



**CITY OF LONG BEACH**  
 Department of Development Services  
 BUILDING AND SAFETY BUREAU



**NON-RESIDENTIAL  
 PLAN REVIEW CHECKLIST**

<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	FIRE SPRINKLER

  

<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>• Comments with circled item numbers apply to this plan check.</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. Provide a written response to each comment and show where and how it has been addressed. 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.</li> <li>• Once all comments on the plans, calculations, and this checklist have been addressed, contact the following plan check staff member to <b>SCHEDULE AN APPOINTMENT</b> to review the changes made.</li> </ul>						
	PLAN REVIEWER: _____ TEL. NO.: <u>562-570-</u> ADDRESS: <u>333 W. OCEAN BLVD., 4<sup>TH</sup> FLOOR, LONG BEACH, CA 90802</u> EMAIL: _____@longbeach.gov WEBSITE: <u>www.lbds.info</u>						

  

<b>NOTE</b>	<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 (Monday - Friday).</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 18.05.040 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>						
	Numbers within the parenthesis ( ) refer to sections of the applicable code. 2016 California Building Code (CBC). 2016 California Green Building Standard Code (CALGreen). 2016 California Electric Code (CEC). 2016 California Plumbing Code (CPC). 2016 California Mechanical Code (CMC). California Energy Efficiency Standards (CEES). Long Beach Municipal Code (LBMC). Health and Safety Code (HSC). Table (T).						

## CHAPTER 1 GENERAL PROVISIONS

### A. PERMIT APPLICATION

1. Provide a fully dimensioned plot plan (similar to the site plan on the construction document) to scale, in ink on 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, number 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 \$\_\_\_\_\_. (LBMC 18.06.025)
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. Separate structures
  - e. Shoring
  - f. Demolition
  - g. Electrical, Mechanical, and/or Plumbing work
  - h. Fire sprinkler systems
  - i. Signs
  - j. \_\_\_\_\_
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. Health Department
  - e. Historic Preservation
  - f. Harbor Department (HDP Permit)
  - g. Marine Bureau
  - h. Oil Well Special Inspection
  - i. C&D Recycling Program (IB DS-002)
  - j. LA County Sanitation
  - k. Long Beach Unified School District
  - l. Dept. of Conservation, DOGGER

- m. \_\_\_\_\_
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. Health Department (562) 570-4195
  - e. Historic Preservation (562) 570-6194
  - f. Harbor Department (562) 570-0041
  - g. Marine Bureau (562) 570-3215
  - h. Oil Well Special Inspection (562) 570-6278
  - i. C & D Recycling Program (562) 570-5237
  - j. LA County Sanitation (562) 908-4288
  - k. Long Beach Unified School Dist. (562) 997-7550
  - l. Dept. of Conservation, DOGGER (714) 816-6553
  - m. \_\_\_\_\_
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. \_\_\_\_\_
4. Refer to the attached supplemental checklist sheets listed below for additional plan review comments:
- a. Structural Design Plan Review Checklist
  - b. Commercial Accessibility Plan Review Checklist
  - c. Supplemental Accessibility Plan Review Checklist
  - d. Energy Efficiency Plan Review Checklist
  - e. CALGreen Non-Residential Checklist
  - f. \_\_\_\_\_
5. 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.
6. 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.
7. Two final set(s) of construction documents will be required during permit issuance. Construction documents must be:
- a. Quality blue or black line drawings with uniform and light background color.
  - b. Maximum 36" x 48" size with minimum 1/8 inch lettering size.
  - c. Sticky back details must produce prints without contrasting shades of background color.
8. 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
  - g. Framing Plans
  - h. Structural Details
  - i. Others \_\_\_\_\_
9. Show the building area, occupancy group(s), use(s), type of construction(s), number of stories, height, type of fire sprinklers system provided, and the number of parking spaces on the first sheet or title sheet of the construction documents. Include justification and analysis for increase in area, height, and/or story.



10. 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.

11. This project is subject to NPDES and SUSMP regulations per LBMC 18.61. 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.

c. Five or more acres. Projects with disturbed areas of five (5) acres or greater shall prepare and submit to both the RWQCB and the city a SWPPP. The SWPPP shall include appropriate construction site BMPs listed in subsection 18.61.040 In addition, a notice of intent (NOI) to comply with the state construction activity storm water permit shall be filed with the RWQCB, and evidence of such filing shall be submitted to the city.

12. This project is subject to Title 24, Part 2, of the California Code of Regulations, Sections 1.9.1 and 11B-206, the state’s disabled access and adaptability requirements. The design professional of record shall sign a statement on the plans to the effect:

I certify that the primary path of travel to the specific area of alteration, structural repair or addition from the public way or accessible parking space as indicated on the plans does not include steps or a slope exceeding 1:20 except where access is provided by a ramp with 1:12 maximum slope, accessible elevator or otherwise granted by an unreasonable hardship exemption. I understand that if the primary path of travel is found not to be as indicated, significant delays may result.

Furthermore, I certify that these plans were prepared under my direct supervision and that the area of specific alteration, structural repair or addition, including a primary entrance to the existing building and, when applicable, sanitation facilities, drinking fountains, signs and public telephones serving the area complies with current CA Title 24 Accessibility requirements.

\_\_\_\_\_  
 Signature                      Title

\_\_\_\_\_  
 Print Name                      Date

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.

**CHAPTER 3 USE AND OCCUPANCY**

**C. USE AND OCCUPANCY**

1. Specify on floor plans uses of all rooms or areas.
2. The occupancy group specified for one or more areas within the building is incorrect. See plan check annotation on sheet \_\_\_\_\_.
3. One or more occupancy has been incorrectly categorized. Change occupancy designation as identified below:
  - a. A-1 occupancy. Theaters & assembly spaces for viewing performances. (CBC 303.2)
  - b. A-2 occupancy. Restaurants, bars, eating & drinking establishments with 50 or more occupants. (CBC 303.3)
  - c. A-3 occupancy. Churches, halls & recreational uses without spectator seating or similar assembly (CBC 303.4)
  - d. A-4 occupancy. Indoor sports arenas with spectator seating (CBC 303.5)
  - e. A-5 occupancy. Outdoor Amusement park structures, bleachers, grandstands or stadiums. (CBC 303.6)
  - f. B occupancy. Business type uses, assembly areas with less than 50 occupants, outpatient clinics not classified as Group I-2.1. (CBC 304.1 & 303.1.1)
  - g. E occupancy. Educational uses by more than 6 persons through the 12th grade, daycare for more than 6 children older than 2 years, daycare for 7 to 100 children 2 years or less with special egress conditions. (CBC 305.1 & 305.2)
  - h. F-1 occupancy. Moderate hazard industrial manufacturing. (CBC 306.2)
  - i. F-2 occupancy. Low hazard industrial manufacturing. (CBC 306.3)
  - j. H-1 occupancy. Detonation hazards. (CBC 307.3.1 & Table 307.1(1))
  - k. H-2 occupancy. Deflagration hazards. (CBC 307.4 & Table 307.1(1))
  - l. H-3 occupancy. Combustion hazards. (CBC 307.5)
  - m. H-4 occupancy. Health hazards. (CBC 307.6)
  - n. H-5 occupancy. Semiconductor HPM hazards. (CBC 307.7)
  - o. I-2 occupancy. Nonambulatory or bedridden care facility with more than 5 persons on a 24-hour basis, 24-hour child care for more than 6 children 2 years or less. (CBC 308.4)
  - p. I-2.1 occupancy. Ambulatory healthcare facility. More than 5 persons, less than 24 hour care. (CBC 308.4.1)
  - q. I-3 occupancy – Jail, courthouse holding facility, secure interview rooms (Malls, large box retail) or similar uses. (CBC 308.5)
  - r. I-4 occupancy. Daycare facility for persons of any age (other than Group E or R-3) for less than 24 hours serving more than 6 persons. (CBC 308.6)
  - s. M occupancy. Mercantile. (CBC 309.1)
  - t. R-1 occupancy. Transient residential uses (less than 30 day stay) such as Hotels, motels, or congregate residence with more than 10 occupants. (CBC 310.3)
  - u. R-2 occupancy. Apartments, condominiums, extended-stay hotels (with 30 day or longer stay) or congregant residence with more than 16 occupants. (CBC 310.4)
  - v. R-2.1 occupancy. Residential care facilities, Recovery or Treatment homes or similar uses. (CBC 310.4.1)
  - w. S-1 occupancy. Moderate hazard storage or Auto repair garages. (CBC 311.2)
  - x. S-2 occupancy. Low hazard storage or parking garages. (CBC 311.3)
  - y. U occupancy. Utility and miscellaneous structures. (CBC 312.1)

4. Religious educational rooms or auditoriums, with less than 100 occupants per room, which are accessory to places of religious worship shall be classified as Group A-3 occupancies. (CBC 305.1.1)

#### **D. SPECIAL OCCUPANCY REQUIREMENTS**

1. Covered and Open Mall buildings shall comply with CBC 402.
  - a. Determine the total number of occupants and size required means of egress of the mall based on the following:
    - i. The occupant load factor (OLF) shall be determined by the following equation: (CBC 402.8.2.1)  
$$\text{OLF} = (0.00007 \times \text{GLA}) + 25$$

OLF = the occupant load factor (square feet per person).  
GLA = the gross leasable area (square feet) of the mall, excluding anchor buildings and tenant spaces with means of egress systems totally independent of the mall.  
OLF is not required to be less than 30 and shall not exceed 50. (CBC 402.8.2.2)
    - ii. The total occupants of the food court, determined per CBC 1004, shall be added to the total occupants of the mall as calculated above. (CBC 402.8.2.4)
  - b. Mechanical rooms, electrical rooms, service areas and service elevators opening into exit passageways shall be separated by a minimum of 1-hour fire barrier with 1-hour door. (CBC 402.8.7)
  - c. For mall buildings containing atriums, provide smoke control in compliance with CBC 404.5. (CBC 402.7.2)
  - d. Each tenant space shall be separated from other tenant spaces by 1-hour fire-resistance-rated fire partitions. (CBC 402.4.2.1 & 708.3)
  - e. Separation between anchor buildings and covered or open mall shall comply with the following:
    - i. Anchor buildings, more than 3-stories above grade plane, shall be separated from covered or open mall buildings by 3-hour fire-resistance-rated fire walls. (CBC 402.4.2.2 & Table 706.4)
    - ii. Anchor buildings, three stories or less, shall be separated from covered or open mall buildings by 2-hour fire-resistance-rated fire barriers. (CBC 402.4.2.2 & Table 706.4)
    - iii. Openings between anchor buildings of Type VA or VB construction and covered or open mall buildings shall comply with Section 716. (CBC 402.4.2.2.1 & 707.6)
2. Buildings with atriums shall comply with CBC 404.
  - a. Except for areas that are specifically exempt, the entire building shall be provided with an automatic sprinkler system. (CBC 404.3)
  - b. Provide/maintain separation between the atrium and adjacent areas with 1-hour fire-resistance-rated fire barriers with ¾-hour protected openings. (CBC 404.6)
  - c. Required means of egress from sleeping rooms in Group I and R-2.1 occupancies shall not pass through the atrium. (CBC 404.11)
3. Underground buildings shall comply with CBC 405.
  - a. The building contains an occupied space (other than a parking garage or other use exempted by CBC 405) that is more than (30 feet) below the lowest level of exit discharge.
  - b. Underground buildings shall be of Type I construction. (CBC 405.2)
  - c. Provide an automatic sprinkler system from the highest level of exit discharge and throughout all levels below. (CBC 405.3)
  - d. This project includes an underground building lower than 60 feet below the lowest level of exit discharge. Provide smoke compartmentation in accordance with CBC 405.4.
  - e. Provide smoke control. (CBC 405.5)
  - f. Provide a fire alarm system with an emergency voice/alarm communication system. (CBC 405.5, 907.2.18 & 907.2.19)
  - g. Provide a minimum of two exits, including at least one from each smoke compartment. (CBC 405.7.1)
  - h. Provide smokeproof enclosures for egress stairs. (CBC 405.7.2)
  - i. Provide standby and emergency power and standpipes. (CBC 405.8 & 405.9)
4. Motor-vehicle related occupancies shall comply with CBC 406.
  - a. Provide vehicle barriers not less than 33 inches high at the ends of drive lanes, and at the end of parking spaces, designed for impact and other load requirements of Section 1607.8.3. (CBC 406.2.3)
  - b. Clearly detail the dedicated pedestrian walkways and exit routes, separate from the vehicle drive aisles and ramps. (CBC 406.4.4)
  - c. Vehicle ramps used for parking shall have a maximum slope of 1:15. (CBC 406.4.4)

- d. Slope all parking surfaces to a drain or the vehicle entrance. (CBC 406.4.5)
  - e. Open parking garages shall be of Type I, II or IV construction. (CBC 406.5.1)
  - f. Motor fuel dispensing and repair garage facilities shall comply with CBC 406.7 and 406.8 respectively.
  - g. Dimension the clear height at Fuel dispensing canopies a minimum clear height of 13 feet-6 inches is required. (CBC 406.7.2)
  - h. Electric vehicle charging facilities inside parking structures shall comply with CBC 406.9, in addition to other EVCS requirements.
5. Group I-2 and I-2.1 medical care facilities shall comply with section CBC 407.
- a. Smoke barriers, complying with CBC 709 and 909.5, are required. (CBC 407.5)
  - b. Corridor walls shall be rated fire partitions. (CBC 407.3)
  - c. Self-closing or automatic smoke tight assembly must be provided for corridors in I-2 and I-2.1 occupancies, unless otherwise excluded. (CBC 407.3)
6. Combustible storage shall comply with CBC 413.
- a. Attics, under-floor and concealed spaces shall be protected by either an automatic fire sprinkler system within the concealed space or protection on the storage side by 1-hour fire-resistance rated construction with noncombustible or 1-<sup>3</sup>/<sub>4</sub> inch thick solid wood self-closing doors. (CBC 413.2)
7. Group E educational facilities shall comply with CBC 452.
- a. The building contains Group E occupancy and must front directly on a public street or a 20 foot wide exit discharge, at least one required exit shall be located at such street or exit discharge area. (CBC 452.1.1)
  - b. Identify all rooms with an occupant load of 300 or more, and provide sufficient details to demonstrate that such rooms have separate means of egress that are atmospherically separated to prevent concurrent contamination of exits with smoke. (CBC 452.1.2)
  - c. Indicate whether school grounds will be enclosed by fences and gates. If enclosed, identify a safe dispersal area at least 3 square feet per occupant located not less than 50 feet from all school buildings. (CBC 452.1.3)
  - d. Identify location of any daycare, kindergarten, first or second grade and show that such uses are located on the first floor. (CBC 452.1.4)
  - e. Indicate whether windows will have any metal grills or bars and comply with CBC 452.1.5.

## **E. HEIGHTS & AREAS**

- 1. On site plan, dimension distances from each building to all property lines, street center lines, and adjacent existing or proposed structures on the site.
- 2. On site plan show all interior assumed lot lines, any designated flood plains, open space easements or development restricted areas.
- 3. Show the size, use, occupancy, and type of construction of all existing buildings on the site.
- 4. Clearly show the maximum allowable and proposed height and number of stories for each building. (CBC 504.1 & Table 504.3)
- 5. Identify the grade plane elevation and clearly show if the lower level is a basement based on the definitions in CBC 502.1.
- 6. Revise the building data on the title sheet to provide justification to exceed the basic allowable floor area listed in CBC Table 506.2.
- 7. Revise the building data on the title sheet to provide justification to exceed the number of stories or building height listed in CBC Table 504.4.
- 8. Identify GRADE PLANE elevation for this project. Show the grade plane reference datum on all elevation and section drawings.
- 9. The assumed GRADE PLANE elevation is incorrect. GRADE PLANE is the average of finished ground level adjoining the building at exterior walls. Where the finished ground level slopes away from the exterior walls, the elevation shall be determined using the lowest points within the area between the building and the lot line or, where the lot line is more than 6 feet from the building, between the building and a point 6 feet from the building. (CBC 202)

10. On site plan, clearly delineate any frontage used to justify allowable area increases.(CBC 506.3)
11. Justify area frontage increase factor (If). Ratio of W/30 shall be limited to a value of 1.0 unless the building meets the requirements for unlimited area except for the 60 feet wide yards.
12. Note on plans:  
Frontage used for allowable area increases per CBC 506.2 shall be permanently maintained.
13. Unless considered a separate story, the floor area of a mezzanine shall be considered a part of the story in which it is located. (CBC 505.2)

#### **F. MIXED OCCUPANCIES & INCIDENTAL USES**

1. Where mixed occupancy buildings contain incidental use areas, the following shall apply:
  - a. Clearly identify on plans whether there are any incidental use areas that require rated separation from other portions of the building. (CBC Table 509)
  - b. The protection used for incidental use areas may include automatic fire sprinklers, fire-resistance rated construction, or both. Identify such protection in the incidental use areas on each floor plan.
  - c. When CBC Table 509 allows incidental uses to be protected by an automatic fire sprinkler system without the construction of a fire-resistance rated wall or floor ceiling assembly, such area shall be separated from the remainder of the building by construction capable of resisting the passage of smoke such as a smoke barrier or smoke partition. (CBC 509.4.2)
2. Where mixed occupancy buildings contain nonseparated uses, the following shall apply: (CBC 508.3)
  - a. Clearly identify on plans whether nonseparated uses are proposed.
  - b. The adjoining nonseparated uses must be clearly identified on all floor plans, including the boundary of such areas.
  - c. The project must be designed to meet the requirements of the more restrictive occupancy for all of the following: Allowable Area, Allowable Height and Stories, Egress and Fire Sprinklers.
3. Where mixed occupancy buildings contain separated uses, the following shall apply: (CBC 508.4 & Table 508.4)
  - a. Clearly identify on plans the boundary of each adjoining occupancy that will be separated.
  - b. Fire-resistance rated walls used to separate adjoining occupancies shall be constructed as fire barriers; fire partitions shall not be allowed.
  - c. Fire-resistance rated floor-ceiling assemblies used to separate adjoining occupancies shall comply with CBC 711.
4. Where mixed occupancy buildings contain accessory areas, the aggregate area of all accessory areas within a single occupancy shall not exceed 10 percent of the floor area of the primary occupancy. (CBC 508.2.3)
5. For buildings with mixed occupancies, the allowable area per story shall be based on the most restrictive provisions for each occupancy when the mixed occupancies are treated as nonseparated. (CBC 508.3)
6. For buildings with mixed occupancies, the maximum total building area shall be such that the sum of the ratios for each of the actual to allowable are does not exceed 1, when the occupancies are treated as separated. (CBC 508.4)

#### **G. TYPES OF CONSTRUCTION**

1. Exterior walls shall have a fire-resistance rating not less than that specified in CBC Tables 601 & 602. Provide details of its construction.
2. Structural elements in exterior walls required to be fire-resistance rated shall have a fire-resistance rating equal to or greater than that required for an exterior bearing wall of the same type of construction. (CBC Table 601)
3. Provide details, notes and specifications for the fire protection of building elements as required for the type of construction. (CBC Table 601 and 602)

#### **H. EXTERIOR WALLS**

1. Projections located where openings are required to be protected shall be non-combustible, heavy timber, or 1-hour construction. (CBC 705.2.3)



2. Projections shall not extend any closer to the property line used to determine the fire separation distance than shown in Table 705-2.
3. When two or more buildings are on the same property and they are not analyzed to comply as one building, the building 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 CBC 705.3.
4. When a new building is constructed adjacent to an existing building, an assumed property line shall be placed between them such that the existing wall and opening protection requirements for the existing building will be maintained. (CBC 503.1.2, 705.8 & Table 705.8)
5. The fire resistance rating of exterior walls shall comply with the provisions of CBC 705.5.
6. The maximum area of exterior wall openings in any story shall not exceed that allowed in CBC Table 705.8.
7. Where both unprotected and protected openings are permitted, the total area is limited to Equation 7-2. (CBC 705.8.4)
8. Parapets shall be provided on exterior walls. (CBC 705.11)
9. Parapets shall have the same fire-resistance rating as the wall supporting them. The uppermost 18 inches of the parapet wall facing the roof shall be of noncombustible face materials. (CBC 705.11.1)
10. Openings in exterior walls required to have protected openings shall have fire protection rating of  $(\frac{3}{4})$  (1- $\frac{1}{2}$ ) hour assemblies. (CBC 705.8.2, Tables 716.5 & 716.6)

#### **I. INTERIOR WALLS**

1. Clearly label and identify on plans fire walls, fire barriers, fire partitions, shafts, smoke barriers, and smoke partitions, along with their fire-resistance ratings.
2. On site plan and floor plans, clearly show location of all fire walls. (CBC 706)
3. Provide construction details for fire walls at property lines and/or when separating a building into two or more separate areas. (CBC 706.1)
4. Provide details to show that fire wall complies with CBC 706 including but not limited to:
  - a. Fire rating shall be \_\_\_\_-hour per CBC Table 706.4
  - b. Fire walls must remain structurally stable in the event of collapse of construction on either side during a fire. Provide a detail to show that joist supported by the fire wall is spliced and not continuous (plywood membrane may be continuous), or provide double fire walls or provide justification for any other method used. (CBC 706.2)
  - c. Shall be noncombustible material, except in Type V Construction (CBC 706.3)
  - d. Shall have horizontal continuity (CBC 706.5)
  - e. Shall extend vertically from the foundation to a point 30 inches above the roof (CBC 706.6)
  - f. The area of each opening in Fire Walls is limited to 156 square feet Total width of the openings is limited to 25 percent of the wall length in the story under consideration. (CBC 706.8)
  - g. All openings in fire walls shall be protected with fire assemblies having a fire-resistance rating of (1- $\frac{1}{2}$ ) (3) hours. (CBC Table 716.5)
  - h. Ducts and air transfer openings through Fire Walls should be avoided. If allowed, duct and air transfer opening penetrations shall be protected by dampers. (CBC 706.11)
  - i. Exits must be provided independently for each area bounded by fire walls except for horizontal exits. (CBC 1025)
5. No openings are allowed in the party wall per 706.1.1 when a wall is constructed on or near a property line.
6. Where separating areas of buildings for the purpose of sprinkler requirements, provide a 4-hour fire wall.
7. Fire walls terminating at exterior walls must comply with CBC 706.5.1.
8. Fire-resistance rated fire walls shall continue through crawl spaces, floor framing, and attic spaces. (CBC 706.6)
9. Detail protection of combustible members framed into hollow fire walls. Hollow spaces shall be solidly filled for the full thickness of the wall and for a distance not less than 4 inches above, below and between the combustible members, with noncombustible materials approved for fireblocking. (CBC 706.7)

10. A complete \_\_\_\_-hour separation is required between Group \_\_\_\_\_ and Group \_\_\_\_\_ occupancies. Separation walls shall be fire barriers complying with CBC 707. Horizontal assemblies shall comply with CBC 711. (CBC 508.4, Table 508.4, 707 and 711)
11. Fire barriers and horizontal assemblies separating single occupancies into different fire areas shall be \_\_\_\_-hour fire rated per CBC Table 707.3.10.
12. Areas of each opening in fire barrier are limited 156 square feet Total width is limited to 25 percent of the wall length in the story under consideration. (CBC 707.6)
13. Fire barrier continuity must be detailed in accordance with CBC 707.5.
14. Fire barrier at vertical occupancy separations must have continuity and must extend through underfloor area, attic areas, and suspended ceiling areas. (CBC 707.5)
15. Openings in the separation shall have \_\_\_\_-hour fire assemblies in accordance with CBC 716, limited to a maximum aggregate width of 25 percent and no opening shall exceed 156 square feet(CBC 707.6)
16. A \_\_\_\_-hour fire barrier is required between \_\_\_\_\_ occupancy and the \_\_\_\_\_ occupancy. (CBC 508.4, Table 508.4 and 707.3.9)
17. Provide a fire barrier in accordance with CBC 707 for the:
  - a. Shaft enclosure per CBC 713.4.
  - b. Exit enclosure per CBC 1022.1.
  - c. Exit passageway per CBC 1023.3.
  - d. Horizontal exit per CBC 1025.1.
  - e. Atrium per CBC 404.6.
  - f. Incidental use area at the \_\_\_\_\_ per CBC 509 and TABLE 509.
  - g. Control areas per CBC 414.2.4
  - h. Occupancy separation per CBC 508.4.
  - i. Fire area separation per CBC 707.3.10.
18. The fire barrier or horizontal assembly, or both, separating a single occupancy into different fire areas shall have a fire resistance rating of not less than that indicated in CBC Table 707.3.10.
19. Provide \_\_\_\_-hour fire rated door assemblies in \_\_\_\_-hour fire barrier. (CBC 707.6 and Table 716.5)
20. Glazing and openings in fire barriers shall be limited to 25 percent of the wall area, no larger than 156 square feet with unless tested to match wall rating. (CBC 707.6)
21. All structural elements supporting a fire barrier must have the same fire-resistance ratings as the required occupancy separation. (CBC 707.5.1)
22. Provide a fire partition in accordance with CBC 708 for:
  - a. Walls separating dwelling units.
  - b. Walls separating sleeping units
  - c. Walls between mall tenant spaces.
  - d. Corridor walls.
  - e. Elevator lobby per CBC 713.14.1.
23. Fire partition continuity must be detailed in accordance with CBC 708.4.
24. Smoke barriers shall have a minimum 1-hour fire-resistance rating. (CBC 709.3)
25. Smoke barriers shall from an effective continuous barrier per the requirements of CBC 709.4.
26. Smoke partitions shall comply with the requirements of CBC 710.
27. Detail and provide marking and identification for fire walls, fire barriers, fire partitions, smoke barriers, and smoke partitions or any other wall required to have protected openings or penetrations. (CBC 703.7)
28. Floor and roof assemblies required to have fire-resistance rating shall comply with the requirements of CBC 711.
29. In 1-hour fire-resistance rated horizontal assemblies where unusable space occurs above or below the assembly, the membrane on the unusable side of the assembly is not required to be installed. (CBC 711.2.6)

30. Penetrations of fire-resistance rated construction must comply with CBC 712.
31. In fire-resistance rated walls, detail through penetrations and membrane penetrations per CBC 714.3.
32. Penetrations in fire-resistance rated walls shall comply with CBC 714.3. Through penetrations and membrane penetrations shall comply with CBC 714.3.1.1 or 714.3.2, or as noted below:
  - a. Steel, ferrous or copper pipes may penetrate fire-resistance rated walls, provided the opening is protected as follows: (CBC 714.3.1)
    - i. Item penetrating concrete or masonry walls is a maximum 6 inches nominal diameter and the area of the opening through the wall does not exceed 144 square inches, concrete, grout or mortar is permitted where it is installed the full thickness of the wall or the thickness required to maintain the fire-resistance rating; or
    - ii. When the annular space is protected with material that meets ASTM E 119 or UL 263.
  - b. Penetrations shall be fire-stopped by a system installed as tested in accordance with ASTM E 814 or UL 1479, and shall have an F rating of not less than the required fire-resistance rating of the wall penetrated. (CBC 714.3.1.2)
  - c. Membrane penetrations of maximum 2-hour fire-resistance rated walls by steel electrical boxes are permitted, provided that each does not exceed 16 square inches in area and the total area of such openings does not exceed 100 square inches for any 100 square feet of wall area, and the space between the wall membrane and the box does not exceed  $\frac{1}{8}$  inch. Additionally, outlet boxes on opposite sides of the wall shall be separated by a horizontal distance of not less than 24 inches. (CBC 714.3.2 Exception 1)
  - d. Membrane penetrations by listed electrical boxes of any material are permitted, provided such boxes have been tested for use in fire-resistance rated assemblies, and the space between the wall membrane and the box does not exceed  $\frac{1}{8}$  inch unless listed otherwise. Additionally, outlet boxes on opposite sides of the wall shall be separated by a horizontal distance of not less than 24 inches. (CBC 714.3.2 Exception 1)
  - e. A fire sprinkler shall be permitted to be unprotected provided such space is covered by a metal escutcheon plate. (CBC 714.3.2 Exception 5)
  - f. Where walls are penetrated by other materials or openings larger than those mentioned above, they must be qualified by tests in accordance with CBC 714.3.2 Exception 2.
33. In fire-resistance rated horizontal assemblies, detail through penetrations and membrane penetrations per CBC 714.4.
34. Penetrations of fire-resistance rated horizontal assemblies shall comply with CBC 714.4. Through penetrations shall comply with CBC 714.4.1.1 or 714.4.1.2, or as noted below:
  - a. Steel, ferrous or copper conduits may penetrate a single fire-resistance rated floor assembly when the annular space is protected with material that meets ASTM E 119 or UL 263. (CBC 714.4.1.1 Exception 1)
  - b. Penetrating items, as noted above, with a maximum 6 inches nominal diameter shall not be limited to the penetration of a single fire-resistance rated floor assembly, provided that the area of the openings does not exceed 144 square inches in any 100 square feet of floor area. (CBC 714.4.1.1 Exception 1)
  - c. Penetrations shall be fire-stopped by a system installed as tested in accordance with ASTM E 814 or UL 1479. The system shall have an F rating and T rating of not less than 1-hour but not less than the required fire-resistance rating of the floor penetrated. (CBC 714.4.1.1.2)
  - d. Membrane penetrations by listed electrical outlet boxes are permitted provided such boxes have been tested for use in fire-resistance rated assemblies, and the space between the ceiling membrane and the box does not exceed  $\frac{1}{8}$  inches unless listed otherwise. (CBC 714.4.1.2 Exception 4)
  - e. A fire sprinkler shall be permitted to be unprotected provided such space is covered by a metal escutcheon plate. (CBC 714.4.1.2 Exception 5)
35. Joints installed in or between fire-resistance rated walls, floor or floor/ceiling assemblies and roofs or roof/ceiling assemblies shall be protected an approved fire-resistant joint system with a fire-resistance rating not less than that of the assembly in which it is installed. Provide details. (CBC 715.1)
36. Fire-resistance rated assemblies shall be supported with a structural system having an equivalent fire-resistance rated protection. (CBC 704.1)
37. Envelope ceilings cannot be used to provide fire protection for columns, girders, trusses, beams, lintels or other structural members supporting more than two floors or one floor and roof, or support a load-bearing wall or a nonload-bearing wall more than two stories high. (CBC 704.3)

38. Where columns are required to be fire-resistance rated, the entire column, including its connections, shall be protected. (CBC 704.2)
39. Where the fire protective covering of a structural member is subject to impact damage from moving vehicles, the handling of merchandise or other activity, the fire protective covering shall be protected by corner guards or by a substantial jacket of metal or other noncombustible material to a height adequate to provide full protection, but not less than 5 feet from the finished floor. (CBC 704.9)
40. Fire door assemblies shall also meet the requirements for a smoke and draft control assembly. (CBC 716.5.3.1)
41. Fire door assemblies in exit enclosures and exit passageways shall have a maximum transmitted temperature end point of not more than 450° F (250° C) above ambient at the end of 30 minutes. (CBC 716.5.5)
42. Fire doors and fire-protection rated glazing shall bear labels as required by CBC 716.5 and 716.5.7.
43. Fire dampers shall have the minimum fire protection rating specified in CBC Table 717.3.2.1 for the type of penetration. (CBC 717.3.2.1)
44. Fire dampers, smoke dampers, combination fire/smoke dampers and ceiling radiation dampers shall be provided as prescribed in CBC 717.
45. Fireblocking shall be installed in combustibles concealed locations in accordance with CBC 718.2 in the following locations: (Provide Details)
  - a. In concealed spaces of stud walls and partitions, including furred spaces and parallel rows of studs or staggered studs, as follows:
    - i. Vertically at the ceiling and floor levels.
    - ii. Horizontally at intervals not exceeding 10 feet.
  - b. At all interconnections between concealed vertical stud wall or partition spaces and concealed horizontal spaces created by an assembly of floor joists or trusses, and between concealed vertical and horizontal spaces such as occur at soffits, drop ceilings, cove ceilings and similar locations. (CBC 718.2.3)
  - c. In concealed spaces between stair stringers at the top and bottom of the run. Enclosed spaces under stairs shall also comply with CBC 1011.9.3.
  - d. Where annular space protection is provided in accordance with CBC 712.1.7, 714.4.1.2, or 714.4.2, fireblocking shall be installed at openings around vents, pipes, ducts, chimneys and fireplaces with an approved material to resist the free passage of flame and the products of combustion. (CBC 718.2.3)
46. Draftstopping shall be installed in combustibles concealed locations in accordance with CBC 718.3.2 and 718.3.3, respectively, at the following locations: (Provide Details)
  - a. In floor-ceiling assemblies so that horizontal floor areas not exceed 1,000 square feet (CBC 718.3.3)
  - b. In attics and concealed roof spaces, such that any horizontal area does not exceed 3,000 square feet (CBC 718.4.3)
  - c. Show draft-stop construction on the plans. Draftstopping materials shall not be less than ½ inches gypsum board, ¾ inch wood structural panel, ¾ inch particleboard, 1 inch nominal lumber, cement fiberboard, batts or blankets of mineral wool or glass fiber, or other approved materials adequately supported. (CBC 718.3.1)
  - d. Openings in the partitions shall be protected by self-closing doors with automatic latches constructed as required for the partitions. (CBC 718.4.1.1)
47. Draft stop attics and mansards per CBC 718.4.

## **J. INTERIOR FINISHES**

1. Where finish materials are applied on walls, ceilings or structural elements required to have a fire-resistance rating or to be of noncombustible construction, they shall comply with the requirements of CBC 803.11.
2. Include the following note on the plans or finish schedule:

Wall, floor and ceiling shall not exceed the flame spread classifications in CBC Table 803.9.
3. Thermal and acoustical insulation shall comply with CBC 720. (CBC 807.1)
4. Lateral bracing for suspended ceiling must be provided as follows:

- a. Where ceiling is not supporting interior partitions, ceiling bracing shall be provided by four No. 12 gauge wires secured to the main runner within 2 inches of the cross runner intersection and splayed 90 degrees from each other at an angle not exceeding 45 degrees from the plane of the ceiling.
  - b. A strut (adequate to resist the vertical component from lateral loads) fastened to the main runner shall be extended to and fastened to the structural members of the roof or floor above.
  - c. These horizontal restraint points shall be placed 12 feet on center in both directions with the first point within 6 feet of each wall.
  - d. Attachment of restraint wires to the structure above shall be adequate for the load imposed. Or provide a structural design in conformance with CBC 808.1.1.1 and 1613.1 (ASCE13.5.6).
5. Interior floor finish and floor covering materials shall comply with CBC 804.2 through 804.4.2.
  6. Combustible materials installed on or embedded in floors of buildings of Type I or II construction shall comply with CBC 805.1.1 through 805.1.3.
  7. Decorative materials and trim installed in buildings governed by the SFM shall comply with the provisions of CBC 806.

#### **K. FIRE PROTECTION SYSTEM**

1. An approved automatic sprinkler system is required throughout the (entire building) (fire area) where the (building) (fire area) contains the following: (CBC 903.2)
  - a. \_\_\_\_\_ occupancy; and/or
  - b. a fire area over \_\_\_\_\_ square feet and/or
  - c. Over \_\_\_\_\_ occupant load.
2. Building with floor areas over 1,500 square feet shall be sprinklered when 20 square feet of opening for every 50 feet of exterior wall length is not provided on at least one side of the building. (CBC 903.2.11.1)
3. Provide automatic sprinkler system at top of rubbish and linen chutes and in their terminal room. When extending through 3 or more floors, additional sprinkler heads shall be installed at alternate floors. (CBC 903.2.11.2)
4. Add a note on plan:

This building must be equipped with an automatic fire extinguishing system complying with (NFPA-13) (NFPA-13R) (NFPA-13D). The sprinkler system shall be approved by \_\_\_\_\_ prior to installation. (CBC 903.3.1)
5. Class (I) (II) (III) standpipe (dry) (wet) (combination) systems are required in this building. Show the location of standpipe hose connections on the plans. (CBC 905.3, 905.4, 905.5, 905.6)
6. A (manual) (automatic) fire alarm system is required as a condition for the \_\_\_\_\_ occupancy. (CBC 907.2)

#### **L. EXITS**

1. Submit an exit plan that labels and clearly shows compliance with all required egress features such as, but not limited to, common path of travel, required number of exits, occupant load, required width, continuity, travel distance, etc. (CBC 1001.1)
2. In a two-story building, two exits or more are required when occupant load exceeds 30 or, common path of egress travel exceeds 75 feet. (CBC 1021.1, CBC Table 1021.2.(2))
3. The number of exits shall comply with CBC Tables 1015.1, 1021.1 & 1021.2(2).
4. Rooms with a common path of egress travel exceeding that allowed in CBC 1014.3 shall have two separate and distinct means of egress.
5. 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. (CBC 1015.2.1)
6. Exit width shall be not less than permitted by CBC 1005. The net dimension (clear width) shall be used in determining exit width.
7. In single-story buildings, two or more exits are required when criteria in CBC Tables 1015.1, 1016.2, 1021.1 or 1021.2(2) are exceeded. (CBC 1015, 1016, & 1021)

8. Two exits or more are required when occupant load of a room or space exceeds the criteria in CBC Table 1015.1 or 1016.2. (CBC 1015 & 1016.)
9. Travel distance to reach an exit shall not exceed that allowed in CBC Table 1016.2.
10. Every room or space that is an assembly occupancy shall have the occupant load posted in a conspicuous place near the main exit of the room. (CBC 1004.3)

#### **M. CORRIDORS**

1. Provide fire and smoke dampers at duct penetrations into 1 hour corridor walls. (CBC 717.5.4.1)
2. Glazed openings into 1-hour corridors shall be protected per CBC Table 716.5. The total area of such openings shall not exceed 25 percent of the common wall with any room. (CBC 716.6.7.2)
3. Corridor walls may terminate at the ceiling, only if the entire ceiling is an element of 1-hour floor or roof assembly. (CBC 708.4)
4. 1-hour corridors and any enclosed ceilings within them shall not be used as an integral part of the duct system. (CBC 1018.5)
5. At rooms with exhaust fans adjacent to corridors, show how make up air is provided. No louvers shall be provided into the corridor. (CBC 1018.5 & 716.5.3.1)
6. 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 an elevator lobby. (CBC 1018.6 Exception 2)

#### **N. DOORS**

1. Two exits or exit access doors of egress shall be provided from boiler, incinerator, or furnace rooms which exceed 500 square feet and any fuel fired equipment exceeding 400,000 BTU input capacity. One exit is permitted to be a fixed ladder. Exit access doorways shall be separated by a horizontal distance equal to one-half the maximum horizontal dimension of the room. (CBC 1015.3).
2. Each leaf of door in the means of egress shall provide 32 inches clear opening and a minimum height of 6 feet-8 inches, but in no case shall any swinging door leaf exceed 48 inches. (CBC 1010.11)
3. Provide specifications for the door hardware (i.e., lever type, push-pull, panic, etc.) to comply with disabled access requirements. (CBC 11B-404)
4. Doors serving an occupant load of 50 or more or hazardous rooms or areas shall swing in the direction of exit travel or a group H occupancy. (CBC 1010.1.2.1)
5. All exit doors and gates from \_\_\_\_\_ occupancy shall not be provided with a latch or lock, unless it is panic hardware. (CBC 1010.1.9.3)
6. Sliding or overhead doors shall not be used as exit doors. (CBC 1010.1.2)
7. Show that power operated doors are capable of being manually opened to permit exit travel in the event of a power failure. (CBC 1010.1.4.2)
8. When additional doors are provided, they shall conform to the provisions for exit doors. (CBC 1010.1)
9. Landings or floor level at doors shall not be less than ½ inches below the threshold. Raised thresholds and floor level changes greater than ¼ inches at doorways shall be beveled with a slope not greater than one unit vertical in two units horizontal. (CBC 1010.1.7)
10. The bottom 10 inches of all doors, except automatic and sliding, shall have a smooth, uninterrupted surface. (CBC 11B-404.2.10)
11. Corridor and exit balcony width shall be not less than (72 inches) (44 inches) (36 inches) (24 inches). (CBC 1018.2)
12. Doors opening into the path of egress travel shall not reduce the required width to less than one half during the course of swing. When fully open, the door shall not project more than 7 inches into the required width. (CBC 1005.7.1)
13. Dead end corridors shall not exceed 20 feet (50 feet) in length. (CBC 1018.4)

## O. STAIRWAYS

1. Stairs shall have a minimum width of 48 (44) (36) inches. (CBC 1009.3 & 1011.2)
2. Stair leading from an area of refuge requires a minimum of 48 inches clear between handrails. (CBC 1009.3)
3. Provide section and details of interior or exterior stairway showing:
  - a. Maximum tread rise of 7 inches (minimum 4 inches) and minimum tread run of 11 inches. (CBC 1011.5.2)
  - b. Minimum headroom of 6 feet-8 inches. (CBC 1011.3)
  - c. Enclosed usable under stairways require 1-hour construction on enclosed side. (CBC 1011.7.3)
  - d. Provide visual striping per CBC 11B-504.4.1.
4. Stairs shall be enclosed with fire barriers per CBC 1023.2. Enclosure shall conform to the following:
  - a. 2-hour fire-resistance rated construction in all buildings 4 or more stories in height and 1-hour for all other buildings less than 4 stories.
  - b. Only exit doors from habitable space and egress from the enclosure can open into exit enclosures.
  - c. Doors opening into exit enclosures shall be protected per CBC 716.
  - d. Exit enclosures shall include an exit passageway of the same fire-resistance rated construction as the enclosure leading to the outside of the building, including openings.
  - e. Usable space is not allowed under the stairs. (CBC 1011.9.3)
5. Exterior stairs shall be separated from the interior of the building with the same fire-resistance rated construction required for interior stairs. (CBC 1027.6)
6. In buildings 4 or more stories:
  - a. Stair #1 must extend to the roof. (CBC 1011.12 & LBMC)
  - b. Each stair shaft must have a penthouse or a smoke hatch.
7. Stairs in buildings over 75 feet in height shall be in a smoke proof enclosure or pressurized stairway per CBC 403.5.4, 909.20, 1023.11 and 202 high-rise definition.

## P. HANDRAILS & GUARDS

1. Provide connection details of guardrail and/or handrail on open side of landings or stairs adequate to support 50 pounds per lineal foot at a right angle to the top rail. (CBC 1607.8)
2. Design intermediate components of guardrails for a 50 psf lateral load. (CBC 1607.8.1.2)
3. Handrails shall satisfy the following: (CBC 1014)
  - a. Provide continuous handrail.
  - b. Handrail shall be 34 to 38 inches above the nosing of treads.
  - c. Intermediate balusters shall be spaced 4 inches on center maximum on open side(s). (CBC 1015.4)
  - d. The handgrip portion of handrail shall not be less than 1-¼ inches nor more than 2 inches in cross-sectional dimension. (CBC 1014.3 & 11B-505.7.1)
  - e. The handgrip shall extend 12 inches beyond the top and 12 inches plus tread width beyond bottom tread and return the handrail to newel post or wall. (See Title 24 Disabled Access for additional requirements.) (CBC 1014.6 & 11B-505.10)
4. Provide 42 inches 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)
5. Guards shall be provided 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 inches diameter sphere. (CBC 1015.6)

## Q. OTHER EXIT COMPONENTS

1. A minimum of two areas of refuge with one at an elevator must be provided for buildings four or more stories above grade. (CBC 1009.6)

2. Where elevation changes less than 12 inches occur in the means of egress, sloped surfaces shall be used. (CBC 1003.5)
3. Ramps with a rise greater than 6 inches shall have handrails on both sides. (CBC 1012.8)
4. Where an egress court serving a building or portion thereof is less than 10 feet in width, the egress court walls shall have not less than 1-hour fire-resistance rated construction for a distance of 10 feet above the floor of the court. Openings within such walls shall be protected by ¾ hour rated fire protection doors. (CBC 1028.4.2)
5. Exterior balconies, stairways and ramps shall be located at least 10 feet 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 CBC 705 based on fire separation distance. (CBC 1027.5)
6. Balconies used for egress purposes shall conform to the same requirements as corridors for width, headroom, dead ends and projections. (CBC 1021.1)
7. Exterior egress balconies shall be separated from the interior of the building by walls and opening protection as required by corridors. (CBC 1021.2)
8. The means of egress system shall be illuminated at all times the room or space is occupied with at least one foot candle at the floor level. (CBC 1008.2 & 1008.2.1)

#### **R. EXIT SIGNAGE**

9. Provide a separate source of power for exit sign illumination. (CBC 1011.6.3)
10. Exit signs are required when 2 or more exits are required. Show location of all exit signs. (CBC 1011.1)
11. Show conformance for floor-level exit signs and exit path marking in A, E, I, R-1, R-2, R-2.1 and R-4 occupancies per CBC 1011.7 and 1011.8 as enforced by the State Fire Marshall.
12. Show two sources of power for means of egress. (CBC 1006.3)
13. Provide luminous egress path markings for group \_\_\_\_ having occupied floor located more than 75 feet above the level of fire vehicle access per section CBC 1024.1.

#### **CHAPTER 11A & 11B ACCESSIBILITY REGULATIONS**

See separate accessibility plan review checklist for Title 24, Part 2, of the California Code of Regulations, Sections 1.8.2.1.2, 1.9.1 and 1102A, the state's disabled access and adaptability requirements.

#### **CHAPTER 12 INTERIOR ENVIRONMENT**

##### **S. INTERIOR ENVIRONMENT, LIGHT & VENTILATION**

1. Provide a door and window schedule. Show type and size of each.
2. Shower compartments and walls above bathtubs with installed shower heads shall be finished with a smooth and nonabsorbent surface to a height not less than 70 inches above the drain inlet. (CBC 1210.2.3)
3. Occupancies and operations involving flammable or combustible hazards or other contaminant sources shall be designed in accordance with CMC and CFC. (CBC 1203.5.2 & 1203.6)

#### **CHAPTER 14 EXTERIOR WALLS**

##### **T. EXTERIOR WALLS**

1. Provide veneer details. Show method of anchorage, size and spacing of anchors. Comply with the applicable requirements in CBC 1405.

#### **CHAPTER 15 ROOF ASSEMBLIES AND ROOFTOP STRUCTURES**

##### **U. ROOF & ROOF/DECK ASSEMBLIES**

1. The proposed roof assembly and roof covering rating for all roofs and roof/deck systems shall meet or exceed CBC Table 1505.1, based on the proposed type of construction of the building. (CBC 1505.1)
2. Provide specifications on the plans for each roofing material and application. Include the fire-retardant roof assembly classification, product name, manufacturer's name, and ICC/UL/SFM testing report number for each roofing product.



3. Specify approved roof/deck product information, as required for other roofing systems, for decks, balconies, and similar walking surfaces.
4. Provide attachment details and notes for clay and concrete roof tiles on the plans (CBC 1507.3.7 & Table 1507.3.7)
5. Roof slope shown on the plans is not adequate for the type of roof covering specified. Revise the plans and/or roof covering materials to comply with the minimum roof slope as follows:
  - a. Minimum 2 percent (0.25:12) for built-up or standing seam metal panel roofs. (CBC 1507.10.1. & 1507.4.2 item 3)
  - b. Minimum 8 percent (1:12) for mineral-surfaced roll roofing. (CBC 1507.6.2)
  - c. Minimum 17 percent (2:12) for asphalt shingles. (CBC 1507.2.2)
  - d. Minimum 21 percent (2.5:12) for clay and concrete tiles. (CBC 1507.3.2)
  - e. Minimum 25 percent (3:12) for metal or wood shingles. (CBC 1507.5.2, 1507.8.2)
  - f. Minimum 33 percent (4:12) for slate shingles and wood shakes. (CBC 1507.7.2, 1507.9.2)
6. Show roof slopes, drains, and overflow drains or scuppers on the roof plan.
7. Provide details of the roof drainage and overflow system. Roof drainage system shall comply with the following requirements: (CBC 1503.4, CPC 1108)
  - a. Size the roof drains and overflow drains in accordance with Chapter 11 of the CPC. (CBC 1503.4)
  - b. System shall be sized for minimum rain intensity of 3 inches 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 or scuppers having the same size as the primary roof drains shall be installed with the inlet flow line located a minimum 2 inches 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.
  - g. Scupper openings shall be a minimum of 4 inches high and have a width equal to the circumference of the roof drain required for the area served.
8. The net free ventilating area in enclosed attics and enclosed rafter spaces shall not be less than 1/150 of the area of the space ventilated. Show calculations, size and location on the plans. (CBC 1203.2)
9. An attic access opening not less than 20 inches by 30 inches shall be provided to any attic area having a clear height of over 30 inches. Minimum clear headroom of 30 inches in the attic space shall be provided at or above the access opening. (CBC 1209.2)
10. Access to mechanical appliances in under-floor areas, in attic spaces, and on roofs or elevated structures shall be in accordance with the California Mechanical Code. (CBC 1209.3)
11. Provide and detail access to equipment on roof per CMC 904.10.3.
12. Fully detail and dimension the plans to show that the penthouse and other rooftop structures satisfy the requirements of CBC 1510 based on the type of structure and/or use. (CBC 1510)

## CHAPTER 24 GLASS AND GLAZING

### V. GLASS, GLAZING, & SKYLIGHTS

1. Each pane of safety glazing installed in hazardous locations shall be identified by a manufacturer's designation specifying who applied the designation, the manufacturer or installer and the safety glazing standard. The following shall be considered specific hazardous locations for the purposed of safety glazing. Glazing in: (CBC 2406)
  - a. Swing doors.
  - b. Fixed and sliding panels of sliding door assemblies and panels in sliding and bi-fold closet door assemblies.
  - c. Storm doors.
  - d. Unframed swinging doors.
  - e. Doors and enclosures for hot tubs, whirlpools, saunas, steam rooms, bathtubs, and showers.
  - f. Fixed or operable panels adjacent to a door where the nearest exposed edge of the glazing is within 24 inches arc of either vertical edge of the door in a closed position and where the bottom exposed edge of the glazing is less than 60 inches above the walking surface. Read code for exceptions.

- g. Fixed or operable panel, other than described in items e and f, which meets all of the following conditions (read code for exception with special installation).
    - i. Exposed area of an individual pane greater than 9 square feet.
    - ii. Exposed bottom edge less than 18 inches above the floor.
    - iii. Exposed top edge greater than 36 inches above the floor.
    - iv. One or more walking surfaces within 36 inches horizontally of the plane of the glazing.
  - h. Guards and railings regardless of area or height above a walking surface. Included are structural baluster panels and nonstructural in-fill panels.
  - i. Adjacent to wet surfaces, glazing in walls, fences, or other enclosures containing or facing bathtubs, showers, swimming pools or spas where all of the following conditions are present: (CBC 2406.4.5)
    - i. The bottom edge of the glazing is less than 60 inches above a walking surface on the side of the glazing.
    - ii. The glazing is within 60 inches of the water's edge.
  - j. Adjacent to stairways, landings and ramps within 36 inches horizontally of a walking surface; when the exposed surface of the glass is less than 60 inches above the plane of the adjacent walking surface.
  - k. Adjacent to a landing at the bottom of a stairway, where the glass is less than 60 inches above the landing and within 60 inches of the bottom tread nosing. (CBC 2406.4.7)
2. Glass used in handrails or guards shall be:
- a. Laminated glass
  - b. fully tempered or heat-strengthened glass
  - c. Designed to withstand the loads specified in Chapter 16. A safety factor of four shall be used.
  - d. The minimum nominal thickness of the glass shall be ¼ inches.
3. Specify approved report number and manufacturer of glass panel guardrail on plans and include complete installation and anchorage details from the manufacturer or structural engineer. (CBC 2407)
4. Detail and provide mounting curbs at skylights. Mounting curbs shall be at least 4 inches above the plane of the roof. (CBC 2405.4)
5. Plastic skylights shall also comply with CBC 2610.

## **CHAPTER 25 GYPSUM BOARD AND PLASTER**

### **W. GYPSUM BOARD, STUCCO & PLASTER**

1. A corrosion resistant weep screed, minimum 26 galv. sheet gage, is required below the stucco at the foundation plate line a minimum 4 inches above earth or 2 inches above paved area with a vertical attachment flange of 3.5 inches.
2. Weep screeds shall be of a type which will allow trapped water to drain to the exterior of the building.
3. Detail and cross reference the stucco weep screed and minimum separation dimensions above the adjacent surfaces on one of the foundation details. (CBC 2512.1.2)
4. Clearly detail all tile backer materials the floor plans in compliance with the following:
  - a. Cement, fiber-cement or glass mat gypsum backers in compliance with ASTM C1178, C1288 or C1325 shall be used as a base for wall tile in tub and shower areas and wall and ceiling panels in shower areas.
  - b. Water-resistance gypsum backing board shall be used as a base for tile in water closet compartment walls when installed in accordance with GA-216 or ASTM C840.
  - c. Regular gypsum wallboard is permitted under tile or wall panels in other wall and ceiling areas when installed in accordance with GA-216 or ASTM C840.
5. Water-resistant gypsum board shall not be used in the following locations: (CBC 2509.2)
  - a. Over a vapor retarder.
  - b. In areas subject to continuous high humidity, such as saunas, steam rooms or gang shower rooms.
  - c. On ceilings where frame spacing exceeds 12 inches on center for ½ inches thick and more than 16 inches on center for ¾ inches thick.
6. Gypsum board shall be permitted to be used as a horizontal diaphragm ceiling as follows: (CBC 2508.5)
  - a. Maximum allowable diaphragm proportions shall be 1.5:1 between shear resisting elements.

