



CITY OF LONG BEACH
 Department of Development Services
BUILDING AND SAFETY BUREAU
MULTIFAMILY DWELLINGS
PLAN REVIEW CHECKLIST



DATE:

INFORMATION	PROJECT NO.:		EXPIRATION DATE:		STATUS:		
	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

INSTRUCTIONS	<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"> • Comments with circled item numbers apply to this plan check. • 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. Once all comments on the plans, calculations, and this checklist have been addressed, contact the plan check staff to SCHEDULE AN APPOINTMENT to review the changes made. <p>PLAN REVIEWER: <u>CLASTUA ASTUA</u> TEL. NO.: <u>562-570-6005</u></p> <p>ADDRESS: <u>333 W. OCEAN BLVD., 4TH FLOOR, LONG BEACH, CA 90802</u></p> <p>EMAIL: <u>clara.astua@longbeach.gov</u> WEBSITE: <u>www.lbds.info</u></p> <p>Should you have any questions or need clarification pertaining to the comments made on your project, you may contact the plan check staff by telephone from 7:30 AM (8:30 AM Wed) to 4:30 PM (M T W TH F).</p> <ul style="list-style-type: none"> • 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. • 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 2nd opinion or to attempt to resolve and/or clarify the matter. • 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. • Reviewed plans and/or calculations not picked up within 60 days of notice will be discarded. 					
	NOTE	<p>Numbers within the parenthesis () refer to the section of the applicable code. 2016 California Building Code (CBC). 2016 California Green Building Standard Code(CALGreen). 2016 California Plumbing Code (CPC). 2016 California Mechanical Code (CMC). Long Beach Municipal Code (LBMC). Health and Safety Code (HSC). Table (T).</p>				

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

B. ADMINISTRATION

1. The Developer shall install Custom Printed Flex Mesh screen(s), along the perimeter of the development site, such as FenceScreen.com Series 311, or equivalent, fence screening, and provide for the printed graphic to the satisfaction of the Director of Public Works. The graphics shall depict positive images of the City or other artistic concepts. Prior to submitting the graphic design for printing, the Developer shall consult with the Department of Public Works to review and approve.
2. 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. Water Department (ext. backflow prevention, sewer protection, industrial waste, and water meter/service)
 - m. Others_____
3. 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) 570-4000
 - e. Historic Preservation (562) 570-6194
 - f. Harbor Department (562) 570-0041
 - g. Marine Bureau (562) 570-3215
 - h. Oil Well Special Inspection (562) 570-6721
 - i. C & D Recycling Program (562) 570-6721
 - j. LA County Sanitation (562) 908-4288
 - k. Long Beach Unified School Dist. (562) 997-7550
 - l. Water Department (562) 570-2419
 - m. Others_____
4. The final set of construction documents must be stamped by the following department/bureau/agency:
- a. Planning Bureau
 - b. Fire Prevention Bureau
 - c. Historic Preservation
 - d. Others_____
5. Refer to the attached supplemental checklist sheets listed below for additional plan review comments:
- a. Structural Design Plan Review Checklist
 - b. Residential Accessibility Plan Review Checklist
 - c. Supplemental Accessibility Plan Review Checklist
 - d. Energy Efficiency Plan Review Checklist
 - e. Others_____
6. 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.
7. 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.
8. 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. Max. 36' x 48" size with min. 1/8" lettering size.
 - c. Sticky back details must produce prints without contrasting shades of background color.
9. Provide the following type of information with each set of construction documents:
- a. Topography Survey Map
 - b. Grading Plans
 - c. Floor Plans
 - d. Two Elevations



- e. Construction Sections
 - f. Foundation Plans
 - h. Framing Plans
 - i. Structural Details
 - j. LA County Sanitation
 - k. Others _____
10. Show the building area, occupancy group(s), use(s), type of construction(s), number of story(ies), height, type of fire sprinklers system provided, and the number of parking space(s) on the first sheet or title sheet of the construction documents. Include justification and analysis for increase in area, height, and/or story.
11. 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.
12. This project is subject to NPDES and SUSMP regulations per LBMC 18.61. Provide the following:

Name	Position	Date

- 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."
 - 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.C. 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.
13. This project is subject to 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. 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



14. 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.
15. 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

16. Provide sub-water meter to each individual residential dwelling unit for any new construction of a multi-family residential building or mixed use residential and commercial building. (*California Water Code, Division 1, Chapter 8, Article 5, Section 537-537.5 and LBWD Rules and Regulations Section 204.2.2(B)*)
17. Provide separate water meters for residential and non-residential units. New water service for a mixed-use project must have a separate service connection dedicated solely to the residential units and a separate service connection dedicated solely to the non-residential units. The systems for each must be independent of the other and not cross-connected. (*LBMC 18.47.090 and LBWD Rules & Regulations Sec. 204.2.2(C)*)
18. Provide separate water meters dedicated solely to irrigation service at residential sites with landscapes over 5,000 square feet. The systems for each must be independent of the other and not cross-connected. (*California Code of Regulations Sections 490-495, Chapter 2.7, Division 2, Title 23, California Water Code Section 535, and LBWD Rules and Regulations Section 204.4*)
19. 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
 - b. A-2 occupancy. Restaurants, bars, eating & drinking establishments with ≥ 50 occupants
 - c. A-3 occupancy. Churches, halls & recreational assembly or “other assembly”
 - d. B occupancy. Business type uses, assembly areas with < 50 occupants, outpatient clinics not classified as Group I-2.1
 - e. M occupancy. Mercantile
 - f. R-1 occupancy. Hotels and motels (transient) with < 30-day duration
 - g. R-2 occupancy. Apartments, condominiums, extended-stay hotels with ≥ 30-day duration
 - h. S-1 occupancy. Moderate hazard storage
 - i. S-2 occupancy. Low hazard storage
 - j. U occupancy. Utility and miscellaneous structures
 - k. _____ occupancy.

CHAPTER 4 SPECIAL DETAILED REQUIREMENTS

D. GROUP R USES

1. Group R-1 and R-2 dwelling requirements shall comply with CBC 420.
 - a. Separation between individual dwelling units shall be a min. of 1-hr. fire partitions, except for fully sprinklered Type IIB, IIIB or VB buildings which may be reduced to 1/2-hr. fire partitions. (CBC 709.3 & 420.2)
 - b. Floor assemblies separating dwelling units or/and sleeping units shall comply with horizontal assemblies per section CBC 711.
2. Live/work units shall comply with section CBC 419.
3. 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.
 - b. Provide areas adjacent to the atrium with a min. 1-hr. fire barrier separation with 3/4-hr. opening protectives, or justify omission of separation.
4. Combustible storage shall comply with CBC 413.
 - a. In other than R-3 and U occupancies, 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-hr. fire-resistance rated construction with noncombustible or 1-3/4" thick solid wood self-closing doors. (CBC 413.2)

E. OTHER USE AND OCCUPANCY

1. Motor-vehicle related occupancies shall comply with CBC 406.
 - a. Provide a min. 33" high vehicle barrier at all floor-elevation differentials greater than 1-foot. (CBC 406.4.2)
 - b. Vehicle ramps may not serve as exits unless a pedestrian walkway is also provided. Show dedicated area that will serve as the pedestrian walkway that is not part of the vehicle ramp. (CBC 406.4.4)
 - c. Vehicle ramps used for parking shall have a max. 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)
2. High-rise buildings shall comply with CBC 403.
 - a. Provide note on plans that a sprinkler water-flow alarm and control valve shall be installed at the lateral connection to the riser at each floor. It shall be the applicant's responsibility to coordinate this requirement with the fire sprinkler design consultant. (CBC 403.2)
 - b. A reduction in the fire protection of structural frame elements is not allowed. (CBC 403.2.1)
 - c. A lobby is required for each elevator in accordance with CBC 713.14.1
 - d. Provide note on plans that a smoke control system shall be installed. It shall be the applicant's responsibility to coordinate this requirement with the mechanical/ventilation consultant.
 - e. Exit enclosures require specific smoke protection as required by CBC 909.20 and 1022.10.
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') (60') 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 level below (CBC405.3).
 - d. This project includes an underground building lower than 60' 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 manual alarm system with an emergency voice/alarm communication system. (CBC 907.2.9.1)
 - g. Provide a min. 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 emergency/standby power and standpipes.

4. The _____ (use) (building) (occupancy) shall comply with CBC Section _____.

CHAPTER 5 GENERAL BUILDING HEIGHTS AND AREAS

F. HEIGHTS AND AREAS

1. On site plan, dimension distances from building(s) 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 max. height of the building as defined in CBC 502.1
5. Clearly show if the lower level is a basement based on the definitions in CBC 502.1.
6. On title sheet, show justification to exceed the basic allowable floor area listed in CBC T-506.2.
7. On title sheet, show justification to exceed the number of stories or building height listed in CBC T-504.3, CBC T-504.4.
8. Provide calculations to justify increase in allowable area
9. 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, T-508.4, T-705.8 and CBC 705.3.
10. Identify “Grade Plane” elevation for this project. Show the grade plane reference datum on all elevation and section drawings.
11. Assumed “Grade Plane” elevation is incorrect. Grade plane is determined as the average elevation of the lowest points around the perimeter of the building within the space described in CBC 502.1. Grade plane is not defined as the average of the highest and lowest points adjacent to the building. Justify the assumed grade plane for this project pursuant to CBC 502.1.
12. For R-2 occupancy apartments and condominiums of Type VA construction, the sprinkler increase for height may not exceed 4-stories or 60’. (CBC T-504.4)
13. Provide a note on plans that the automatic sprinkler system must comply with the provisions of CBC 903.3.1.2 (NFPA-13) in order to achieve an increase in (height) (area). It shall be the applicant’s responsibility to coordinate this requirement with the sprinkler design consultant.
14. When sprinkler increases are applied for an additional 20’ in height or for an additional story in accordance with CBC 504.2, sprinklers may not be used for an area increase in CBC 506.3 for Group A, E, H, I, L, Occupancies and high-rises.
15. Building contains one or more of the following Group Occupancies: A, E, H, I, L, or R or is a high-rise building. Pursuant to CBC 506.3, an automatic sprinkler system may be used for either an area increase or a height increase, but not both.
16. Justify the multiple-story increase in the allowable area for the building. The building contains one or more of the following Group occupancies: A, E, H, I, L, or R or is a high-rise building. Therefore, the allowable area for the building may only be doubled, and shall not be tripled. (CBC 506.4)
17. On site plan, clearly delineate any frontage used to justify allowable area increases per CBC 506.2.

18. Justify area frontage increase factor (I_r). 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' wide yards.
19. Note on plans: "Frontage used for allowable area increases per CBC 506.2 shall be permanently maintained".
20. The area increases per CBC 506.3 shall not apply where fire rating substitution of CBC T-601, Note e is used.
21. For buildings equipped with an NFPA 13R or 13D sprinkler system, the area increases per CBC 506.3 do not apply.
22. 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 505.1

G. MIXED OCCUPANCY

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 are separated from other portions of the building pursuant to CBC T-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 T-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:
 - a. Clearly identify on plans whether nonseparated uses will be utilized pursuant to CBC 508.3.1.
 - 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 the following: (Area) (Height) (Egress) (Fire Sprinklers) (Other).
3. Where mixed occupancy buildings contain separated uses, the following shall apply:
 - a. Clearly identify on plans the boundary of each adjoining occupancy that will be separated pursuant to CBC 508.4.1 and T-508.4.
 - b. Fire-resistance rated walls used to separate adjoining occupancies shall be constructed as fire barriers; fire partitions shall not be allowed. (CBC 508.4.4.1)
 - c. Fire-resistance rated floor-ceiling assemblies used to separate adjoining occupancies shall comply with CBC 712. (CBC 508.4.4.1)
4. Where mixed occupancy buildings contain accessory areas, the aggregate accessory areas within a single occupancy shall not exceed 10% 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 according to CBC 508.3 (unseparated). If treated per CBC 508.2 (separated) the max. total building area shall be such that the sum of the ratios for each of the actual to allowable area does not exceed 1.
6. Provide fire separation for incidental use area in the _____ in accordance with CBC 509 and T-509

CHAPTER 6 TYPES OF CONSTRUCTION

H. TYPES OF CONSTRUCTION

1. Exterior walls shall have a fire-resistance rating not less than that specified in CBC T-601 and T-602. Provide details of its construction.

2. Structural elements in exterior walls required to be of fire-resistance-rated construction shall have fire-resistance rating equal to or greater than that required for an exterior bearing wall. (CBC T-602)

Provide details, notes and specifications for the fire protection of building elements as required for the type of construction. (CBC T-601 and CBC 602)

CHAPTER 7 FIRE-RESISTANCE-RATED CONSTRUCTION

I. EXTERIOR WALLS

1. Projections located where openings are required to be protected shall be non-combustible, heavy timber, or 1-hr. construction. (CBC 705.2)
2. Projections beyond the exterior wall shall not extend beyond (clearly show on elevations/cross section):
 - a. A point one-third the distance from an assumed vertical plane located where protected openings are required due to location on property. (CBC 705.2)
 - b. More than 12" into areas where openings are prohibited. (CBC 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, T-508.4, T-705.8 and 705.2)
5. The fire resistance rating of exterior walls shall comply with the provisions of CBC 705.5.
6. The max. area of exterior wall openings in any story shall not exceed that allowed in CBC T-705.8.
7. Where both unprotected and protected openings are permitted, the total area is limited to Eq. 7-2. (CBC 705.8, T-705.8)
8. Exterior wall with a fire separation distance of ____ ft. or less shall be provided with a parapet not less than 30" height above roof (see 705.11 for exception). (CBC 705.11.1, T-705.8)
9. Parapets shall have the same fire-resistance rating as the wall supporting them. The uppermost 18" 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 (3/4) (1-1/2) hour assemblies. (CBC T-715.4, T-715.5)

J. 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 as defined in CBC 706.
3. Construct a fire wall (sometimes party wall) at property lines or when separating a building into two or more separate areas per CBC 706.1.1.
4. Provide details to show that fire wall complies with CBC 705 including but not limited to:
 - a. Fire rating shall be ____-hour per CBC T-705.4

- 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 per CBC 706.3.
 - d. Shall have horizontal continuity per CBC 706.5.
 - e. Shall extend vertically from the foundation to a point 30" above the roof per CBC 706.6.
 - f. The area of each opening in fire walls is limited to 156 sq. ft. Total width of the openings is limited to 25% of the wall length in the story under consideration. (706.8)
 - g. All openings in fire walls shall be protected with fire assemblies having a fire-resistance rating of (1-1/2) (3) hours. (CBC T-715.4)
 - h. Ducts and air transfer openings through fire walls should be avoided. If allowed, duct and air transfer opening penetrations shall be protected as required in CBC 712 and 717. Dampers are required. (CBC 706.11)
 - i. Exits must be provided independently for each area bounded by fire walls except for horizontal exits per CBC 1023.
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. Fire walls terminating at exterior walls must comply with CBC 706.5.1.
 7. Fire-resistance-rated exterior wall construction shall be maintained through crawl spaces, floor framing, and attic spaces in accordance with CBC 706.6.
 8. Combustible members framed into hollow fire walls or fire walls of hollow units, hollow spaces shall be solidly filled for the full thickness of the wall and for a distance not less than 4" above, below and between the structural members, with noncombustible materials approved for fireblocking. (CBC 706.7)
 9. Fire walls which are not party walls per CBC 715.4 require openings to comply with CBC 706.8.
 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 712. Openings in the separation shall have ____-hour fire assemblies. (CBC 508.2, T-508.4, 707, 712, and 715)
 11. Fire barriers and horizontal assemblies separating single occupancies into different fire areas shall be ____-hour fire rated per CBC T-707.3.10
 12. Fire barrier continuity must be detailed in accordance with 707.5 CBC.
 13. Fire barrier at vertical occupancy separations must have continuity and must extend through underfloor area, attic areas, and suspended ceiling areas (707.5)
 14. Openings in a fire barrier shall be protected in accordance with CBC 715, limited to a max. aggregate width of 25% and no opening shall exceed 156 sq. ft. (CBC 707.7)
 15. A ____-hour fire barrier is required between _____ occupancy and the _____ occupancy. (CBC 508.2, T-508.4 and 707.3.8)
 16. Provide a fire barrier in accordance with CBC 706 for the:
 - a. Shaft enclosure per CBC 708.4.
 - b. Exit enclosure per CBC 1022.1.
 - c. Exit passageway per CBC 1024.1.
 - d. Horizontal exit per CBC 1026.1.
 - e. Atrium per CBC 404.6.
 - f. Incidental use area at the _____ per CBC T-509.
 - g. Control areas per CBC 412.2.4.
 - h. Occupancy separation per CBC 508.4.
 - i. Fire area separation per CBC 707.3.9.

17. Provide ____-hour fire rated door assemblies in ____-hour fire barrier. (CBC 707.7 and T-715.4)
18. Glazing and openings in fire barriers shall be limited to 25% of the wall area, no larger than 156 sq. ft. with unless tested to match wall rating. (CBC 707.7)
19. All structural elements supporting a fire barrier must have the same fire-resistance ratings as the required occupancy separation. (CBC 707.5)
20. Provide a fire partition in accordance with CBC 709.1 for:
 - a. Walls separating dwelling units.
 - b. Walls separating sleeping units in R-1 hotels, R-2's and I-1's.
 - c. Corridor walls.
 - d. Elevator lobby per CBC 708.1
21. Fire partition continuity must be detailed in accordance with CBC 708.
22. Smoke barriers shall have a min. 1-hr. fire-resistance rating. (CBC 709)
23. Smoke barriers shall from an effective continuous barrier per the requirements of CBC 710.4.
24. Smoke partitions shall comply with the requirements of CBC 711.
25. 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 per section CBC-703.6.
26. Floor and roof assemblies required to have fire-resistance rating shall comply with the requirements of CBC 711.
27. In 1-hr. 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 712.3.3)
28. Penetrations of fire-resistance-rated construction must comply with CBC 714.
29. In fire-resistance-rated walls, detail through penetrations and membrane penetrations per CBC 714.3.
30. Penetrations in fire-resistance-rated walls shall comply with CBC 714.3. Through and membrane penetrations shall comply with CBC 714.3.1.1 or 714.3.1.2, or as noted below: (CBC 714.3.1)
 - a. Steel, ferrous or copper pipes may penetrate fire-resistance rated walls, provided the opening is protected as follows: (CBC 714.4.1 EX.)
 - i. Item penetrating concrete or masonry walls is a max. 6" nominal diameter and the area of the opening through the wall does not exceed 144 sq. in., 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.
 - 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 713.3.1.2)
 - c. Membrane penetrations of max. 2-hr. fire-resistance rated walls by steel electrical boxes are permitted, provided that each does not exceed 16 sq. in. in area and the total area of such openings does not exceed 100 sq. in. for any 100 sq. ft. of wall area, and the space between the wall membrane and the box does not exceed 1/8". Additionally, outlet boxes on opposite sides of the wall shall be separated by a horizontal distance of not less than 24". (CBC 713.3.2 EX. 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 1/8" unless listed otherwise. Additionally, outlet boxes on opposite sides of the wall shall be separated by a horizontal distance of not less than 24". (CBC 713.3.2 EX. 2)

- e. A fire sprinkler shall be permitted to be unprotected provided such space is covered by a metal escutcheon plate. (CBC 713.3.2 EX. 3)
 - 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 703.2.
31. In fire-resistance-rated horizontal assemblies, detail through penetrations and membrane penetrations per CBC 714.4.
32. Penetrations of fire-resistance-rated horizontal assemblies shall comply with CBC 713.4. Through penetrations shall comply with CBC 713.4.1.1 or 713.4.1.1, or as noted below: (CBC 713.4.1.1)
- 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. (CBC 713.4.1.1 EX. 1)
 - b. Penetrating items, as noted above, with a max. 6" 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 sq. in. in any 100 sq. ft. of floor area. (CBC 713.4.1.1 EX. 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-hr. but not less than the required fire-resistance rating of the floor penetrated. (CBC 713.4.1.1.2)
 - 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 1/8" unless listed otherwise. (CBC 713.4.1.2 EX. 3)
 - e. A fire sprinkler shall be permitted to be unprotected provided such space is covered by a metal escutcheon plate. (CBC 713.4.1.2 EX. 4)
33. 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)
34. Fire-resistance-rated assemblies shall be supported with a structural system having an equivalent fire-resistance-rated protection. (CBC 704.1)
35. 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 non-load-bearing wall more than two stories high. (CBC 704.3)
36. Where columns are required to be fire-resistance rated, the entire column, including its connections, shall be protected. (CBC 704.2)
37. 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' from the finished floor. (CBC 704.9)
38. Opening protectives in firewalls must comply with CBC 715 CBC and T-715.4.
39. Fire door assemblies shall also meet the requirements for a smoke and draft control assembly. (CBC 715.4.3.1)
40. Fire door assemblies in exit enclosures and exit passageways shall have a max. transmitted temperature end point of not more than 450° F (250° C) above ambient at the end of 30 minutes. (CBC 715.4.4)
41. Fire doors and fire-protection rated glazing shall bear labels as required by CBC 715.4.5 and 715.4.6.3.
42. Fire dampers shall have the min. fire protection rating specified in CBC T-716.3.1 for the type of penetration. (CBC 716.3.1)
43. Fire dampers, smoke dampers, combination fire/smoke dampers and ceiling radiation dampers shall be provided as prescribed in CBC 716.5.1 through 716.5.5 and CBC 716.6.

44. Fireblocking shall be installed in combustible concealed locations in accordance with CBC 717.2 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'.
 - 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 717.2.3)
 - c. In concealed spaces between stair stringers at the top and bottom of the run. Enclosed spaces under stairs shall also comply with CBC 1009.5.3.
 - d. Where annular space protection is provided in accordance with CBC 708.2 EX. 6, CBC 713.4.1.2 EX. 1, or CBC 713.4.2, 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 717.2.5)
45. Draftstopping shall be installed in combustible concealed locations in accordance with CBC 717.3.2 and 717.3.3, respectively, at the following locations: (Provide Details)
 - a. In floor-ceiling assemblies so that horizontal floor areas not exceed 1,000 sq. ft. (CBC 717.3.3)
 - b. In attics and concealed roof spaces, such that any horizontal area does not exceed 3,000 sq. ft. (CBC 717.4.3)
 - c. Show draft-stop construction on the plans. Draftstopping materials shall not be less than 1/2" gypsum board, 3/8" wood structural panel, 3/8" particleboard, 1" nominal lumber, cement fiberboard, batts or blankets of mineral wool or glass fiber, or other approved materials adequately supported. (CBC 717.3.1)
 - d. Openings in the partitions shall be protected by self-closing doors with automatic latches constructed as required for the partitions. (CBC 717.4.1.1)
46. Draft stop floor ceiling assemblies per CBC 717.3.2 for R occupancies and 717.3.3 for all others.
47. Draft stop attics and mansards per CBC 717.4.

CHAPTER 8 INTERIOR FINISHES

K. 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. Note on plans or finish schedule: "Wall, floor and ceiling shall not exceed the flame spread classifications in CBC T-803.9".
3. Thermal and acoustical insulation shall comply with CBC 719. (CBC 807.1)
4. Interior floor finish and floor covering materials shall comply with CBC 804.2 through 804.4.1.
5. 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.
6. Decorative materials and trim installed in buildings governed by the SFM shall comply with the provisions of CBC 806.

CHAPTER 9 FIRE PROTECTION SYSTEMS

L. FIRE PROTECTION SYSTEM

1. Fire barriers or horizontal assembly separating fire areas shall be rated in accordance with CBC 707 & 712. (CBC 901.7)

2. An automatic sprinkler system is required throughout all buildings with a Group “R” fire area. (CBC 903.2.8)
3. Exceptions to, or reductions in building code requirements based on the installation of automatic fire extinguishing system is not allowed when utilizing NFPA-13R type residential sprinkler system allowed for Group “R” occupancies. (CBC 903.2.8, 903.3.1.2, 504.2, 506.3, & T-601).
4. 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. Has a(n) _____ occupancy; and/or
 - b. Has a fire area over _____ sq. ft.; and/or
 - c. Has over _____ occupant load.
5. Building with floor areas over 1,500 sq. ft. shall be sprinklered where 20 sq. ft. of opening for every 50 ft of exterior wall length is not provided on at least one side. (CBC 903.2.11.1)
6. 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)
7. 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)
8. 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)
9. A (manual) (automatic) fire alarm system is required as a condition for the _____ occupancy. (CBC 907.2.9)
10. Group R occupancies with smoke alarm systems, hard-wired smoke detectors with a battery back up, shall be provided in the following areas (show location on the plans): (CBC 907.2.11)
 - a. Group R-1: sleeping areas, in every room in the path of egress from the sleeping room to the exit door, in each story within the sleeping unit, in enclosed common stairwells.
 - b. Groups R-2, R-2.1, R-3, R-3.1, and R-4: on the ceiling or wall outside of all sleeping areas, in each room used for sleeping purposes, in each story within a dwelling unit, in enclosed common stairwells, in Group R-3.1 in addition to the above throughout the habitable areas except the kitchen.
 - c. Power source shall be from the building wiring and shall be equipped with battery backup.
11. Approved carbon monoxide alarms shall be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms and on every level including basement in dwelling units that have fuel-fired appliances or attached garages (CBC 915.2.1).
 - a. Power source shall be from the building wiring and shall be equipped with battery backup.
 - b. Where more than one required within dwelling unit or sleeping unit, the alarms shall be interconnected.
 - c. For R-1 only, carbon monoxides are required on the ceiling of sleeping units with permanently installed fuel-burning appliances.

CHAPTER 10 MEANS OF EGRESS

M. 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 10 or, common path of egress travel exceeds 75'. (CBC 1006.2.1, CBC T-1006.2.1.)

3. The number of exits shall comply with CBC 1029.7, T-1006.3.1
4. Rooms with a common path of egress travel exceeding that allowed in CBC 1007.1.1 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 1007.1.1, 1029.8)
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 T-1006.3.2(2), T-1016.1, T-1021.1 or T-1021.2 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 T-1006.3.1. (CBC 1006.3.1 & 1006.2.1.)
9. Travel distance to reach an exit shall not exceed that allowed in CBC T-1006.2.1, CBC 1029.8
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)

N. CORRIDORS

1. Corridor and exit balcony width shall be not less than (72") (44") (36") (24"). (CBC 1020.2)
2. Dead end corridors shall not exceed 20' (50') in length. (CBC 1020.4)
3. Provide a complete architectural section of 1-hr. corridor detailing fire-resistance-rated construction of the walls and ceilings. Detail all duct and other penetrations. (CBC 708.1, 1020.1, 715.1, T-716.5 & 716.5.4)
4. Provide fire/smoke dampers at duct penetrations of 1 hr corridor walls. (CBC 716.5.4.1)
5. Glazed openings into 1-hr. corridors shall be protected per CBC T-715.5. The total area of such openings shall not exceed 25% of the common wall with any room per CBC 715.5.7.2.
6. Corridor walls may terminate at the ceiling, only if the entire ceiling is an element of 1-hr. floor or roof assembly. (CBC 709.4)
7. 1-hr. corridors and any enclosed ceilings within them shall not be used as an integral part of the duct system. (CBC 1020.5)
8. At rooms with exhaust fans adjacent to corridors, show how make up air is provided. No louvers shall be provided. (CBC 1020.5)

O. DOORS

1. Two exits or exit access doors of egress shall be provided from boiler, incinerator, or furnace rooms which exceed 500 sq. ft. and any fuel fired equipment exceeding 400,000 BTU input capacity. One exit is permitted to be a fixed ladder or alternating tread device. Exit access doorways shall be separated by a horizontal distance equal to one-half the max. horizontal dimension of room. (CBC 1006.2.2.1).
2. Each leaf of door in the means of egress shall provide 32" clear opening and a min. height of 6'-8", but in no case shall any swinging door leaf exceed 48". (CBC 1010.1.1)
3. Provide specifications for the door hardware (i.e., lever type, push-pull, panic, etc) to comply with disabled access requirements. (CBC 11B-404.2.7, 1010.1.2.1)

4. Doors serving an occupant load of 50 or more or hazardous rooms or areas shall swing in the direction of exit travel
CBC 1010.1.2.1
5. All exit doors and gates from an _____ occupancy shall not be provided with a latch or lock, unless it is panic hardware. (CBC 1010.1.9)
6. Revolving, sliding or overhead doors shall not be used as exit doors. (CBC 1010.1.4)
7. The bottom 10" of all doors, except automatic and sliding, shall have a smooth, uninterrupted surface. (CBC 1133B.2.6)
8. 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)
9. When additional doors are provided, they shall conform to the provisions for exit doors. (CBC 1010.1)
10. Landings or floor level at doors shall not be less than 1/2" below the threshold. Raised thresholds and floor level changes greater than 1/4" at doorways shall be beveled with a slope not greater than one-unit vertical in two units horizontal. (CBC 1010.1.7)
11. Door swinging over landing shall not reduce the width by more than 7" 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)
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" into the required width. (CBC 1005.7.1)
13. Doors and their frames opening into a 1-hr. corridor shall be labeled 20-minute assemblies with smoke and draft control assemblies with self or automatic closers. (CBC 716.5.3, 716.5.9 & 715.4.7)

P. STAIRWAYS

1. Stairs shall have a min. width of 48" (36"). (CBC 1009.3)
2. Straight run stairways shall be detailed as follows:
 - a. Max 7" and min. 4" rise height. (CBC 1011.5.2)
 - b. Min. 11" tread depth. (CBC 1011.5.2)
 - c. Min. 36" clear width. (CBC 1011.2)
 - d. Min. 6'-8" vertical headroom measured vertically from a line connecting the edge of the nosing. (CBC 1011.3)
3. Provide section and details of interior or exterior stairway showing:
 - a. Max. tread rise of 7" (min. 4") and min. tread run of 11". (CBC 1011.5.2)
 - b. Min. headroom of 6'-8". (CBC 1011.3)
 - c. Enclosed usable under stairways require 1-hr. construction on enclosed side. (CBC 1011.7.3)
 - d. Provide visual striping per CBC 11B-504.4.1
4. Curved stairways with winder treads shall have treads and risers accordance with Section 1011.5. (CBC 1011.9)
5. Submit shop drawings for spiral stairway showing compliance with CBC 1010.10. Spiral stairways shall be detailed as follows:
 - a. Min. 7.5" clear tread depth at a point 12" from the narrow edge.
 - b. Min. 6'-6" vertical headroom measured vertically from a line connecting the edge of the nosing.
 - c. Max. 9.5" riser height.
 - d. Min. 26" stairway width.

6. Provide a barrier from upper stairs, and stairs leading to the basement. (CBC 1023.8)
7. Stairs shall be enclosed with fire barriers per CBC 1022.1. Enclosure shall conform to the following:
 - a. 2-hr. fire-resistance-rated construction in all buildings 4 or more stories in height and 1-hr. 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 715.
 - 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. Useable space is not allowed under the stairs. (CBC 1009.6.3)
 - f. Exterior stairs shall be separated from the interior of the building with the same rating required for interior stairs. (CBC 1026.6)
8. Exterior stairs shall be separated from the interior of the building with the same fire-resistance-rated construction required for interior stairs. (CBC 1026.6)
9. In buildings 4 or more stories:
 - a. One stair must extend to the roof. (CBC 1009.3)
 - b. Stairs must have a penthouse or a smoke hatch. (CBC 1009.13.1)
10. Stairs in buildings over 75' (55' due to local ordinance which may apply) in height shall be in a smoke proof enclosure or pressurized stairway per CBC 909.20, 1022.9 and 202 high-rise definition.
11. Stair leading from an area of refuge requires a min. of 48" clear between handrails. (CBC 1007.3)
12. A min. of 2 areas of refuge with one at an elevator must be provided in accordance with Section 1007.1, 1007.2.1, 1007.4 and 1007.6 CBC since your project is four or more stories above grade.

Q. OTHER COMPONENTS

1. Handrails shall be detailed as follows: (CBC 1012)
 - a. Handrail shall be continuous without interruption. (CBC 1012.4)
 - b. Min. 34" to max. 38" high above the stair tread nosing. (CBC 1012.2)
 - c. Min. 1.25" to max. 2" (for accessibility, 1-1/2" per CBC 1133B.4.2.6) circular cross-section for handgrip portion of handrail. (CBC 1012.3)
 - d. Min. 4" to max. 6.25" perimeter dimension with max. 2.25" cross-section for non-circular handgrip portion of handrail. (CBC 1012.3)
 - e. Min. 0.01" radius for edge of handrail (i.e., no sharp corner). (CBC 1012.3)
 - f. Min. 12" horizontally extension beyond the top riser and continue to slope for the depth of one tread beyond the bottom riser serving more than one dwelling unit or not within a dwelling unit. (CBC 1012.5)
 - g. The handgrip shall extend 12" beyond the top and 12" plus tread width beyond bottom tread and return the handrail to newel post or wall. (See Title 24 Disabled Access for additional requirements.) (CBC 1133B.4.2.2)
 - h. Min. 1.5" clear space between handrail and wall. (CBC 1012.6)
2. Guards shall be detailed as follows:
 - a. Guards shall be located along open-sided walking surfaces, mezzanines, stairways, ramps and landings that are more than 30" above the floor or grade below. (CBC 1013.1)
 - b. Guard whose top rail does not serve as a handrail shall have a height of 42" high above the leading edge of the tread. (CBC 1013.2)
 - c. Guard whose top rail serves as a handrail shall have a height of 34" to 38" high above the leading edge of the tread. (CBC 1013.2)
 - d. Open guard shall not permit 4.375" diameter sphere to pass through any opening. (CBC 1013.3)
 - e. Triangular opening formed by tread, stair and bottom rail shall not permit 6" diameter sphere to pass through. (CBC 1013.3)

3. Guards shall be provided where the roof hatch opening or mechanical equipment is located within 10' of a roof edge or open side of a walking surface and such edge or open side is located more than 30" above the floor, roof or grade below. The guard shall be constructed so as to prevent the passage of a 21" diameter sphere. (CBC 1013.6)
4. Provide emergency escape and rescue from sleeping rooms below the fourth story. Min. net clear opening dimensions of 24" height, 20" clear width, 5.7 sq. ft. area (5.0 sq. ft. at grade floor) and 44" max to bottom of clear opening is required. (CBC 1029)
5. Provide window wells at emergency escape and rescue opening with sill height located below ground level. Min. area of 9 sq. ft., min. 3' width, and provide fixed ladder for window wells with a max. vertical depth of 44". (CBC 1029.5)
6. Where elevation changes less than 12" occur in the means of egress, sloped surfaces shall be used. (CBC 1003.5)
7. Ramp slopes shall not exceed the following:
 - a. Max. 1' in 12' (8%) if part of egress. (CBC 1012.2)
 - b. Max. 1' in 8' (12.5%) for all others. (CBC 1012.2)
 - c. Max. 1' in 48' (2%) for cross slope. (CBC 1012.3)
 - d. Max. 30" vertical rise. (CBC1012.4)
8. Ramps with a rise greater than 6" shall have handrails on both sides. (CBC 1012.8)
9. Where an egress court serving a building or portion thereof is less than 10' in width, the egress court walls shall have not less than 1-hr. fire-resistance-rated construction for a distance of 10' above the floor of the court. Openings within such walls shall be protected by opening protectives having a fire protection rating of not less than 3/4-hr. (CBC 1027.5.2)
10. Exterior balconies, stairways and ramps shall be located at least 10' 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 704 based on fire separation distance. (CBC 1027.3)
11. Balconies used for egress purposes shall conform to the same requirements as corridors for width, headroom, dead ends and projections. (CBC 1019.1)
12. Exterior egress balconies shall be separated from the interior of the building by walls and opening protection as required by corridors. (CBC 1019.1)
13. The means of egress system shall be illuminated with at least one-foot candle at the floor level. (CBC 1006.2)
14. Provide a separate source of power for exit sign illumination. (CBC 1011.5.3)
15. Exit signs are required when 2 or more exits are required. Show location of all exit signs. (CBC 1011.1)
16. Show conformance for floor-level exit signs and exit path marking in R-1 and R-2 occupancies per CBC 1011.6 and 1011.7 as enforced by the SFM.
17. Show two sources of power for means of egress. (CBC 1006.3)
18. Provide luminous egress path markings for group R-1 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

R. INTERIOR ROOM, LIGHT AND VENTILATION

1. Provide a door and window schedule. Show type and size of each.
2. Show the following dimensions for each room or area:
 - a. At least one room shall have a min. net area of 120 sq. ft. (CBC 1208.3)
 - b. Habitable areas shall have a min. net area of 70 sq. ft. (CBC 1208.3)
 - c. A kitchen shall have a min. gross area of 50 sq. ft. (CBC 1208.3 EX 1)
 - d. Habitable spaces shall not be less than 7' in any plan dimension. (CBC 1208.1)
 - e. Occupiable spaces, habitable spaces, hallways & corridors shall have a ceiling height of no less than 7'-6". (CBC 1208.2).
 - f. Bathrooms, toilet rooms, kitchens, storage rooms, & laundry rooms shall have a ceiling height of no less than 7' (CBC 1208.2)
 - g. Kitchen shall have a clear passageway of not less than 3' (CBC 1208.1)
 - h. A min. 15" clearance from center of water closet compartment to any side-wall or obstruction nor 30" clearance from center to center to any similar fixture and a min. 24" clear space in front of water closet. (CPC 407.6)
3. Provide natural ventilation in habitable rooms or bathrooms by means of openable exterior wall openings with an area not less than 4% of the room floor area. This is deficient in _____. Mechanical ventilating systems may be permitted if designed in accordance with the Mechanical Code. (CBC 1203.5.1, CBC 1203.1)
4. Provide natural ventilation for adjoining spaces. In order to consider any room as a portion of an adjoining room, opening shall be unobstructed and shall have an area of not less than 8% the floor area of the interior room or 25 sq. ft., whichever is greater. (CBC 1203.5.1.1)
5. Rooms containing bathtubs, showers, spas and similar bathing fixtures shall be mechanically ventilated. Provide an exhaust fan with a min. capacity of 50 CFM. Ductless fans are unacceptable. (CBC 1203.5.2.1, CMC T-4-4)
6. Provide natural light in habitable rooms by means of exterior glazed openings with an area not less than 8% of the room floor area. This is deficient in _____. (CBC 1205.2)
7. Provide natural light for adjoining spaces. In order to consider any room as a portion of an adjoining room, at least 1/2 of the common wall area shall be open and unobstructed and shall provide an opening of not less than 1/10 the floor area of the interior room or 25 sq. ft., whichever is greater. Show that the common wall between _____ and _____ complies. (CBC 1205.2.1)
8. Openings required for natural light and ventilation shall be permitted to open into a thermally isolated sunroom or patios provided that:
 - a. For natural light a glazed area of not less than 1/10 of the floor area of the interior room or 25 sq. ft., whichever is greater (1205.2.1 EX)
 - b. For natural ventilation an area of not less than 8% of the floor area of the interior room or space, but not less than 25 sq. ft. (1203.5.1.2 EX)
9. Where openings below grade provide required natural ventilation, the outside horizontal clear space measure perpendicular to the opening shall be 1-1/2 times the depth of the opening measured from adjoining ground level to the bottom of the opening. (CBC 1203.5.1.2)
10. For the purpose of providing natural light or ventilation at exterior openings of buildings, a min. yard of 3' in width for one and two story building is required. For buildings more than two stories, the min. width of the yard shall be increased to 1 foot for each additional story. (CBC 1206.2)
11. For the purposed of providing natural light or ventilation at exterior openings on opposite sides shall not be less than 6' in width. Courts bounded on three or more sides by the wall of the buildings shall not be less than 10' in length, unless bounded one end by a public way or yard. For buildings more than two stories in height, the court shall be increased 1 foot in width and 2' in length for each additional story. (CBC 1206.3)

12. Porch over required windows at _____ must have a min. clear height of 7' with longer side at least 65% open and unobstructed. (CBC 1205.2.2 EX 1)
13. Toilet and bathing room floors shall have a smooth, hard, nonabsorbent surface such as Portland cement, ceramic tile or other approved material that extends upward onto the walls at least 6". (CBC 1210.2.1)
14. Walls within 2' of the front and sides of water closets shall have a smooth, hard, nonabsorbent surface of Portland cement, concrete, ceramic tile or other approved material surface to a height of 4', and except for structural elements, the materials used in such walls shall be of a type that is not adversely affected by moisture. (CBC 1210.2.2)
15. All shower compartments, regardless of shape, shall have a min. finished interior area of not less than 1,024 sq. in. and shall be capable of encompassing a 30" circle. Shower doors shall swing out. The min. area and dimensions shall be maintained to a point 70" above the shower drain outlet. (CPC 411.7)
16. 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" above the drain inlet per CBC 1210.2.3. Use of water-resistant gypsum backing board shall be per CBC 2509.2.
17. Built-in tubs with showers shall have waterproof joints between the tub and adjacent wall. (CBC 1210.2.4)
18. Toilet rooms shall be provided with a fully openable exterior window with an area not less than 3 sq. ft. or a vertical duct not less than 100 sq. in. in area for the first water closet plus 50 sq. in. additional of area for each additional water closet, or a mechanically operated exhaust system capable of providing a complete change of air every 15 minutes. Such mechanically operated exhaust system shall be connected directly to the outside, and the point of discharge shall be at least 3' from any opening that allows air entry into occupied portions of the building.
19. Dimension a min. 15" clearance from center of water closet compartment to any side-wall or obstruction nor 30" clearance from center to center to any similar fixture and a min. 24" clear space in front of water closet for bathroom at _____. (CPC 407.6)
20. Occupancies and operations involving flammable or combustible hazards or other contaminant sources shall be designed in accordance with CMC. (CBC 1203.5.2)
21. Provide min. 1 foot-candle of stairway illumination at tread runs. (CBC 1205.4)
22. Add the following notes to plans:
 - a. Flush volumes for low-consumption and water-saver water closets shall be provided with a max. 1.6 gallons of water per flush. (CPC 402.1, 402.2)
 - b. Water heater shall be strapped to wall at points within the upper 1/3 and lower 1/3 of its vertical dimensions with the lower a min. 4" above the controls. (CPC 508.2.1)
 - c. Garage door extension springs shall be fabricated from either hard drawn-spring wire or oil-tempered wire and installed in accordance with the manufacturer's instruction. (CBC 1211)
23. This plan contains _____ courts. Provide details of the proposed wall construction, opening protection and stair protection. (CBC 202, 1206.3, 1203.5.3 and 1024.5)
24. The width of courts shall meet the following: (CBC 1206.3)
 - a. Not less than 3' in width
 - b. Not less than 6' in width where openings occur on opposite sides
25. Courts shall not be less than 10' in length. (CBC 1206.3)
26. Courts located in buildings more than 2-stories in height shall be shall be increased: (CBC 1206.3)
 - a. 1' in width for each additional story
 - b. 2' in length for each additional story

27. Court access shall be provided at the bottom of courts. (CBC 1206.3.1)
28. Courts more than 2-stories shall be provided with horizontal air intake at the bottom not less than 10 sq. ft. and leading to the exterior of the building. (CBC 1206.3.2)
29. Courts shall be properly graded and drained to an approved disposal system. (CBC 1206.3.3)
30. The ventilating area in enclosed attics and rafter spaces shall be as follows: (CBC 1203.2)
 - a. Show ventilation type, size, and location on the plans.
 - b. The net free ventilating area shall not be less than:
 - i. 1/150 of the attic space (approximately 10 sq. in. for each 10 sq. ft. of attic area), OR
 - ii. 1/300 provided a vapor retarder is installed with a transmission rate not exceeding 1 perm. meeting ASTM E96.
 - c. 50% of the required ventilation area must be located at least 3' above eave or cornice vents with the balance provided by eave or cornice vents.
 - d. Openings shall have corrosion-resistant wire mesh or other approved material with 1/8" min. and 1/4" max. opening.
 - e. A min. of 1" airspace shall be provided between insulation and roof sheathing.
 - f. Enclosed framing in exterior balconies and elevated walking surfaces that are exposed to weather, shall be provided with openings that provide a net free cross ventilation area not less than 1/150 of the area of each separate space per CBC 2304.12.2.6.
31. An opening not less than 20" x 30" shall be provided to any attic area having a clear height of over 30". Min. clear headroom of 30" in the attic space shall be provided at or above the access opening. (CBC 1209.2)
32. Under-floor vents shall meet the following requirements: (CBC 1203.4)
 - a. Show ventilation type, size, and location on the plans.
 - b. Openings shall be placed so as to provide cross ventilation of the under-floor space
 - c. The net free ventilating area shall not be less than 1/150 of the crawl-space area (approximately 10 sq. in. for each 10 sq. ft. of attic area).
 - d. Openings shall have corrosion-resistant wire mesh or other approved material with 1/8" min. and 1/4" max. opening.
33. Show min. 18" x 24" under floor access opening. (CBC 1209.1)
34. 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)
35. Sound Transmission. In Group R Occupancies, wall and floor- ceiling assemblies separating dwelling units or guest rooms from each other and from public space such as interior corridors and service areas shall provide airborne sound insulation for walls, and both airborne and impact sound insulation for floor-ceiling assemblies. All such separating walls and floor-ceiling assemblies shall provide an airborne sound insulation equal to that required to meet a sound transmission class (STC) of 50 (45 if field tested). All separating floor-ceiling shall provide impact sound insulation equal to that required to meet an impact insulation class (IIC) of 50 (45 if field tested). **EXCEPTION:** Impact sound insulation is not required for floor-ceiling assemblies over non habitable rooms or spaces not designed to be occupied, such as garages, mechanical rooms or storage areas. (CBC 1207.1, 1207.2 and 1207.3)
 - a. Identify all sound rated partitions on the floor plans.
 - b. Provide construction details for the following:
 - i. Sound rated wall assemblies.
 - ii. Sound rated floor-ceiling assemblies.
 - c. Detail all penetrations or openings into sound rated partitions or approved permanent resilient sealants.
 - d. All rigid conduits, ducts, plumbing pipes, and appliance vents located in sound assemblies shall be isolated from the building construction by means of resilient sleeves, mounts, or a min. 1/4" thick approved resilient

material. Vents located in sound assemblies shall be isolated from the building construction by means of resilient sleeves, mounts, or a min. 1/4" thick approved resilient material.

- e. An approved permanent and resilient acoustical sealant shall be provided along the joint between the floor and the separation walls. Floor-ceiling assemblies shall be sealed, lined or insulated with _____.
- f. Carpets or similar surface material which are part of the floor-ceiling assembly must be installed and inspected before the Certificate of Occupancy is issued and may be replaced only by other floor covering that provides the required impact sound insulation. (CBC 1207.8)
- g. The entrance doors to residential units from interior corridors are required to have a min. STC rating of 26. (Laminated 1-3/4" solid-core doors with resilient stops and gaskets or 18 gauge insulated steel slab doors with compression seals all around, including thresholds will meet this requirement). (CBC 1207.7)
- h. Metal ventilating and conditioned air ducts located in sound assemblies shall be lined. (**EXCEPTION:** Ducts serving only exit-ways, kitchen cooking facilities, and bathrooms need not be lined).
- i. Mineral fiber insulation shall be installed in joist spaces whenever a plumbing piping or duct penetrates a floor-ceiling assembly or where such unit passes through the plane of the floor-ceiling assembly from within a wall. The insulation shall be installed to a point 12" beyond the pipe or duct. This requirement is not applicable to fire sprinkler pipe, gas line or electrical conduit.
- j. Electrical outlet boxes in opposite faces of separation walls shall be separated horizontally by 24" and note that back and sides of boxes will be sealed with 1/8" resilient sealant and backed by a min. of 2" thick mineral fiber insulation. (TV, telephone and intercom outlets must be installed in boxes accordingly.)
- k. Wall mounted lavatories and toilets are not permitted on sound rated partitions.

CHAPTER 14 EXTERIOR WALLS

S. 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

T. ROOF

- 1. The min. roof coverings installed on buildings shall comply with CBC T-1505.1 based on the type of construction of the building. Roof covering shall be Class C rated or better or as required. (CBC 1505.1)
- 2. Identify on the plans the fire-retardant roof classification, manufacturer's name, and ICC/UL/SFM report number. (CBC 1506.3)
- 3. Provide specifications for roofing material and application.
- 4. Specify approved weatherproof walking surface material at decks and balconies.
 - a. Where balcony or other elevated walking surfaces are exposed to the weather, and the structural framing is protected by an impervious moisture barrier, the construction documents shall include details for all elements of the impervious moisture barrier system. The construction documents shall include manufacturer's installation instructions per CBC 107.2.7.
 - b. The impervious moisture barrier system protecting the structure supporting floors shall provide positive drainage of water that infiltrates the moisture-permeable floor topping per CBC 2304.12.2.5.
 - c. All elements of the impervious moisture barrier system shall not be concealed until inspected and approved per CBC 110.3.8.1.
- 5. Clay and concrete tile attachment shall comply with CBC T-1507.3.7. Notes shall be provided on the plans to show compliance. (CBC 1507.3.7)
- 6. Roof slope shown on the plans is not adequate for the type of roof covering specified. The min. roof slope for _____ roof is _____. (CBC 1502.1, CBC 1507)

7. Built-up roofs shall have a min. slope of 1/4" per foot (2%) for drainage. (CBC 1507.10.1)
8. Show roof slope(s), drain(s) and overflow drain(s) or scupper(s) on the roof plan. Provide a detail of the roof drain 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 min. rain intensity of 3" per hour.
 - c. The roof drain and overflow drain must maintain independent lines to the yard box.
 - d. Roof drainage is not permitted to flow over public property.
 - e. Secondary roof drains having the same size as the primary roof drains shall be installed with the inlet flow line located a min. 2" above the low point of the roof.
 - f. Scuppers through parapet walls adjacent to the low point of the roof may be used as secondary roof drainage. Scupper openings shall be a min. of 4" high and have a width equal to the circumference of the roof drain required for the area served.
 - g. Overflow scuppers shall be designed in accordance to CPC T-11-1.
9. Provide and detail access to equipment on roof per CMC 904.10.3.
10. Show that the penthouse and/or roof structures satisfy the requirements of CBC 1509. (CBC 1509)

CHAPTER 24 GLASS AND GLAZING

U. GLASS AND GLAZING

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 purposes 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" 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" 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 sq. ft.
 - ii. Exposed bottom edge less than 18" above the floor.
 - iii. Exposed top edge greater than 36" above the floor.
 - iv. One or more walking surfaces within 36" 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. Walls and fences enclosing indoor and outdoor swimming pools and spas where all of the following conditions are present:
 - i. The bottom edge of the glazing is less than 60" above a walking surface on the pool or spa side of the glazing.
 - ii. The glazing is within 60" of a swimming pool or spa water's edge.
 - j. Adjacent to stairways, landings and ramps within 36" horizontally of a walking surface; when the exposed surface of the glass is less than 60" above the plane of the adjacent walking surface (read code for exception with special installation).
 - k. Adjacent to stairways within 60" horizontally of the bottom tread of a stairway in any direction when the exposed surface of the glass is less than 60" above the nose of the tread (read code for exception with special installation).

