/Exterior stairways per CBC 11B-210 & 11B-504.
  - c. Exit access stairways per CBC 11B-210 & 11B-504.
  - d. Elevators per CBC 11B-206.6 & 11B-407.
  - e. Platforms CBC 11B-206.7, 11B-207.2, & 11B-410.
  - f. Horizontal exits per CBC 1026.
  - g. Ramps per CBC 11B-405
  - h. Area of refuge per CBC 1009.6.
  - i. Exterior areas for assisted rescue complying with Section 1009.7 per CBC 1009.4.
18. Show the maximum height of the building above the grade plane as defined in CBC 503.1. Demonstrate whether the lower level is a basement based on the definitions in CBC 202.
19. The floor area of a mezzanine shall be considered a part of the story in which it is located, unless considered a separate story. (CBC 505.2)
20. For buildings with mixed occupancies:

- a. Nonseparated Occupancy: The allowable area per story shall be based on the most restrictive provision for the occupancies. (CBC 508.3)
- b. Separated Occupancy: In each story, the maximum total building area shall be such that the sum of the ratios for each of the actual to allowable areas does not exceed 1. (CBC 508.4)
- 21. Structural elements in exterior walls required to be fire-resistive construction shall have fire-resistive protection equal to or greater than that required for an exterior bearing wall. (CBC Table 601 Footnote "f", 704.10)
- 22. When two or more buildings are on the same property and they are not analyzed to comply as one building, the buildings shall have an assumed property line between them for determining wall and opening protection, and roof cover requirements or treated as a single building per Section CBC 705.3.
- 23. When a new building is constructed adjacent to an existing building, show the required wall and opening protection requirements for the existing building will be maintained. (CBC 503.1.2, 504, 506, 705.3, and Table 705.8.)
- 24. For special occupancy groups, comply with the specific occupancy related provisions for the XXX occupancy areas in accordance with Chapter 4.

## **FIRE-RESISTANCE RATED CONSTRUCTION AND INTERIOR FINISHES (CHAPTER 7, 14, 8):**

### **EXTERIOR WALLS:**

- 25. Exterior walls less than XXX ft. from property line or assumed property line shall be XXX –hour fire rated construction and have a 30" parapet. (CBC Table 602, 705.11)
- 26. Mechanical equipment screens having a fire separation distance less than 5 feet shall be constructed of the materials specified for the exterior walls in accordance with the type of construction of the building. (CBC 1510.6)
- 27. Fire-resistive exterior wall construction shall be maintained through crawl spaces, floor framing, attic spaces, and other similar areas to the height required by CBC 705.11. (CBC 705.6)
- 28. The maximum (unprotected/protected) exterior wall openings area for each story shall not exceed that allowed in Table 705.8. (CBC 705.8.1)
- 29. Where protected and unprotected openings occur in the exterior wall in any story the total area shall comply with the unity formula (7-2) in Section CBC 705.8.4.
- 30. Projections are not permitted within 2 feet from property lines or assumed property lines. Projections are limited to 24 inches when fire separation distance (FSD) is greater than 2 ft to 3 ft of the property line, 24 inches plus 8 inches for every foot of FSD beyond 3 feet or fraction thereof when FSD is greater than 3 feet to less than 5 feet, and 40 inches when FSD is greater than 5 feet. Projections located where openings are required to be protected shall be non-combustible, heavy timber, or one-hour construction. (CBC 705.2)
- 31. Openings in exterior wall assemblies that require protection in accordance with Section CBC 705.3, 705.8, 705.8.5, or 705.8.6 shall have a fire-protection rating of not less than the rating in accordance with CBC Table 716.5 & Table 716.6. (CBC 705.8.2)

### **FIRE WALL:**

- 32. Fire walls shall be designed and constructed to allow collapse of the structure on either side without collapse of the wall under fire conditions. Fire walls designed and constructed in accordance with NFPA 221 shall be deemed to comply with this Section. (CBC 706.2)
- 33. Fire walls shall have a fire-resistance rating of not less than that required by Table 706.4. (CBC 706.4)
- 34. Fire walls shall be continuous from exterior wall to exterior wall and shall extend at least 18 inches beyond the exterior surface of exterior walls. (CBC 706.5)
  - a. Fire wall is permitted to terminate at the interior surface of combustible exterior sheathing or siding provided the exterior wall has a fire-resistance rating of at least 1 hour for a horizontal distance of 4 feet minimum on both sides of the fire wall. Openings within such

- exterior walls shall be protected by opening protective having a fire protection rating of not less than ¾ hour. (CBC 706.5 Exception #1)
- b. Fire wall is permitted to terminate at the interior surface of noncombustible exterior sheathing, exterior siding or other noncombustible exterior finishes provided that the sheathing, siding or other exterior noncombustible finish extends a horizontal distance of not less than 4 feet on both sides of the fire wall. (CBC 706.5 Exception #2)
- c. Fire wall is permitted to terminate at the interior surface of noncombustible exterior sheathing where the building on each side of the fire wall is protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 (CBC 706.5 Exception #3)
- 35. Fire walls shall extend to the outer edge of horizontal projecting elements such as balconies, roof overhangs, canopies, marquees, and similar projections that are within 4 feet of the fire wall. (CBC 706.5.2)
- 36. Fire walls shall extend from the foundation to a termination point not less than 30 inches above both adjacent roofs. (CBC 706.6)

#### **FIRE BARRIER:**

- 37. Provide a fire rated Fire Barrier in accordance with Section 707 for:
  - a. X-hour Shaft enclosure per CBC 713.4. (2-hour resistive construction in all buildings connecting 4 stories or more. 1-hour for less than 4 stories)
  - b. X-hour Exit access stair enclosure per CBC 713.4 when it does not comply with one of the conditions listed in Section 1019.3. (2-hour resistive construction in all buildings connecting 4 stories or more. 1-hour for less than 4 stories)
  - c. X-hour Exit enclosure per CBC 1023.2. (2-hour resistive construction in all buildings connecting 4 stories or more. 1-hour for less than 4 stories)
  - d. X-hour Exit passageway per CBC 1024.3.
  - e. X-hour Horizontal exit per CBC 1026.1.
  - f. X-hour Atrium enclosure per CBC 404.6.
  - g. X-hour Fire barrier for incidental use area at the (Location) per CBC 509 and Table 509.
  - h. X-hour Control areas per CBC 414.2.4.
  - i. X-hour Occupancy separation between X & X occupancies per CBC 508.4 & Table 508.4.
  - j. X-hour Fire area separation per CBC 707.3.10 & Table 707.3.10.
- 38. Fire Barrier shall extend from floor/ceiling to the underside of sheathing/deck above, thru any concealed spaces. (CBC 707.5)
- 39. Provide X-hour door assemblies in X-hour fire barrier. (CBC 707.6, Table 716.1(2))
- 40. Openings in fire barriers shall be limited to a maximum aggregate width of 25% of the length of the wall, and the maximum area of any single opening no larger than 156 square feet with unless tested to match wall rating. (CBC 707.6)
- 41. All supporting construction for a fire barrier must have the same fire resistive ratings as the required fire barrier. Exception: Supporting construction for 1-hour fire barriers of incidental uses per CBC Table 509 in buildings of Type IIB, IIIB, & VB unless required by other sections of this code. (CBC 707.5.1)

#### **FIRE PARTITION:**

- 42. Provide a 1-hour fire rated Fire Partition in accordance with CBC 708 for:
  - a. Separation walls as required by Section CBC 420.2 for Groups R-1, R-2, R-2.1 and R-3.
  - b. Walls separating tenant spaces in covered and open mall buildings as required by Section CBC 402.4.2.1

- c. Corridor walls as required by Section CBC 1020.1
  - d. Elevator lobby separation as required by Section CBC 3006.2
  - e. Egress balconies as required by Section CBC 1021.2.
  - f. Walls separating enclosed tenant spaces in high-rise buildings and in building of Types I, IIA, IIIA, IV, or VA construction of Group A, E, H, I, L, & R-2.1 occupancies.
43. Fire Partition continuity must be detailed in accordance with CBC 708.4.
44. Provide X-hour door assemblies in X-hour fire partition. (CBC 708.6, Table 716.1(2))

#### **FLOOR AND ROOF ASSEMBLIES**

45. Fire-resistance rated floor-ceiling assemblies used to separate adjoining occupancies shall comply with CBC 711.
46. Provide X-hour separation between Group X and Group X occupancies. Separation horizontal assembly shall comply with CBC 711.
47. The supporting construction shall be protected to afford the required fire-resistance rating of the horizontal assembly supported. CBC 711.2.3
48. Horizontal assemblies serving as sleeping unit separations in accordance with Section 420.3 shall be not less than 1-hour fire-resistance-rated construction.

#### **OTHER COMPONENTS:**

49. Glazed openings into one-hour corridor/fire partition/fire barrier shall be protected per CBC Table 716.1(3). The total area of such openings shall not exceed 25% of the common wall with any room (CBC 716.3.2.1.2).
50. Provide listing and labeling requirements for fire rated glazing for fire rated doors in accordance with Section CBC 716.2.5 and Table 716.1(2).
51. Provide listing and labeling requirements for fire rated doors and smoke, draft doors in accordance with Section CBC 716.2.
52. Provide a complete architectural section of one-hour corridor detailing fire-resistive construction of the walls and ceilings. Detail all duct and other penetrations. (CBC 708.4, 1020.1, 717, Table 717.3.2.1)
53. Corridor walls may terminate at the ceiling, if the corridor ceiling is constructed as required for the corridor walls. (CBC 708.4, Ex #3)
54. Doors and their frames opening into a one-hour corridor shall be labeled 20-minute assemblies with tight fitting smoke and draft control assemblies with self or automatic closers. (CBC 716.2.2.1)
55. Elevator hoistway door openings shall be protected in accordance with Section 3006.3 where an elevator hoistway connects more than 2 stories in Group A, E, H, I, L, R-1, R-2 and R-2.1 occupancies, high-rise buildings, and more than 3 stories for all other occupancies. (CBC 713 & 3006.2)
56. Lobby enclosure shall separate the elevator shaft enclosure doors from each floor by 1-hour fire partitions. Doors protecting openings in the elevator lobby enclosure walls shall be 20-min fire rated with smoke and draft control in accordance with CBC 717.5.4.1. (CBC 3006.3, #1)
57. Provide detail of shaft construction, continuity, openings, penetrations, top and bottom enclosure demonstrating compliance with Section CBC 713.5 through 713.14.
58. Shaft enclosures shall have a fire resistance rating not less than the floor assembly penetrated, but need not exceed 2 hours. Shaft enclosures shall meet the requirements of Section CBC 703.2.1. (CBC 713.4)
59. Duct and Air Transfer openings into: **(Plan Check Note: double check exceptions)**
- a. Fire walls shall be protected with listed fire dampers. (CBC 717.5.1)
  - b. Horizontal exits shall be protected with listed smoke damper. (CBC 717.5.2.1)

- c. Fire barriers for Occupancy Groups A, E, H, I, L, R, & high-rise buildings shall be protected with approved fire & smoke dampers. (CBC 717.5.2)
  - d. Fire barriers for B, F, M, S, U occupancy groups shall be protected with listed fire dampers. (CBC 717.5.2)
  - e. Shaft enclosure shall be protected with approved smoke and fire dampers. (CBC 717.5.3)
  - f. Fire partitions shall be protected with listed fire dampers. (CBC 717.5.4)
  - g. Corridors requiring smoke and draft control doors in accordance with 716.2.2.1 shall be protected with listed fire and smoke dampers. (CBC 717.5.4.1)
  - h. Elevator lobby shall be protected with listed fire and smoke dampers as required for corridors in accordance with Section CBC 717.5.4.1. (CBC 3006.3, #1 & #2)
  - i. Fire rated exterior wall required to have protected opening shall be protected with listed fire dampers. (CBC 705.10, 717.5.6)
  - j. Horizontal assemblies shall be protected by shaft enclosure or comply with CBC 717.6.1 for through penetration or CBC 717.6.2 for membrane penetrations. (CBC 717.6)
- 60. Ducts and air transfer openings shall not penetrate exit enclosures and exit passageways except as permitted by Sections CBC 1023.5 and 1024.6, respectively. (CBC 717.5.2)
  - 61. Detail through penetrations and Membrane Penetrations in fire-resistive walls per CBC 714.4.
  - 62. Detail fire resistive penetrations in fire-resistive floors and ceilings per CBC 714.5.
  - 63. Joints installed in or between fire rated walls, floor/ceiling and roofs shall be protected by an approved fire-resistant joint system designed to resist the passage of fire for time period as required by the fire rated construction. (CBC 715)
  - 64. Opening protectives such as glazing used in fire door assemblies and fire window assemblies shall comply with CBC 716.2 and 716.3. Fire rated glazing shall comply with Table 716.1(1), Table 716.1(2) and Table 716.1(3).
  - 65. Provide draft stops in floors, attics, and mansards per Sections CBC 718.3 & 718.4.
  - 66. Where there is an accessible concealed floor, floor ceiling or attic space, fire walls, fire barriers or fire partitions, smoke barriers or smoke partitions or any other wall required to have protected openings or penetrations, provide marking and identification for fire rated walls in accordance with Section CBC 703.7. Provide referenced call out and details on plans for review.
  - 67. Indicate interior finish compliance with Section CBC 803.1 and Table 803.13 flame spread provisions.

#### **FIRE PROTECTION SYSTEMS (CHAPTER 9):**

- 68. Provide approved automatic sprinkler systems (903.2, NBMC 15.04.080):
  - a. New buildings with total building area exceeding 5,000 sf.; except for Group R Occupancy.
  - b. Existing buildings when the total area of the addition and reconstruction is 50% or more of the existing building area and the resulting building area exceeds 5,000 sf.; except for Group R Occupancy.
  - c. New buildings with a Group R fire area.
  - d. Existing buildings with a Group R fire area when the total area of addition and reconstruction exceeds 2,000 sf., or with the existing building is already equipped with automatic fire sprinkler system.
  - e. Buildings with an A-2 occupancy with an occupant load of 100 or more.
- 69. Provide fire sprinklers at XXX for this project for Group XXX Occupancy in accordance with 903.2XXX.
- 70. An automatic sprinkler system shall be installed at the top of rubbish and linen chutes. (CBC 903.2.11.2)
- 71. Automatic sprinkler system required during construction, alteration and demolition shall comply with (CBC 903.2.12).

72. Provide fire sprinkler at XXXXX for this project based on Table 903.2.11.6. (903.2.11.6)
73. Provide a Class XXX Standpipe per CBC 905.3XXX. Show hose cabinet locations or outlets on each floor plan and roof plan.
74. Provide fire alarm and detection system in accordance with 907.2XXX for the XXX Occupancy area.

**MEANS OF EGRESS (CHAPTER 10):**

75. Submit an exit analysis plan from each space that clearly shows compliance with all required egress features such as but not limited to, exit, exit access, common path of travel, stairways, required number of exits, occupant load, required exit width, continuity and maximum travel distance to exit discharge. (CBC 1001.1)
76. Calculate the maximum occupant load per CBC Table 1004.1 for each story/room/space and list it on the floor plan.
77. Every room or space which is used for assembly, classroom, dining, drinking, or similar purposes having an occupant load of 50 or more shall have the occupant load of the room or space posted in a conspicuous place near the main exit or exit access doorway from the room. (CBC 1004.9)
78. Where the means of egress from stories above and below converge at an intermediate level, the capacity of the means of egress from the point of convergence shall be not less than the largest minimum width or the sum of the required capacities for the stairways or ramps serving the two adjacent stories, whichever is larger. (CBC 1005.6)
79. In two-story buildings, two or more exits are required when occupant load exceeds 29 or, common path of egress travel distance exceeds 75 feet. (CBC 1006.3.3, Table-1006.3.3(2))
80. Rooms, areas or spaces, including mezzanines, within a story or basement with a common path of egress travel distance or occupant load exceeding that allowed in CBC Table-1006.2.1 shall have separate access to two exits or exit access doorways. (CBC 1006.2.1)
81. Each story and occupied roof shall have the minimum number of exits, or access to exits per CBC T-1006.3.2 (CBC 1006.3.2)
82. The path of egress travel to an exit shall not pass through more than one adjacent story. (CBC 1006.3.1)
83. Two or more exits are required when occupant load of a room or space exceeds (CBC 1006.2.1 & Table -1006.2.1):
  - d. 49 for A, E, M, B, F, U occupancy
  - e. 29 for S occupancy
  - f. 20 for R2, R2.2, R3, R3.1, R4 occupancy
  - g. 10 for H4, H5, I, R1, R2.1 occupancy
  - h. 3 for H1, H2, H3 occupancy
84. When two exits are required from a building or area they shall be separated by (one-half / one-third if sprinklered throughout) the diagonal dimension of the building or area served. The separation distance shall be measured in accordance with Section CBC 1007.1.1.1. (CBC 1007.1.1)
85. Exit minimum clear width shall be not less than the total occupant load served by the means of egress multiplied by 0.3 inches per occupant for stairways and 0.2 inches for other egress component. (CBC 1005.3.1 & 1005.3.2)
86. Accessible stairways shall have a min clear width of 48 inches between handrails, (CBC 1009.3), The clear width of 48 inches is not required for buildings equipped throughout with automatic sprinkler system installed in accordance with Section 903.3.1.1. See exception.
87. Exit access travel distance to reach an exit shall not exceed (CBC 1017.2 & T-1017.2):
  - a. WITHOUT SPRINKLER SYSTEM (feet):
    - i. A, E, F-1, M, R, S-1, B: 200 FT.
    - ii. F-2, S-2, U: 300 FT.
  - b. WITH SPRINKLER SYSTEM (feet):



- iii. A, E, F-1, M, R, S-1: 250 FT.
  - iv. B: 300 FT.
  - v. F-2, S-2, U: 400 FT.
- c. Measure paths at right angles unless diagonal unobstructed path is insured and along slope of stairs at the center. (CBC 1017.3)
- 88. Exit access through an enclosed elevator lobby is permitted in other than a Group I-2 and I-2.1 when access to not less than one of the required exits shall be provided without travel through the enclosed elevator lobby. (CBC 1016.2, #1)
- 89. Egress from a room or space shall not pass through adjoining or intervening rooms or areas, except where such adjoining rooms or areas and that area served are accessory to one or the other and provide a discernible path of egress travel to an exit. Doors located in path of egress shall not be able to be locked to prevent egress. (CBC 1016.2, #2 & #3)
- 90. Egress from a room or space shall not pass through kitchen, storage room, closet or spaces used for similar purposes. (CBC 1016.2, #5)
- 91. Doors opening into the path of egress travel, when fully opened, shall not reduce the required width by more than 7 inches. Doors in any position shall not reduce the required width by ore than one-half. (CBC 1005.7.1)
- 92. Each leaf of door in the means of egress shall provide 32 inches clear opening and a minimum height of 6'-8", but in no case shall any single door leaf exceed 48 inches. (CBC 1010.1.1)
- 93. Doors serving an occupant load of 50 or more or a Group H occupancy rooms /area shall swing in the direction of exit travel. (CBC 1010.1.2.1)
- 94. Space between two doors in a series shall be 48 inches minimum plus the width of a door swinging into the space. Doors in a series shall swing either in the same direction or away from the space between the doors. (CBC 1010.1.8, 11B-404.2.6)
- 95. Exit access door has two leaf's; only automatic flush bolt is permitted. Leaf containing flush bolt shall not have hardware unless it is the main entrance door and remains open during business hours. (CBC 1010.1.9.4, #3)
- 96. The unlatching of any door or leaf shall not require more than one operation. (CBC 1010.1.9.6)
- 97. All exit doors and gates serving H occupancy or space/room with an occupant load of 50 or more of Group A, E, I-2, I-2.1, or assembly areas not classified as assembly occupancy shall not be provided with a latch or lock, unless it is panic hardware. (CBC 1010.1.10)
- 98. Revolving, sliding or overhead doors shall not be used as exit doors unless it complies with exceptions. (CBC 1010.1.2)
- 99. Show that power operated doors are capable of being manually opened to permit exit travel in the event of a power failure. Opening force shall comply with Section CBC 1010.1.3. (CBC 1010.1.4.2)
- 100. Doors provided for egress purposes in numbers greater than required by this code shall conform to the provisions for exit doors. (CBC 1010.1)
- 101. Door swinging over floor landing shall not reduce the width by more than seven inches when fully open. When serving 50 or more, the door in any position shall not reduce the required width to less than one-half. (CBC 1010.1.6)
- 102. Door swinging over stair landing shall not reduce the width by more than seven inches when fully open. The door in any position shall not reduce the required width to less than one-half. (CBC 1011.6)
- 103. Landings or floor level at doors shall be maximum ½ inch below the threshold. Raised thresholds and floor level changes greater than 1/4 inch at doorways shall be beveled with a slope not greater than one-unit vertical in two units horizontal (50-percent slope). (CBC 1010.1.7 & 11B-303)
- 104. Stairs exit enclosure shall conform to the following (CBC 1023.1):
  - a. Only exit doors can open into exit enclosures. (CBC 1023.4)
  - b. Penetrations shall be limited to sprinkler piping, standpipes, fire department communication system, & equipment, ductwork, electrical raceway serving the enclosure. (CBC 1023.5)

- c. Doors opening into exit enclosures shall be protected per CBC 716. (CBC 1023.4)
  - d. Exit enclosures shall terminate at an exit discharge or an exit passageway complying with Section CBC 1024 of the same fire-resistive construction as the enclosure leading to the outside of the building. (CBC 1023.3)
  - e. Open space under the stairs shall not be used for any purposes. (CBC 1011.7.3 & 1011.7.4)
105. An interior exit stairway shall not continue below its level of exit discharge unless an approved barrier is provided at the level of exit discharge to prevent persons from unintentionally continuing into levels below. Directional exit signs shall be provided as specified in Section CBC 1013. (CBC 1023.8)
106. Interior stairway means of egress doors shall be openable from both sides without the use of a key or special knowledge or effort. Except stairway discharge doors shall be openable from the egress side and shall only be locked from the opposite side. (CBC 1010.1.9.12)
107. Exterior exit stairs shall be separated from the interior of the building with the same rating required for interior stairs per CBC 1023.2. Building exterior walls within 10 feet horizontally of the exterior stair's nonrated walls shall have a fire-resistance rating of not less than 1 hour. Opening within the wall shall be protected by  $\frac{3}{4}$  hour fire rating minimum. The construction shall extend vertically from the ground to a point 10 feet above the topmost landing of the stairway or roof line, whichever is lower. (CBC 1027.6, 1027.5, & 1023.7)
108. Provide section and details of interior/exterior stairway showing:
- a. Maximum rise 7 inches (4" min) and minimum run (tread) of 11 inches. (CBC 1011.5.2)
  - b. Minimum head room of 6 feet 8 inches. (CBC 1011.3)
  - c. Stairway minimum width of 44 (36) inches. (CBC 1011.2)
  - d. Landing is required at top and bottom of every stairway, the minimum width shall equal to width of stairs; the depth of landing in direction of travel shall be equal to the min width of stairway or 48 inches whichever is less. (CBC 1011.6)
  - e. Risers shall be solid and vertical or sloped under the tread above from the underside of the nosing above at an angle not more than 30 degrees from vertical (CBC 1011.5.5)
  - f. Nosing shall project 1.25 inches maximum. (CBC 1011.5.5.1)
  - g. Winder treads are not permitted in means of egress stairways. (CBC 1011.5.3)
  - h. Stair treads and risers shall be of uniform size and shape. The tolerance between the largest and smallest riser height of tread depth shall not exceed  $\frac{3}{8}$  of an inch. (CBC 1011.5.4)
  - i. The walls and soffits within interior enclosed usable spaces under enclosed or unenclosed stairways shall be protected by one hour or the required fire rating of the stairway enclosure. Access to the enclosed space shall not be directly from within the stair enclosure. (CBC 1011.7.3)
  - j. Provide details and notes showing framing (stringer) size, bracing, connections, footings.
109. Provide 42-inch-high protective guardrail for decks, porches, balconies and raised floors, (more than 30 inches above grade or floor below) and open side(s) of stair landings. Openings between balusters/rails shall be less than 4 inches. (CBC 1015.2)
110. Corridor and exit balcony width shall be not less than that specified in CBC Table-1020.2. The required width shall be unobstructed except of access doors. (CBC 1020.2 & 1021.1).
111. Dead end corridors shall not exceed 20 ft. in length, (50 ft if sprinkered building) (CBC 1020.4)
112. One-hour corridors and any enclosed ceilings within them shall not be used as an integral part of the duct system. (CBC 1020.5)
113. Corridors shall not serve as supply, return, exhaust, relief or ventilation air ducts. At rooms with exhaust fans adjacent to corridors, show how the makeup air is provided. Doors opening into corridors cannot be undercut and louvers are not permitted. (CBC 1020.5)
114. In fully sprinklered office buildings, corridors may lead through enclosed elevators lobbies, provided

- all areas of the building have access to an exit, without passing through on elevator lobby. (CBC 1020.6)
115. The number of accessible means of egress required, from accessible spaces, shall equal the minimum number of exits required per Section CBC 1006.2 or 1006.3. (CBC 1009.1)
116. Area of Refuge (CBC 1009.6):
- a. Max travel distance from any accessible space shall not exceed CBC T-1017.1.
  - b. Shall have direct access to stairways in exit enclosure complying with Section CBC 1009.3 and 1023 or an elevator complying with Section 1009.4 (CBC 1009.6.2)
  - c. Each area of refuge must accommodate minimum (2) wheelchair 30" x 48", but not less than 1 wheelchair space per 200 occupants served by the area of refuge. (CBC 1009.6.3)
  - d. Not permitted to encroach into required means of egress width.
  - e. Must be separated from the rest of the building by smoke barrier or horizontal exit. (CBC 1009.6.4)
  - f. Provide two-way communication system in accordance with Section CBC 1009.8.1 and 1009.8.2. (CBC 1009.6.5)
  - g. Provide details for signage as required per CBC 1009.9 & 1009.10.
  - h. Provide notes and specification for two-communication system and instructions in accordance with Sections CBC 1009.8 & 1009.11.
117. Accessible means of egress stairs in non-sprinklered building shall be a minimum of 48 inches wide between handrails. (CBC 1009.3.2)
118. Exterior area for assisted rescue (CBC 1009.7):
- a. In non-sprinklered building, the exterior walls separating the exterior area of rescue from the interior of the building shall have a minimum fire-resistance rating of 1 hour. The fire rated wall shall extend 10 feet horizontally beyond the landing on either side and vertically from ground to a point 10 feet above the landing. (CBC 1009.7.2)
  - b. Each exterior area for assisted rescue must accommodate minimum (2) wheelchair 30" x 48", but not less than 1 wheelchair space per 200 occupants served by the area of refuge. (CBC 1009.7 & 1009.6.3)
  - c. Stairways that are part of the means of egress serving the exterior area for assisted rescue in non-sprinklered buildings shall be 48 inches minimum wide between the handrails. (CBC 1009.7.4)
  - d. Provide details for signage indicating special accessibility provisions and directional signage as required per CBC 1009.9 & 1009.10.
  - e. In areas of rescue and exterior areas for assisted rescue, provide notes and specification for instructions in accordance with Section CBC 1009.11).
119. A two-way communication system shall be provided at the elevator landing on each accessible floor that is one or more stories above or below the story of exit discharge. (CBC 1009.8)
- a. Provide two-way communication system in accordance with CBC 1009.8.1 & 1009.8.2.
  - b. Provide notes and specification for two-communication system and instructions in accordance with CBC 1009.8 & 1009.11.
120. Where elevation changes exist in the means of egress of less than 12 inches, sloped surfaces shall be used. Where the sloped surface is greater than 5 %, ramps shall be used. (CBC 1003.5)
121. All buildings and structures with one or more passenger elevators shall be provided with not less than one medical service elevator. Provide gurney-size accessible elevator as follows: (CBC 3002.4 & 3002.4a):
- a. Group A, E, H, I, L, R-1, R-2, R-2.1 occupancies, high-rise building, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal
  - b. All other occupancies: In buildings four or more stories above, or four or more stories below grade plan.

- c. Elevator car size shall be able to accommodate a 24" x 84" ambulance gurney/stretchers with minimum 5" radius corners.
- d. Elevator car shall be provided with minimum clear dimension of 80" x 54" from wall to return panel and 51 inches from wall to return panel with minimum 42 inches side slide door.
- e. Provide signage, electrical, and safety features in accordance to Section CBC 3002.4.
- 122. The required number of exits from any story shall be maintained until arrival at grade or public way. (CBC 1006.3.1)
- 123. Exit signs, readily visible from any direction of egress travel, are required when 2 or more exits are required. Show location of all exit signs. (CBC 1013.1)
- 124. Show conformance for low level exit signs and exit path marking in A, E, I, R-1, and R-2.1 occupancies per CBC 1013.7 and 1013.8 as enforced by the State Fire Marshall.
- 125. Assembly Exiting (CBC 1029):
  - a. In A occupancy, the main exit shall front on not less than one street or an unoccupied space of not less than 20 feet in width that adjoins a street or public way. (CBC 1029.2 & 1029.3)
  - b. Additional means of egress shall provide an egress capacity of not less than 50% of the total occupant load.
  - c. At least one half of the additional means of egress required shall be directly to an exit, or through a lobby, that is not used to access the main exit, to an exit, or to a one hour rated corridor to an exit. (CBC 1029.3)
- 126. Exits shall discharge directly to the exterior of the building. The exit discharge shall be at grade or shall provide a direct path of egress travel to grade. The exit discharge shall not reenter a building. (CBC 1028.1)
- 127. Illumination shall be provided along the path of travel from the exit discharge from each exit to the public way or to a safe dispersal area complying with Section 1028.5 and it is illuminated with minimum 1 foot-candle at the walking surface. (CBC 1008.2.3)
- 128. Exterior balconies, stairways and ramps shall be located at least 10 feet (3048 mm) from adjacent lot lines and from other buildings on the same lot unless the adjacent building exterior walls and openings are protected in accordance with Section 705 based on fire separation distance. (CBC 1027.5)
- 129. Egress court serving an occupant load greater than 10 is less than 10 feet (3048 mm) in width; the egress court walls shall be minimum 1-hour-fire-resistance-rated construction for a distance of 10 feet (3048 mm) above the floor of the court. Openings within such walls shall be protected by opening protective having a fire protection rating of not less than 3/4 hour. (CBC 1028.4.2)

**MISC. PROVISIONS (CHAPTER 12, 15, 24, ....):**

- 130. Provide class "B" roof assembly. (1505.1, Table 1505.1, NBMC 15.04.110)
- 131. Provide following roof specifications on roof plan (1505.1):
  - a. Manufacturer and ICC/UL/SFM number for roof assembly.
  - b. Show roof slope(s) of all areas.
  - c. Note on Plans: "Installation of roofing shall be in accordance with manufacturer's specifications."
- 132. Show sizes/locations of the roof/deck drains and overflows. (1502, CPC 1101.12, 1103)
- 133. Specify minimum 1/4 inch per foot slope for roof drainage along flow surfaces or design to support accumulated water. (CBC 1611.2)
- 134. Specify approved weatherproof walking surface material at decks and balconies. (1505.1)
- 135. Provide and detail access to equipment on roof (CMC 304.2):
  - a. Buildings higher than 15 feet shall have an inside means of access.
  - b. Access shall be a permanent or foldaway inside stairway or ladder.

- c. Roof access scuttle or trapdoors shall be minimum 22" x 24".
- 136. Provide 42 inches high guards where the roof hatch opening or mechanical equipment is located within 10 feet of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches above the floor, roof or grade below. The guard shall be constructed so as to prevent the passage of a 21-inch-diameter sphere and shall extend a minimum of 30 inches to either side. (CBC 1015.6, 1015.7)
- 137. Provide plumbing fixtures count analysis per CPC Table 422.1. (CPC 422.1)
- 138. Provide separate toilet facilities for men and women. (CPC 422.2 with exceptions)
- 139. Each water closet utilized by the public or employees shall occupy a separate compartment with walls or partitions and a door enclosing the fixtures to ensure privacy. (CBC 1209.3.1)
- 140. Each urinal shall have privacy partition that is not more than 12 inches from the finished floor and extend not less than 60 inches above the finished floor. The partition shall extend not less than 18 inches from the wall surface. (CBC 1209.3.2)

## **TITLE 24 DISABLE ACCESS (CHAPTER 11B):**

### **SITE DEVELOPMENT & ACCESSIBLE ROUTE OF TRAVEL**

141.

### **ENTRANCES & EXITS**

142.

### **SIGNS & IDENTIFICATION**

143.

### **NOTIFICATION APPLIANCES FOR THE HEARING IMPAIRED**

144.

### **ACCESSIBLE PARKING**

145.

### **DOORS**

146.

### **STAIRWAYS**

147.

### **SINGLE ACCOMMODATION SANITARY FACILITIES**

148.

### **STRUCTURAL PROVISIONS (CHAPTERS 16-23):**

- 149. Provide engineered design in accordance with 2019 CBC, AISC 15<sup>th</sup> Edition, NDS 2015, and ASCE 7-16.
- 150. Provide specifications for following materials on plans:
  - a. Sawn lumber – Specify grade and species. All lumber is required to be grade marked.
  - b. Structural composite lumber – Specify manufacturer, type, E, Fb and Fv. Include reference to ICC report number. Field substitution of structural composite lumber is not permitted without approval by the engineer of records and the enforcing agency having jurisdiction.

- c. Prefabricated wood I-joists – Specify manufacturer and type. Include reference to ICC report number.
  - d. Glued-laminated beams – Specify 24F-V4 for simple spans and 24F-V8 for cantilevered spans. Specify using standard camber unless specifically noted on designated members.
  - e. Plywood – Specify panel grade, panel span rating and manufacture per PS 1-or PS-2. All plywood panels are required to be grade marked.
  - f. Wood-based structural-use panels – Specify panel grade, panel span rating and manufacture per PS 1-or PS-2. All panels are required to be grade marked.
  - g. Concrete – Specify cement type, f'c 3000 psi minimum in seismic design category D, E and F.
  - h. Masonry – Specify type, f'm=2000 psi for masonry concrete blocks. Specify f'c = 2000 psi for grout and mortar.
  - i. Reinforcing steel – Specify ASTM A 615 for carbon steel and ASTM A 706 for low alloy steel fy shall be 40 ksi for # 4 bars or less and 60 ksi for bars # 5 or larger.
151. Structural steel – Specify ASTM A 995, Fy = 50 ksi for W shapes, ASTM A 36 for M, S, C, MC and L shapes, Fy = 36 ksi., Specify Type of Bolts used in connection of structural steel. Show ASTM designation for bolts per AISC design manual.
152. Submit structural design/analysis calculations for: \_\_\_\_\_
153. Provide design criteria on the plans to specify the risk category, the wind load based on 96 mph, all seismic force resisting systems and associated R and  $\Omega$  values, and identify the Seismic Design Category. ASCE 7, table 1.5-1 and Table 12.2-1.
154. Specify on the plan the design dead loads per CBC 1606 and live loads per CBC Table 1607.1
155. Provide geotechnical report pursuant to city policy, CBC 1803.5, for all new construction, additions, structures with special conditions, pools, shoring, retaining walls or structures on or near a slope. See link: <http://www.newportbeachca.gov/home/showdocument?id=18172>
156. Provide on title sheet soils engineer's name, address, telephone number, reference of report number, date and any supplemental reports, etc. List soils allowable design values on foundation plan. NBMC 15.05.170.
157. Soils engineer to review and approve final foundation plan, foundation details, shoring plan, pool plan, precise grading and drainage plan and erosion plan. *This correction will remain outstanding until the plans are approved for permit issuance.*
158. Provide a written statement of required special inspections per Section 1704.3. List on the plan the materials, systems, components and work required to have special inspections or tests, and their extent and frequency (i.e. periodic, continuous) per Section 1705.
159. Provide a written statement of required structural observation identifying frequency and extent in accordance with department policy CBC 1704.5. Please include the City form on the Structural plans and specify elements requiring structural observations. See following link: <http://www.newportbeachca.gov/home/showdocument?id=11354>

## **FRAMING**

160. The general design requirements shall be per CBC 1604. Load combinations shall be per CBC 1605 or ASCE 7-16 Section 2.3
161. Elevated garage floors that support vehicular loading shall be designed to resist 40 psf uniform live load and min 3000 lb. concentrated force acting on 4.5 inches x 4.5 inches area, CBC Table1607, (footnote a).
162. Exterior balconies and decks shall be designed to support a minimum uniformly distributed live load of 60 psf. Cantilevered balconies must be checked for live load only at the cantilever portion in accordance with ASCE 7, Section 4.3.3.

163. Attached canopies on buildings shall be designed to resist the wind pressure forces per ASCE 7, Section 30.11.
164. Provide framing support under point load or bearing wall supporting roof framing at \_\_\_\_\_, and show location of supported post above on floor framing.
165. Wall construction of conventional light frame shall be in conformance with CBC 2308.5 unless specifically designed in compliance with the code for axial and bending including out of plane design consideration.
166. Provide truss design drawings or list with required deferred submittals. Identify on the construction drawings the design dead load at all manufactured roof trusses. Construction drawings must identify the required drag trusses and design capacity of the drag element.
167. Collector elements are required to be designed using load combinations including overstrength factor per ASCE 7-16 section 12.10.2.
168. Diaphragm design forces shall be in compliance with ASCE 7-16, Section 12.10.1.1

### **LATERAL**

169. Wind design velocity pressure calculation must consider topographic effects on escarpments, ridges, and hills that meet all of the conditions of ASCE 7, Section 26.8.1.
170. Wind loads for components and cladding shall be per ASCE 7, Chapter 30.
171. Submit mapped accelerations parameters  $S_s$  and  $S_1$  and other seismic design parameters using a website interface tool that queries the U.S. Geological Survey (USGS) Seismic Design Web Services and retrieves the seismic design variables in a report format (i.e. ATC Hazards by Location, OSHPD Seismic Design Maps, ASCE 7 Hazard Tool, etc.).
172. Where Site Class D is assumed as the default site class per ASCE 7, Section 11.4.3, the value of  $F_a$  shall not be less than 1.2 (ASCE 7, 11.4.4).
173. The simplified structural design criteria shall comply with ASCE 7-16 section 12.14 for complete vertical and lateral loads including overstrength effects where required.
174. Wood structural panel shear walls shall comply with CBC Table 2306.3(1) or SDPWS Table 4.3A. Provide shear wall schedule with following specifications:
  - a. Minimum 3x nominal framing at panel edges and staggered edge nailing where nails are spaced 2 inches on center or closer (footnote d or g.), or when shear design value exceeds 350 plf (footnote i).
  - b. Where panels are applied on both sides of wall and nail spacing is less than 6 inches on center, panel joints shall be offset to fall on different framing members, or framing shall be minimum 3x nominal at adjoining panel edges and edge nailing on each side shall be staggered (footnote h).
  - c. Load path to the foundations shall be provided for uplift, shear and compression forces. Elements resisting shear wall forces contributed by multiple stories shall be designed for the sum forces contributed by each story (SDPWS 4.3.6.4.4)
  - d. Anchor bolts shall include steel plate washers, a minimum of 0.229" x 3" x 3" in size, between sill plate and
  - e. nut per SDPWS 4.3.6.4.3). The plate washer shall extend to within ½ inch of the edge of the bottom plate on the side with sheathing.
  - f. Fasteners and connectors to be galvanized for preservative treated wood. CBC 2304.10.5.1
175. Include the vertical seismic load effects  $E_v = 0.2 S_d \times DL$  (ASCE 7, Eqn 12.4-4a) as required by ASCE 7, sections 2.3.6 (strength level) and 2.4.5 (allowable stress level).
176. Wood structural panels designed to resist wind and seismic forces shall not exceed height to width ratios per AWC SDPWS, Table 4.3.4. Blocked Wood structural panels shall have a max  $h/b$  ratio of 3.5:1. Shear walls not meeting the aspect ratio of 2:1 shall have the unit shear capacity reduced by 1.25-0.125  $h/b$  per Section 4.3.4.1.

177. For shear walls with openings, provide design and detailing in accordance with R602.10.8. Where required per R301.1.3, provide engineered design to meet the requirements of Force-transfer Shear Walls per AWC SDPWS, Section 4.3.5.2 or as Perforated Shear Walls per AWC SDPWS, Section 4.3.5.3.
178. Provide details for transfer of shear wall holdown forces to foundation for shear walls above first floor.
179. Holdowns are required for all shear walls with net uplift forces. Use applicable ASCE 7-10 SECTION 12.4.2.1- FACTORS FOR DL for earthquake and 0.9DL (strength level) 0.6 DL (ASD LEVEL) for wind for calculation of forces resisting shear wall overturning.
180. Design structural elements for support of discontinuous lateral force resisting elements using overstrength  $\Omega_o$  factor in accordance with ASCE 7, Section 12.3.3.3. Reactions at ends of structural elements are required to be transferred to foundation, or until there are no net reactions. Provide details of all connections.
  - a. When designing beams, posts and other discontinuous elements for overstrength factor, include vertical seismic load in  $E_m = E_{mh} \pm E_v$ . Item 1 and 2 in Section 12.4.3.
181. Provide design/analysis of horizontal diaphragms, chords and chord splices:
  - a. Provide design of drag/struts and drag/strut connections. Include calculations for required diaphragm nailing at drag/struts (2 rows diaphragm BN will be required if diaphragms on each side of drag/strut are loaded to capacity).
  - b. Identify drag/struts on plans and specify drag/strut nailing.
182. Provide grade beam design for continuous footings supporting lateral force resisting elements.

## **FOUNDATION**

183. Geotechnical investigation report shall be required for structures in seismic design category D as required by ASCE 7-10 Section 11.8.2 and Section 11.8.3.
184. Sites identified to have liquefaction potential shall be designed per ASCE 7-16, section 12.13.9. Differential settlement over a defined length L shall comply with Table 12.13-3 based on risk category.
185. New construction or when the valuation of the permit for the remodel or renovation of an existing building is equal to or exceeds 50% and \$220,700 of the market value of such building and the building is located within an area prone to liquefaction, shall mitigate liquefaction by using one of the following options:
  - a. Minimum Construction requirement option 1:
    - vi. Tie all pad footings with grade beams in 2 orthogonal directions.
    - vii. Bottom of all footings to be 24 inches below grade.
    - viii. Continuous footings to have a minimum of two #5 steel bars at top and bottom.
    - ix. Floor slab on grade to be 5-inch-thick (minimum) reinforced with #4 bars at 12 inches on center each way located at the center of the slab.
    - x. Dowel footing to slab with #4 bars at 24 inches on center.
  - b. Minimum Construction requirement option 2:
    - xi. Mix the top five feet of sand with cement at the ratio of two sacks of cement per cubic yard and re-compact in place.
    - i. Tie all pad footings with grade beams.
  - c. Provide design for a Mat slab of min 12 inches in thickness
  - d. Provide design for a Post-tension slab and foundation.
  - e. Caissons or pile foundation. Driven piles are not permitted due to vibrations from pile driving that will likely result in damaging adjacent structures.
  - f. Replace soils to a depth of five feet with imported soils approved by a soils engineer.
  - g. Foundation design per soils engineer recommendation, which is equal to or exceeds mitigation methods listed above.
186. In residential construction, new slab on grade shall install a Capillary Break in compliance with one of the following (CG 4.505.2.1):



- a. A 2-inch thick layer of sand over a vapor barrier meeting ASTM 1745 (15MIL) over 2 inches of sand, over a 4-inch thick base of ½ inch or larger clean aggregate.
  - b. A concrete mix design, which will address bleeding, shrinkage, and curling will be required where the vapor barrier is applied directly over 4 inches of ½ inch or larger aggregate. (For additional information, see American Concrete Institute, ACI 302.2R-06)
187. Foundations and floor slabs for buildings located in expansive soils shall be designed in accordance with CBC Section 1808.6
188. Provide minimum of 0.002 Ag reinforcing bars in continuous footings but not less than that required to resist flexure from overturning moments.
189. Wood framing members, including wood sheathing, that rest on exterior foundation walls and are less than 8 inches from exposed earth shall be of naturally durable or preservative-treated wood. R317.1(2).
190. Call out foundation bolt size and spacing on foundation plan. The foundation bolts shall be ½ inch diameter for SDC D and 5/8 inch diameter for SDC E or F with 0.229 inch x 3 inch x 3 inch plate washers, embedded at least 7 inches into the concrete or masonry foundation, spaced not more than 6 ft. apart. and max 4 ft. for buildings over two stories in height, CBC 2308.3.1
191. Show minimum 18 inch under floor clearance from grade to bottom of floor joists and minimum 12-inch clearance to bottom of girders. CBC 2304.12.1.1

**ADDITIONAL COMMENTS:**

192. See red marks on plans for additional comments and clarifications.
- 193.