Commercial Plan Review Checklist & Standard Comments
(By Discipline)

Plans shall consist of the following:

General Information

Correct number of 18” x 24” to 36” x 48” plan sets drawn to scale and dimensioned

Provide

☐ Site/plot plan drawn to scale. Dimensions of all lot lines and setback distances to all structures.
☐ Civil drawing for new buildings (CBNC).
☐ Address. Include suite and building number, designer, type of construction, complete scope of work.
☐ Provide use or occupancy of the project and the adjacent tenants. List of all current applicable codes.
☐ Show path of travel from disabled accessible parking stall and public way to public entrance.
☐ Vicinity map.
☐ Label all new & existing items/spaces for alterations & additions.
☐ Floor plans of whole tenant space with a complete exiting plan (not just altered space).
☐ ¼ “scale drawing of rest rooms.
☐ Architectural plans (floor, elevations, sections, and details. (Roof plan if applicable)
☐ Reflected ceiling plan
☐ Structural plans with foundation, soils report, framing details and calculations (if applicable)
☐ Plumbing plans (single line or isometric) with calculations
☐ Mechanical plans
☐ Mechanical Title 24 Energy Compliance Documentation
☐ Kitchen hood plans with details and show all new restaurant cooking equipment
☐ Electrical Power Plan
☐ Lighting plan and Photometric plan for outdoor lighting
☐ One Line Diagram, Panel Schedule(s) and Load Calculations
☐ Location of service switchgear and panels
☐ Lighting Title 24 Energy Compliance Documentation
☐ A complete plot plan showing: Lot dimension, yard setbacks, street name(s), north arrow, existing building(s) to remain, distance between buildings and location of private sewage disposal system is required. (UBC 106.3.3).

• Plan review and zone check fees must be paid upon submittal of plans.
• Verification of Contract cost is required for all CBAC cases. Please verify by including an estimate of the cost of the entire scope of work indicated on the drawings. (Including permanent equipment.)
**Fire/Life Safety – Comments**

All sheets of plans and cover sheet of any calculations must be wet signed and dated by person responsible for their preparation, who is licensed in California.

Submit a review letter by soils engineer and incorporate any requirements and recommendations into the plans.

A geological report/soil report is required. CBC 1802.2

Provide a Building Code Analysis on the title sheet. Include the following code information for each building proposed: Description of use, Occupancy, whether separated or unseparated, number of stories, type of construction, sprinklers, floor area, height, and allowable floor area.

The current design codes have changed. Please submit design and plans based on the 2016 CBC, CPC, CMC and CEC.

Delete notes and details that do not apply to this project.

Grading permit may be / is required. Plans and permit for grading may be processed and issued separately from and prior to this building permit.

Provide an accurate and complete listing of required special inspections pursuant CBC 1704 specific to this project. This should appear in prominent position on the cover sheet of the plan. Alternatively, provide a clear note in a prominent position on the cover sheet which states what sheet of the plans the list of special inspections specific to this project may be found. Please be aware extensive changes in the required special inspections.

If this project is required to have structural observation pursuant CBC 1709 provide a prominent note on the cover sheet of the plans stating same. List the stages at which the architect or engineer of record is to perform structural observation, what is to be observed, when structural observation reports are to be submitted to the Building Official, and any other documentation or observation requirements. Alternatively to noting this on the cover sheet, place a note in a prominent position on the cover sheet which states what sheet of the plans this information may be found.

At the time of permit issuance, an additional set of plans including the site plan, floor plans, or other drawings, sufficient to describe the project shall be provided to the Building Department, to be filed with the County Assessor’s office.

Health Department review and approval is required for (food preparation)(public pools).

Fire Department review and approval is required for (A, E, H, I, L, R occupancies)(high rises).

Indicate detail and section reference as to their appropriate location on plan views.

Provide existing and proposed contours, spot elevations to indicate general site slope and drainage pattern.

Specify finish floor elevation of first floor.

On site plan delineate all projecting elements, and show distance to property line or adjacent structures.

On Title Sheet, show justification to exceed the basic allowable floor area listed in Table 503.

On Title Sheet, show justification to exceed the number of stories or building height listed in Table 503.

When sprinkler increases are applied for an additional 20 feet in height or for an additional story in accordance with 504.2, sprinklers may not also be used for an area increase in 506.3 for Group A, E, H, I, L, Occupancies and high-rises.

Specify on Floor Plans uses of all rooms or areas.

Provide a note on the plans indicating if any hazardous materials will be stored and/or used within the building, which will exceed the quantities listed in CBC Tables 307.1(1) and 307.2(2).

Provide separate Floor Plans identifying hazardous material quantities, types and locations prepared by a qualified person in accordance with 414.1.3 CBC.
The percentage of maximum allowable quantities of hazardous materials per control area for each floor and the total number of control areas shall comply with CBC Table 414.2.2.

On Site Plan dimension distances from building(s) to all property lines, street center lines, and adjacent existing or proposed structures on the site.

Show the size, use, occupancy, and type of construction of all existing buildings on the site.

On Site Plan show all interior assumed lot lines, any designated flood plains, open space easements or development restricted areas.

On Site Plan, clearly delineate any frontage used to justify allowable area increases per CBC 506.2.

Note on plans: “Frontage used for allowable area increases per CBC Section 506.2 shall be permanently maintained”.

The maximum area of exterior wall openings shall not exceed that allowed in CBC Table 704.8.

Exterior walls less than ____ ft. to property line or assumed property line shall have a 30” parapet opening per CBC Table 602, 704.11 and Table 704.8.

Where protected and unprotected openings occur in the exterior wall in any story the total area shall comply with the unity formula (7-2) in CBC 704.8.

Fire-resistive exterior wall construction shall be maintained through crawl spaces, floor framing, and attic spaces in accordance with 705.6.

Fire Barrier continuity must be detailed in accordance with 706.5 CBC.

Fire Partition continuity must be detailed in accordance with 708.4 CBC.3

Projections located where openings are required to be protected shall be non-combustible, heavy timber, or one hour construction. CBC 704.2.

Projections may not extend into yards more than permitted by CBC 704.2.

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 704.3.

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, Table 508.3.3, Table 704.8 and 704.3.

Structural elements in exterior walls required to be fire-resistive construction shall have fire-resistive protection equal to or greater than that required for an exterior bearing wall. CBC Table 602.

In fire resistive exterior wall construction, the fire resistive construction shall be maintained passing through attic and other similar areas.

Type of construction because of ______ occupancy at ______ floor must conform to CBC Table 503.

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 508.3.2 (unseparated). If treated per CBC 508.3.3 (separated) 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.

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

Clearly show the maximum height of the building as defined in CBC 502.1

Clearly show if the lower level is a basement based on the definitions in CBC 502.1.

Provide details, notes and specifications for the fire protection of building elements as required for the type of construction. CBC Table 601 and Section 602.
Clearly label and identify on plans fire-resistive corridors, exit enclosures, exit passageways, horizontal exits, occupancy separation walls and floors, fire resistive shafts, and fire walls, along with their fire-resistive ratings.

Detail furred or dropped ceilings as noncombustible construction or fire retardant treated wood (if allowed) per UBC Section 803.

Indicate interior finish compliance with 803.1 flame spread provisions.

On site plan and floor plans, clearly show location of all firewalls as defined in CBC 705.

Construct a Firewall (sometimes party wall) at property lines or when separating a building into two or more separate areas per 705.1 CBC.

No openings are allowed in the Party Wall per 705.1.1 when a wall is constructed on or near a property line.

Firewall/Party Wall ratings must comply with Table 705.4. Future occupancy changes may impact the required rating. Consider future intended use.

Where separating areas of buildings for the purpose of sprinkler requirements, provide a 4-hour Firewall per 705.1.2 since your project is subject to SFM amendments.

Party Walls in other than Type V construction must be non-combustible per 705.2.

Party Walls/Firewalls must be structurally independent of collapse under fire per 705.2.

Firewalls which are not party walls per 715.4 require openings to comply with 705.8.

Firewalls terminating at exterior walls must comply with 705.5.1.

Provide the design and details for a shaft as required by CBC 707.2.

Openings into shaft enclosure shall be protected with smoke and fire dampers per CBC 716.5.3.

An Elevator Lobby is required in accordance with 707.14.1 when serving over three floors and for Group A, E, H, I, L, R-1, R-2 Occupancies or high-rises serving over two floors.

Elevators must open into lobbies that separate the elevator shaft enclosure doors from each floor by fire partitions equal to the fire resistance rating of the corridor and the required opening protection. CBC 717.14.1.

Specify the fire rating of 1 or 2 hours for the shaft in accordance with CBC 707.4 and detail envelop continuity as required by CBC 707.5 and 707.7.

Detail water heater vents inside fire-resistant wall construction, or within fire resistive shafts.

Draft stop floor ceiling assemblies per CBC 717.3.2 for R occupancies and 717.3.3 for all others.

In fire resistive walls, detail through penetrations and membrane penetrations per CBC 712.4.

In fire resistive floors and ceilings detail fire resistive penetrations per CBC 712.4.

A _____ hr. fire barrier is required between _____ occupancy and the _____ occupancy. CBC 508.3.3, Table 508.3.3 and 706.3.8.

Provide a Fire Barrier in accordance with 706 CBC for the:

a. Shaft enclosure per 707.4.
b. Exit enclosure per 1020.1.
c. Exit passageway per 1021.1.
d. Horizontal exit per 1022.1.
e. Atrium per 404.5.
f. Incidental use area at the_______ per 508.2 and Table 508.2.
g. Control areas per 414.2.3.
h. Occupancy separation per 508.3.2.
i. Fire area separation per 706.3.9.
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 Table 706.3.9.

Provide _____ hr. door assemblies in _____ hr. fire barrier. CBC 706.7 and Table 715.4.

Glazing and openings in fire barriers shall be limited to 25% of the wall area, no larger than 156 square feet with unless tested to match wall rating. CBC 706.7

All structural elements supporting a fire barrier must have the same fire resistive ratings as the required occupancy separation. CBC 706.5.

Provide a Fire Partition in accordance with 708.1 for:

a. walls separating dwelling units.
b. walls separating sleeping units in R-1 hotels, R-2's and I-1's.
c. walls between mall tenant spaces.
d. the corridor per 1017.1
e. the elevator lobby per 707.14.1.

Openings protective in firewalls must comply with 715 and Table 715.4.

Penetrations in fire partitions must comply with 707.

Joints in other than 2-family Fire Partitions must comply with 713 CBC.

Ducts penetrating Fire Partitions must comply with 716.5.4 CBC.

A smoke barrier complying with 709.1 is required in accordance with 407.4, 408.6.

Doors in smoke partitions in I-occupancy corridors must comply with 709.5 per 1008.1.3.3.

A smoke tight assembly must be provided for I-3 occupancies in accordance with 408.7 CBC.

A smoke tight assembly must be provided for corridors in I-2 occupancies per 407.3.

Combination smoke and fire dampers shall be required where a fire and smoke barrier or wall is required. CBC 716

Address the specific occupancy related provisions for the _____-occupancy areas in accordance with Section 40__ CBC.

Occupancy separation is required in Group B and M when storage area exceed 10 percent of floor area, or exceeds 3000 square feet with sprinklers or exceeds 1000 square feet without sprinklers. CBC Table 508.3.3, footnote b.

Provide fire separation for incidental use area in the __________ in accordance with 508.2 and Table 508.2 CBC.

Provide medical gas storage room per 415.2 (Gas Room) and 415.7.1 CBC.

A class______ roof covering is required CBC 1505.1 and Table 1505.1.

For roof covering specify: CBC 1505.1

A. Manufacturer and ICC/UL/SFM number.
B. Roof slope(s) of all areas on the roof plan.
C. Note on Plans: “Installation of roofing shall be in accordance with manufacturer’s specifications.”

Roof slope is not adequate for __________ type of roof covering specified. CBC 1507.1

Show sizes/locations of the roof/deck drains and overflows. CBC 1503.4 and CPC 1108

Specify minimum 1/4 inch per foot roof slope for drainage along flow lines or design to support accumulated water. CBC 1611.3

Specify approved weatherproof walking surface material at decks and balconies.

Provide specifications for roofing material and application. Chapter 15.
Roof drainage shall not flow over public property, or adjacent properties.
Provide a minimum 20" x 30" attic access. CBC 1209.2
Provide and detail access to equipment on roof per CMC 904.10.3.
Provide attic ventilation per CBC 1203.2.
Draft stop attics and mansards per CBC 717.4.
Provide smoke and heat venting in F-1 or S-1 occupancies with undivided floor areas greater than 50,000 sq. ft CBC 910.2 with exceptions. Skylights do not meet vent standards unless specifically tested and labeled.
Provide detail of skylights to show compliance with CBC Chapter 2606 and Section 2610.1, or show on plans ICC or other approval number.
Plastic skylights shall be separated from each other by not less than 4 feet CBC 2610.6.
Where exterior wall openings are required to be protected in accordance with Section 704, a skylight shall not be installed within 6 feet of such exterior wall. CBC 2610.7.
Provide fire sprinklers for this project in accordance with 903.2 _______ CBC.
Additional sprinkler provisions apply for this project based on Table 903.2.13 CBC.
Fire sprinklers are required for any story or basement greater than 1,500 sq. ft., where there is not provided at least 20 sq. ft. of opening entirely above grade in each 50 lineal feet or fraction thereof of exterior wall on at least one side or two sides when opposite wall is more than 75 feet from such openings CBC 903.2.10.1.
Provide sprinklers at rubbish and linen chutes and terminating rooms. CBC 903.2.10.2
Provide sprinklers throughout buildings with a floor level having more than 30 occupants or that is located 55 feet above the lowest level of fire department access. CBC 903.2.10.3
The area increases per CBC 506.3 shall not apply for:
   a. Group H-1, 2 or 3 occupancies.
   b. Where fire rating substitution of Table 601, Note e is used.
   c. Group L occupancies.
A building equipped with a non NFPA 13 sprinkler system, ie:13R or 13D, the area increases per CBC 506.3 do not apply.
Provide a Class _____ Standpipe per CBC 905. Show hose cabinet locations or outlets on each floor plan and roof plan.
   Provide an alarm system in accordance with 907.2. ___ for the ___ occupancy area.
Elevators shall comply to the requirements of CBC Chapter 30 and 1116B. State amendments require a gurney-size elevator for any number of stories.
Note on plans or finish schedule: “Wall, floor and ceiling shall not exceed the flame spread classifications in CBC Table 803.5”.
Detail furred or dropped finishes at fire resistive walls or ceilings as required by CBC 602.1, 603.1 and 805.1.
Lateral bracing for suspended ceiling must be provided. 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. 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. These horizontal restraint points shall be placed 12 feet o.c. in both directions with the first point within 6 feet of each wall. Attachment of restraint wires to the structure above shall be...
adequate for the load imposed. Otherwise, provide a structural design in conformance with CBC 803.9.11 and 1613.1.

Provide a section view of all new interior partitions.

A. Type, size and spacing of studs. Provide gauge and ICC number for metal studs.
B. Method of attaching top and bottom plates to structure. (NOTE: Top of partition must be secured to roof or floor framing, unless suspended ceiling has been designed for lateral load of partition.
C. Wall sheathing material and details of attachment (size and spacing of fasteners).
D. Height of partition and suspended ceiling and distance from ceiling to structure above.

Glazing within 24" of a doorway and less than 60 inches above a walkway shall be safety glazing. CBC 2406.3

Provide damp proofing details for basement or other walls below finish grade in accordance with 1807 CBC.

Fasteners for preservative treated and fire treated wood shall be of hot dipped zinc coated galvanized steel, silicon bronze or copper. The coating weights for zinc coated fasteners shall be in accordance with ASTM A 153. CBC 2304.9.5.

Show location of project on seismic maps to identify seismic design coefficients to be used. You may also chose to use http://earthquake.usgs.gov/research/hazmaps/design
and print out the design values and submit a copy with your resubmittal.

Provide structural details and calculations for light pole footings.

Provide structural details and calculations for equipment and components per ASCE 7-Sections 6.5.15.1 and 13.6.
   a. For seismic/wind connections.
   b. For gravity support.

Provide 3 x 3 x .229" plate washers. CBC 2308.12.8 for Seismic Design Category D & E.

The soils report requires foundation excavations to be reviewed by soils engineer. Note on the foundation plan "Prior to requesting a Building Department foundation inspection, the soils engineer shall inspect and approve the foundation excavations".

Soil bearing pressure is limited to 1500 lbs./sq. ft unless soil is classified per CBC 1804.2, or a soils report recommends otherwise. CBC Table 1804.2

Call out minimum thickness of 3 ½ inch concrete or grade floor slabs, reinforcement and moisture barrier on foundation plan. CBC 1910

Call out anchor bolt size and spacing on foundation plan. Provide 5/8" diameter imbedded 7" minimum at 6’ o.c. maximum spacing. (2308.6 And 2308.12.9). If an engineer’s report justifies that it is not in Seismic Design Category E. ½" bolts may be used. Show 8" min distance from grade to wood sill, framing and sheathing. CBC 2304.11.2.2

Specify size, spacing, ICC number and manufacturer of power driven pins. (Not permitted on perimeter footings.)

If required by structural calculations, show size, location and embedment length of hold down anchors on foundation plan.

Show continuous reinforcement in footings with #4 T & B or by an exception in accordance with 1908.1.15 CBC.

Note on plan that holddown hardware must be secured in place prior to foundation inspection.

Detail the shear transfer connections which transfer lateral forces from horizontal diaphragms through intermediate elements and shearwalls to the foundation. CBC 2305.1.4

Provide complete details and specifications for the installation of glass block. CBC 2110
Air moving systems in excess of a combined volume of 2000 cfm are required to be equipped with an automatic shutoff interlocked with a smoke detector located in the supply ducting of air moving system. UMC 203 and 609.

Air for combustion, ventilation, and dilution of flue gases for gas utilization equipment installed in buildings shall be obtained by application of one of the methods covered in CMC 701.2 through 701.8.3. Provide calculations to justify compliance.

At restrooms, provide hard non-absorbent wall and floor finishes per CBC 1210.1 and 1210.2 and 1115B.3.2.

Provide separate toilet facilities for men and women. CPC 412.3 with exceptions.

Toilet rooms may not open directly to food preparation facilities for service to the public in accordance with CBC 1210.5.

Provide plumbing fixtures count analysis per CPC Table 4-1.

Show elevations of finish floor and nearest upstream manhole. Show that finish floor is above upstream manhole or provide backwater valve per CPC 710. Note that fixtures above such elevation shall not discharge through the backwater valve.

Provide and detail grease interceptor as required by CPC 1009.1. Show location per 1009.5 and sizing per 1014 and Table 10-2 and 3.

Provide condensate line as required by CPC 310 collected and discharged to an approved plumbing fixture or disposal area.

**EGRESS**

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

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 1019.1, CBC Table 1019.2.

The number of exits shall comply with CBC Table 1015.1.

Rooms with a common path of egress travel exceeding that allowed in CBC 1014.3 shall have two separate and distinct means of egress.

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

Exit width shall be not less than permitted by CBC 1005.1. The net dimension (Clear width) shall be used in determining exit width.

In a single story building two exits or more are required when occupant load exceeds 50 or, common path of egress travel exceeds 75 feet. CBC 1019.1, CBC 1019.2

Two exits or more are required when occupant load of a room or space exceeds 50 or, common path of egress travel exceeds 75 feet. CBC 1019.1, CBC 1019.2.

Travel distance to reach an exit shall not exceed that allowed in CBC 1016.1. Measure paths at right angles unless diagonal unobstructed path is insured.

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 or alternating tread device. Exit access doorways shall be separated by a horizontal distance equal to one-half the maximum horizontal dimension of room. CBC 1015.3.

Each leaf of door in the means of egress shall provide 32 inches clear opening and a minimum height of 6'-8", but in no case shall any single door leaf exceed 48 inches. CBC 1008.1.1.
Provide specifications for the door hardware to comply with disabled access requirements. (Lever type, push-pull, panic, etc) CBC 1133B.2.5.2

Doors serving an occupant load of 50 or more or hazardous rooms or areas shall swing in the direction of exit travel CBC 1008.1.2.

All exit doors and gates from an ___ occupancy shall not be provided with a latch or lock, unless it is panic hardware. CBC 1008.1.9

Every assembly area shall have the occupant load posted in a conspicuous place near the main exit of the room. CBC 1004.3

Revolving, sliding or overhead doors shall not be used as exit doors. CBC 1008.1.2. See exceptions.

Show that power operated doors are capable of being manually opened to permit exit travel in the event of a power failure. CBC 1008.1.3.2

When additional doors are provided, they shall conform to the provisions for exit doors. CBC 1008.1

Landings or floor level at doors shall not be less than ½ inch below the threshold. Raised thresholds and floor level changes greater than 1/4 inch at doorways shall be beveled with a slope not greater than one unit vertical in two units horizontal. CBC 1008.1.6.

The bottom 10 inches of all doors except automatic and sliding shall have a smooth, uninterrupted surface. CBC 1133B.2.6

Corridor and exit balcony width shall be not less than 44 inches (36 inches). CBC 1017.2

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 1005.2

Dead end corridors shall not exceed (20/50) ft. in length. CBC 1017.3

Provide a complete architectural section of one-hour corridor detailing fire-resistive construction of the walls and ceilings. Detail all duct and other penetrations. CBC 708.4 and 1017.1. (715.1, Table 715.4 and 716.5.4)

Doors and their frames opening into a one-hour corridor shall be labeled 20-minute assemblies with tight fitting smoke and draft control assemblies with self or automatic closers. CBC 715.4.3

Provide fire/smoke dampers at duct penetrations of 1 hr. corridor walls. CBC 716.5.4.

Glazed openings into one hour corridors shall be protected per CBC Table 715.5. The total area of such openings shall not exceed 25% of the common wall per CBC 715.5.7.2.

Corridor walls may terminate at the ceiling, only if the entire ceiling is an element of one hour floor or roof assembly. CBC 708.4

One hour corridors and any enclosed ceilings within them shall not be used as an integral part of the duct system. CBC 1017.4

175. At rooms with exhaust fans adjacent to corridors, show how make up air is provided. Doors opening into corridors cannot be undercut and no louvers provided. CBC 1017.4, item 1

Non-rated drop ceilings in rated corridors must be of noncombustible construction.

In fully sprinklered office buildings, corridors may lead through enclosed elevators lobbies, provided all areas of the building have access to an exit, without passing through on elevator lobby. UBC 1005.10.

Stairs shall have a minimum width of 44 (36) inches. CBC 1009.3

Stair exits from an area of refuge require a minimum of 48 inches between handrails. CBC 1007.3

A minimum 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.
Provide section and details of interior/exterior stairway showing:
- Maximum rise 7 inches (4" min) and minimum run (tread) of 11 inches. CBC 1009.3.
- Minimum head room of 6 feet 8 inches. UBC 1003.3.4.
- Provide details and notes showing framing (stringer) size, bracing, connections, footings.
- Enclosed usable under stairway requires one-hour construction on enclosed side. CBC 1009.5.3
- Provide visual striping per CBC 1133B.4.4.

Provide connection details of guardrail and/or handrail on open side of landings or stairs adequate to support 20 (50) pounds per lineal foot at a right angle to the top rail. CBC 1607.7

Design intermediate components of guardrails for a 50 PSF lateral load. CBC 1607.7.1.2

Handrails shall satisfy the following: CBC 1012
- Provide continuous handrail.
- Handrail shall be 34-38 inches above the nosing of treads.
- Intermediate balusters shall be spaced 4 inches o.c. maximum on open side(s).
- The handgrip portion of handrail shall not be less than 1-1/4 inches nor more than 1½ inches in cross-sectional dimension. CBC 1133B.4.2.6

E. The handgrip shall extend 12" beyond the top and 12" + tread width beyond bottom tread and return the handrail to newel post or wall. (Also, see Title 24 Disabled Access requirements.)

185. Provide 42 inch high protective guardrail for decks, porches, balconies and raised floors, (more than 30 inches above grade or floor below) and open side(s) of stair landings. Openings between balusters/rails shall be less than 4 inches. CBC 1013

Guards shall be provided where the roof hatch opening or mechanical equipment is located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof or grade below. The guard shall be constructed so as to prevent the passage of a 21-inch-diameter (533 mm) sphere.

Where elevation changes less than 12 inches occur in the means of egress, sloped surfaces shall be used. CBC 1003.5

Ramps greater than 1 in 20 or 5 percent with a rise greater than 6" shall have handrails on both sides. CBC 1010.8

Door swinging over landing shall not reduce the width by more than seven inches when fully open. When serving 50 or more, the door in any position shall not reduce the required width to less than one-half. CBC 1008.1.5

Provide a barrier from upper stairs, and stairs leading to the basement. CBC 1020.1.5

Stairs shall be enclosed with fire barriers per CBC 1020.1. Enclosure shall conform to the following:
- 2 hour resistive construction in all buildings over 4 stories one hour for all other buildings less than 4 stories.
- Only exit doors can open into exit enclosures.
- Doors opening into exit enclosures shall be protected per CBC 715.
- Exit enclosures shall include a corridor of the same fire-resistive construction as the enclosure leading to the outside of the building, including openings.
- Useable space is not allowed under the stairs.
- Exterior stairs shall be separated from the interior of the building with the same rating required for interior stairs. CBC 1023.6

Exterior stairs shall be separated from the interior of the building with the same rating required for interior stairs. CBC 1023.6

In buildings 4 or more stories:
- One stair must extend to the roof. CBC 1009.11
- Stairs must have a smoke hatch. CBC 1009.11.1
Where an egress court serving a building or portion thereof is less than 10 feet (3048 mm) in width, the egress court walls shall have not less than 1-hour-fire-resistance-rated construction for a distance of 10 feet (3048 mm) above the floor of the court. Openings within such walls shall be protected by opening protective having a fire protection rating of not less than 3/4 hour. CBC 1024.5.2 with exceptions

Exterior balconies, stairways and ramps shall be located at least 10 feet (3048 mm) from adjacent lot lines and from other buildings on the same lot unless the adjacent building exterior walls and openings are protected in accordance with Section 704 based on fire separation distance. CBC 1024.3

Balconies used for egress purposes shall conform to the same requirements as corridors for width, headroom, dead ends and projections. CBC 1014.5

Exterior egress balconies shall be separated from the interior of the building by walls and opening protection as required by corridors. CBC 1014.5.1 with exceptions

Stairs in buildings over 75 (55 feet due to local ordinance which may apply) feet in height shall be in a “Pressurized Enclosure” per CBC 909.20, 1020.1.7 and 202 high-rise definition.

Exit ways shall be illuminated with at least one foot candle at the floor level. CBC 1006.2

Provide a separate source of power for exit illumination. CBC 1011.5.3

Exit signs are required when 2 or more exits are required. Show location of all exit signs. CBC 1011.1

Show conformance for low level exit signs and exit path marking in A, E, I, R-1, R-1 and R-4 occupancies per CBC 1011.6 and 7 as enforced by the State Fire Marshall.

Show two sources of power for exit signs. CBC 1006.3

**DISABLED ACCESS**

Design site to provide complying access from property line to all facilities; and entrances and exterior ground floor exits of all facilities. Accessible paths of travel shall be the most practical direct route feasible and may incorporate pedestrian ramps, curbs ramps, etc. All paths of travel shall comply unless there is an approved exception §1127B.1, §1127B.1.2.

Place a sign at every public entrance and at every major junction along or leading to an accessible path of travel displaying the international symbol of accessibility. Signs shall indicate the direction to accessible facility entrances and comply with §1117B.5 through 1117B.5.10.

Provide accessible parking per §1129B in each lot or parking structure where parking is provided for the public or employees 1129B.1. Paint "NO PARKING" on the ground within each 8’ (2438 mm) access isle. Use 12" (154 mm) minimum high white letters that are visible to traffic enforcement officials. See Fig 11B-18B C.B.C. 1129B.4.2.

Parking spaces must be located so that the disabled are not compelled to walk or wheel behind parked cars other than their own. CBC Section 1129B.3, Item 3.

In buildings with multiple accessible entrances with adjacent parking, accessible parking spaces shall be dispersed and located closest to the accessible entrances. CBC Section 1129B.1.

Revise the drawings to show disabled accessible parking spaces loading/unloading aisle on the passenger side. CBC Section 1129B.3.

Provide parking space identification in accordance with CBC Section 1129B.5 including:
a. Each parking space reserved for persons with physical disabilities shall be identified by a reflectorized sign permanently posted immediately adjacent to and visible from each stall or space, consisting of a profile view of a wheelchair with occupant in white on dark, blue background. The sign shall not be smaller than 70 square inches in area and, when in path of travel, shall be posted at a minimum height of 80 inches for the bottom of the sign to the parking space finished grade and shall be unobscured by a parked vehicle. Signs may also be centered on the wall at the interior end of the parking space at a minimum height of 36 inches from the parking space finished grade, ground or sidewalk. Spaces complying with CBC Section 1129B.4, Item 2 shall have an additional sign stating “Van Accessible” mounted below the symbol of accessibility.

b. An additional sign shall also be posted in a conspicuous place at each entrance to off-street parking facilities, or immediately adjacent to and visible from each stall or space. The sign shall not be less than 17 inches by 22 inches in size with lettering not less than one inch in height, with clearly and conspicuously states the following:

“Unauthorized vehicles parked in designated accessible spaces not displaying distinguishing placards or license plates issued for persons with disabilities may be towed away at owner’s expense. Towed Vehicles may be reclaimed by telephoning the ________________.”

c. In addition to the above requirements, the surface of each accessible parking space or stall shall have a surface identification duplicating either of the following schemes:

1. By outlining or painting the stall or space in blue and outlining on the ground in the stall or space in white or suitable contrasting color a profile view depicting a wheelchair with occupant; or

2. By outlining a profile view of a wheelchair with occupant in white on blue background. The profile view shall be located so that it is visible to a traffic enforcement officer when a vehicle is property parked in the space and shall be 36 inches high by 36 inches wide. See CBC Figures 11B-18A through 11B-18C.

Detail accessible drinking fountain per CBC 1115B.4.6.

Detail accessible ATM machine per CBC 1117B.7.

For accessible restrooms, detail per CBC 1115B.3.

A clear space measured from the floor to a height of 27 inches (686 mm) above the floor, within the sanitary facility room, of sufficient size to inscribe a circle with a diameter not less than 60 inches (1524 mm in size. Other than the door to the accessible water closet compartment, a door, in any position, may encroach into this space by not more than 12 inches (305 mm).

Doors shall not swing into the clear floor space required for any fixture.

Accessible water closet compartments shall comply with the following:

i. The compartment shall be a minimum of 60 inches (1524 mm) wide.

ii. If the compartment has a side-opening door, a minimum 60-inches-wide (1524 mm) and 60 inches-deep (1524 mm) clear floor space shall be provided in front of the water closet.

iii. If the compartment has an end-opening door (facing the water closet), a minimum 60-inches-wide (1524 mm) and 48-inches-deep (1219 mm) clear floor space shall be provided in front of the water closet. The door shall be located in front of the clear floor space and diagonal to the water closet, with a maximum stile width of 4 inches (102 mm).

iv. The water closet compartment shall be equipped with a door that has an automatic-closing device, and shall have a clear, unobstructed opening width of 32 inches (813 mm) when located at the end and 34 inches (864 mm) when located at 34 inches (864 mm) when located at the side with the door positioned at an angle of 90 degrees from its closed position.

v. Maneuvering space at the compartment door shall comply with Sections 1133B.2.4.2 and 1133B.2.4.3, except that the space immediately in front of a water closet compartment shall not be less than 48 inches (1219 mm) as measured at right angles to the compartment door in its closed position.

Where six or more compartments are provided within a multiple-accommodations toilet room, at least one compartment shall comply with CBC 1115B.3, Items 3 and 4 and at least one additional ambulatory accessible compartment shall be 36 inches (914 mm) wide with an outward swinging self-closing door and parallel grab bars complying with Section 1115B.4.1, Item 3.
In other than dwelling units, toilet room floors shall have a smooth, hard, nonabsorbent surface such as Portland cement, concrete, ceramic tile or other approved material which extend upward onto the walls at least 5 inches (127 mm). Walls within water closet compartments and walls within 24 inches (610 mm) of the front and sides of urinals shall be similarly finished to a height of 48 inches (1219 mm) and, except for structural elements; the materials used in such walls shall be type which is not adversely affected by moisture.

Provide one accessible lavatory in compliance with Section 1115B.4.3.

The centerline of the water closet fixture shall be 18 inches (457 mm) from the side wall or partition. On the other side of the water closet, provide a minimum of 28 inches (711 mm) wide clear floor space if the water closet is adjacent to a fixture or a minimum of 32 inches (813 mm) wide clear floor space if the water closet is adjacent to a wall or partition. This clear floor space shall extend from the rear wall to the front of the water closet.

H. A minimum 60 inches (1524 mm) wide and 48 inches (1219 mm) deep clear floor space shall be provided in front to the water closet.

I. The height of accessible water closets shall be a minimum of 17 (432 mm) and a maximum of 19 inches (483 mm) measured to the top of a maximum 2-inch (51 mm) high toilet seat.

J. Grab bars shall extend 24" in front of water closet.

Affix an international accessibility symbol on all accessible entrances 1117B.5.1.

Provide a level landing on each side of a door extending 60" on direction of door swing and 48" in opposite direction of door swing, measured with door closed. 1115B.4.2, 1133B.2.4 & 1003.3.1.6a. Fig 11B-26A & B.

An exterior landing shall extend 24" (recommend 30") past strike side of exterior entry door on pull side, 18" minimum (Recommend 24") past strike edge of interior doors. Provide 12" on push side, if the door has both a latch and a closer. If a door required to comply per 1133B.1.1.1 is in a recess or alcove where distance from face of the wall to face of the door exceeds 8". Provide strike side clearances per 1133B.2.4.3. See Fig 11B-22(a). 1133B.2.4.3 & Fig 11B-26A/4.13.6.

Where fixed or built-in seating, tables, or counters are provided for the public and/or in general employees areas, 5%, but never less than one must be accessible, as required in CBC 1122B, 1122B.1. Accessible seating is required regardless of seating type (ie moveable) in amount specified in CBC 1104B.5.4.

Provide seats/spaces for people using wheelchairs equaling 5% of total seating, with at least one seat per each functional area and integrated with general seating §1104B.5.4.

Counters for pass-thru windows and transaction stations shall be 28" to 34" high and 36" minimum wide. CBC 1122B.4.

Where fitting or dressing rooms are provided for male or female customers, patients, employees, or the general public, 5% but never less than one, of dressing rooms for each type of use in each cluster of dressing rooms shall be accessible by providing the following: CBC 1117B.8

Entry doors conforming to 1133B.2 and aisles leading to such doors per 1133B.6.1 and 1133B.6.2.

Full-length mirrors at least 18" wide by 54" high the bottom of which is no higher than 20" from the floor, and mounted in a position affording a view to a person on the bench as well as to a person in a standing position.

Clothing hooks located no higher than 48" from the floor.

A 24" by 48" bench mounted on the wall, 17" to 19" above the floor with a 30" by 48" clear space alongside the bench permitting a person using a wheelchair to make parallel transfer into the bench. The structural strength of the bench and attachments shall comply with 1115B.8.

A 60" by 60" minimum clear space within the room not encroached by a door.

Detail accessible check stand and show required number per CBC 1110B.1.3.

Accessible check stands shall always be open to customers with disabilities and shall be identified by a sign clearly visible to those in wheelchairs. The sign shall display the International Symbol of Accessibility in white on a blue background and shall state: “This check stand to be open at all times for customers with disabilities”.
At exits and elevators serving a required accessible space but not providing an approved accessible means of egress, signage shall be installed indicating the location of accessible means of egress. Signs shall comply with Chapter 11A or Chapter 11B, Section 1117B.5.1, Items 2 and 3, as applicable. CBC 1007.7.

Provide and detail tactile exit signage per CBC 1011.3 and 1117B.5.1.

If a walk crosses or adjoins a vehicular way, and the walking surfaces are not separated by curbs, railings or other elements between the pedestrian areas and vehicular areas; the boundary between the areas shall be defined by a continuous detectable warning which is 36 inches wide, complying the CBC Section 1133B.8.5.

**Detectable Warning Product Approval.** Only approved Division of the State Architect, Access Compliance (DS/AC) approved detectable warning products and directional surfaces shall be installed in accordance with CBC Section 1133B.8.5. The exception for ramps steeper then 1:15 no longer applies.

**ENERGY**

T-24 energy calculations used must be by one of the Energy Commission approved computer programs. Please see www.energy.ca.gov/title24/2005standards/2005_computer_prog_list.html for current versions.

Cool Roofs. Prescriptive approach required a “cool roof” in all nonresidential low-slope applications. Cool roofs have high reflectance, high emittance surfaces, or exceptionally high reflectance and low emittance surfaces. Applies to new roofs and some reroofing installations [§10-113, 118(l), 143(a)iA, 149(b)1B]. Cool roofs must be tested and labeled by the CRRC.

T-bar ceilings. Placing insulation directly over suspended (T-bar) ceilings is not allowed, except for limited applications. Insulation must be placed at the roof or on hard ceilings. [§118(e)].

Thermal Breaks for Metal Building Roofs. Prescriptive standards for continuous insulation or thermal breaks between metal roofs and metal framing [§143(a)].

Skylights for Daylighting in “Big Box” Buildings. Prescriptive requirement for skylights with daylighting controls. Applies to top story of spaces larger than 25,000 square feet with ceilings higher than 15 feet [§143(c)]. Provide calculations demonstrating compliance.

Demand Control Ventilation. Mandatory requirement to include sensors that measure CO₂ levels and adjust ventilation rates in spaces with varying occupancy such as conference rooms, dining rooms, lounges and gyms [§121(c)].

A. Sensors must be provided in all rooms served by the system that has a design occupancy of 40ft²/person or less.

B. Show sensor locations on plans. They must be located between 1 and 6 feet above floor.

C. The ventilation must be maintained that will result in a concentration of CO₂ at or below 600 ppm above ambient level.

D. The CO₂ sensors must be factory certified to have an accuracy of no less than 75 ppm over a five-year period without calibration in the field.

231. Duct efficiency. In unconditioned or indirectly conditioned space, mandatory requirement for R-8 duct insulation [§124(a)]. Prescriptive approach requires duct sealing with field verification in new buildings and in existing buildings when space conditioning equipment is to be installed or replaced [§144(k)].

Efficient Space Conditioning Systems. Prescriptive requirements to improve HVAC system efficiency, including variable speed drives, electronically commutated motors, better controls, and efficient cooling towers. For large systems (greater than or equal to 300 tons in installed capacity), there are limitations on the use of air-cooled chillers. [§144].
Indoor Lighting. Mandatory requirement lowers the lighting power limits for interior lighting to encourage use of new efficient lighting technology [§130(c)]

Unconditioned Buildings. Prior to 2005, the Standards did not regulate lighting of unconditioned buildings. The updated Standards contain requirements for efficient electric lighting and controls that apply to unconditioned buildings such as warehouses and parking garages. [§100(e)2C]. Show these areas to comply.

New Mandatory and prescriptive requirements apply to general site illumination and specific outdoor lighting applications of nonresidential buildings [§132, 147]. Applies to areas such as parking lots, pedestrian areas, building entrances, vehicle service stations, areas under canopies, and ornamental lighting.

A. Lighting Power Limits. Establishes outdoor lighting power limits that vary by Lighting Zone or ambient lighting levels. See Standards Table 147-A and B or NCM Table 6-3.

B. Shielding. Lamps larger than 175W must have cutoff luminaires to reduce glare. Luminaires with lamps larger than 60 W must be high efficacy or have motion sensor controls.

C. Bi-Level Controls. Requirements for outdoor lighting controls in some areas, including the capability to reduce lighting levels by 50 percent when not needed.

West facing glazing is now limited to no more than 40% of the west wall area. Demonstrate compliance on plans.

Demising walls, separating conditioned space from enclosed unconditioned space, must be insulated with a minimum of R-13 insulation.

Variable air volume change over systems must be designed to ensure that no zone is shut off for more than 5 minutes per hour and that ventilation rates are increased during the remaining time to compensate.

Provide method of manual override for space conditioning system. The building shall be divided into isolation areas not exceeding 25,000 ft². §122

Show building orientation with respect to North direction on compass.

When taking compliance credit in the energy calculations for ________, please detail and document compliance on plans.

Provide an automatic time switch, occupant sensors or other method of manual override of lighting. §119.

243. When skylights are installed provide automatic controls to reduce electric lighting when sufficient daylight is available. When area is over 2500 sf multi-level controls must be used.

Show compliance with bi-level switching requirements. §131(b)

Lighting requirements for exterior signs:
A. Internally illuminated signs may have 12 W/sf (only one side of 2 sided sign).
B. Externally illuminated may have 2.3W/sf of sign.

If an alteration involves replacing 50% or more of lighting fixtures or wattage then all lighting must comply as new.

Provide copies of required compliance forms such as LTG, MECH, ENV, OLTG, etc... on plans.

Have changes been made to the plans that are not as a result of corrections on this correction list? Please check: _____Yes _____No.

If so, provide a brief description and note where on plans the changes occur:
**Mechanical – Comments**

**Fire/Smoke Dampers**
Provide approved fire/smoke dampers at all penetrations through rated walls/ceilings per 2016 CMC 606.0 and 2016 CBC 713.10 & 713.11. Provide a detail of approved fire/smoke damper. Specify in plans the model and listing of fire/smoke dampers to be installed.

**Ventilation**
Provide required ventilation to all occupied areas of the building per 2016 CBC 1203 and 2016 CMC Chapter 4. Note: Natural ventilation shall comply with 2016 CMC 402.2.1.

Provide required ventilation to restrooms – with louvered door, transfer grille, undercut door, etc.

Provide return-air path for rooms without a return-air register – with louvered door, transfer grille, undercut door, etc.

Provide mechanical equipment schedule. Include manufacturer, model, unit type, efficiency ratings, outside air setting, unit weight, etc.

Show the CFM of air at each supply and return-air register.

Show all supply and return-air ducts and duct sizes on mechanical plans.

Provide and show a duct smoke detector in the main supply-air duct of units that supply 2000 CFM (5 tons) or greater on plans per 2016 CMC 609.0. Note: DSD cannot be located in a return-air duct.

Provide economizers on all cooling units that have a design supply capacity over 2,500 CFM (6 ¼ tons) and a total cooling capacity over 75,000 BTU/HR. Revise energy compliance documentation, if needed.

Provide minimum exhaust for toilet rooms per 2016 CMC Table 4-4.

Provide minimum exhaust for janitor closet per 2016 CMC Table 4-4.

Provide and show on plans the required outside air in all areas of the building per 2016 CBC 1203 and 2016 CMC Chapter 4.

Corridors shall not be used to convey air to or from rooms per 2016 CMC 602.1.

Return-air shall not be taken from a toilet room per CMC 906.6.6. ???

Return-air shall not be taken from a commercial kitchen area per CMC 906.6.5 and 906.6.6. ???

Show return and outside-air intakes with a min. 10’ from or 3’ above all exhaust outlets per CMC 906.6.1.

Provide and show required access to HVAC equipment located in attics, in under-floor spaces, on roofs, or exterior walls of buildings per 2016 CMC 305.0, 904.10.3 and 904.11.

Provide curb detail for roof-mounted HVAC units.

Show compliance with required exhaust ventilation for automotive repair occupancies per 2016 CMC 403.7 and Table 4-4.

**Condensate Drains**
Show condensate drains for HVAC units to an approved location per 2016 CPC 814.0.

Condensate drains must drain into an approved receptor such as a floor sink, not floor drain or funnel drain, per 2016 CPC 804.1 and 815.3.

Provide condensate sizing on plans per 2016 CPC 814.2.

Condensate drains shall not drain over a public way per 2016 CPC 814.3.

Show the required cleanouts on all condensate drains per 2016 CPC 707.0.

Provide and show secondary condensate drains to an approved location per 2016 CMC 310.2.

**Title-24 Energy Compliance**
Provide mechanical energy compliance documentation and mechanical mandatory measures.

Provide mechanical energy compliance documentation and mechanical mandatory measures. Note: Alterations to ducting requires compliance documentation and testing.
Provide copies of MECH-1-C (all parts) and mechanical mandatory measures on plan sheets. Provide wet signatures on mechanical energy compliance documentation.

MECH-1-C: The designer is required to check all boxes by the acceptance tests that apply and list all equipment that requires an acceptance test.

**Kitchen Hoods**

Provide the required make-up air for kitchen hood on mechanical plans per CMC Section 509.9. Note: Make-up air must be interlocked with hood electrical.

Provide a Type II hood for high-temperature dishwashing machine (over 140º F) per CMC 509.1. Note: A hood is not required for chemical sanitizing or under-counter dishwashing machines.

Provide a Type I hood for kitchen equipment producing grease and smoke per CMC 507.0.

Provide a fire-rated shaft for Type I hood per CMC 508.4. Provide a detail of the fire-rated shaft on the plans showing construction and clearances per CMC 508.8 and 509.4. Note: Fire-wrapping of grease ducts is not approved in lieu of fire-rated shaft in Sacramento County.

Show a 6” minimum overhang of hood on all sides of cooking equipment served by the hood per CMC 509.6. Note: Listed hoods are to be installed per listing and manufacturer's installation instructions.

Show a 4’ maximum distance between the lip of the hood and the equipment surface per CMC 509.6. Note: Listed hoods are to be installed per listing and manufacturer’s installation instructions.

Show the required air velocity for the Type I hood (1500-2500 FPM) per CMC 508.6.

Provide specific manufacturer information (including model number, weight, etc.) and the UL listing for the proposed hood to be installed. Note: Listed hoods are to be installed per listing and manufacturer's installation instructions per CMC 509.6 and 509.7.

Show that makeup air and hood exhaust is equal per CMC 509.9. Note: Make-up air must be interlocked with hood electrical.

Provide and show hood capacity calculations per CMC 509.7 or provide specific manufacturer and listing information (including model number, weight, etc.) for the proposed hood to be installed.

**Product-Conveying Exhaust Systems**

Provide and show product-conveying system on plans including elevations, details and specifications per 2016 CMC 505.0.

Provide and show on plans that the velocity of the product-conveying system is per 2016 CMC 505.2 and Table 5-1 (3500 FPM for sawdust).

Provide and show makeup air for product-conveying system per 2016 CMC 505.3.

Provide and show minimum clearances for product-conveying ducts per 2016 CMC 506.7 and Table 5-2.

**Clothes Dryers**

Provide a minimum 4” size duct for moisture exhaust duct per CMC 504.3.2.

Provide the dryer vent length per CMC 504.3.2.2. Note: Combined horizontal and vertical length of 14 ft., including (2) 90 degree elbows. Subtract 2 ft. for each 90 degree elbow used, in excess of (2).

Provide the required combustion air for gas clothes dryer per CMC 707.0 and Table 7-1.

**Plumbing** – Comments

**General Plumbing**

Provide a complete plumbing fixture schedule that includes fixture name, type, manufacturer, model, waste and water fixture units, number of each fixture, connection sizing, waste and vent sizing, etc.

Provide and show an additional water closet in the women’s restroom per 2016 CPC Table 4-1, Footnote 14. The total number of water closets for females shall be at least equal to the total number of water closets and urinals required for males.
Provide a fixture connection schedule.
Provide a water and waste fixture unit schedule.
Provide piping material schedule. Note: ABS/PVC is not approved for drain, waste, vent or roof drains in commercial buildings in Sacramento County per 2016 CPC 701.1.2.2.

**Provide a contractor's written estimate or contract valuation signed by the owner. Note: The project valuation must include all labor, materials and equipment per CBC 107. ???

Provide separate toilet facilities for each sex per 2016 CPC 412.3.
Provide and show the required restroom facilities and/or plumbing fixtures per 2016 CPC Chapter 4 and Table 4-1.
Provide and show required drinking fountain per 2016 CPC Table 4-1. Please note that the drinking fountain must comply with 2016 CBC 1115B.4.6.
Provide a ¼” scale drawing with dimensions of the accessible restrooms.
Provide water closets suitable for the use of children less than six (6) years of age per 2016 CPC 408.1.
Provide a designer's stamp and/or wet signature. Note: Unlicensed individuals may not design or sign plumbing/mechanical system designs. Plumbing/mechanical systems must be designed and signed by appropriately licensed or registered professionals, or appropriately licensed contractors as allowed by the Professional Engineers Act. (Ref.: Business and Professions Code Sections 5537.2, 5537.4 and 6737.4.)

**Water Heater**
Provide a water heater detail including (as applicable) seismic straps, water heater stand, thermal expansion tank, relief valve drain, exhaust venting, drip pan and drain, etc. per 2016 CPC 505.0, 508.0, 608.3 and 608.5.
Provide water heater drip pan and drain to an approved location per 2016 CPC 508.4.
Show water heater temperature and pressure relief valve drain to an approved location per 2016 CPC 608.5.
Provide combustion air for fuel-burning water heater per 2016 CPC 507.0.
Show seismic strapping on water heater detail per 2016 CPC 508.2.
Provide thermal expansion tank on water heater per 2016 CPC 608.3.

**Gas System**
Provide gas calculations and pipe sizing chart for all gas fixtures. Include total developed length, demand for each gas fixture and total gas demand.
Provide thermal expansion loop on gas line for runs that are over 100’ in length. See attached form for guidelines.
Provide pipe sizes and demand for all gas pipe runs on plumbing plan and/or gas isometric.
Use 1000 as the divisor to convert gas BTU/HR to CFH per 2016 CPC 1216.3.
Provide and show accessible shutoff valves at every gas fixture per 2016 CPC 1212.4.
Provide and show a sediment trap (drip leg) at gas equipment connections per 2016 CPC 1212.7.
Fill out the attached ‘Request for Medium Pressure Gas’ and have a representative of the local gas supplier sign. Return this form with your plan revisions.

**Water System**
Provide water calculations and sizing chart for plumbing fixtures. If sizing per 2016 CPC Chapter 6, use pressure range 30-45 PSI and include total fixture units, meter size and total developed length (distance from meter to most remote fixture). If sizing per 2016 CPC Appendix A, include meter size, developed length, total fixture units, pressure available (based on 40 PSI), minimum residual pressure, pressure losses, etc.
Provide pipe sizes for all water pipe runs on plumbing plan and water isometric.

Provide an approved backflow device (unless integral with equipment) for ice/soda machines, coffee makers, etc. per 2016 CPC 602.0 and 603.0.

Provide a water hammer arrestor for flush valves (quick-acting valves) per 2016 CPC 609.10.

Provide and show on plans location and size of main water service, meter and backflow prevention device.

Please note that before PEX water piping can be installed, it must be approved for this project by the Building Inspection Department. The water system must also be sized according to the proposed manufacturer’s specifications.

Show compliance with water temperature limiting devices to public-use faucets per 2016 CPC 413.1 and 2005 Building Energy Efficiency Standards, section 113-c-3.

Show compliance with self-closing metered faucets per 2016 CPC 402.4.

Waste and Vent

Provide pipe sizes for all DWV pipe runs on plumbing plan and DWV isometric.

Provide a main sewer cleanout for building per 2016 CPC 719.0.

Provide a direct connection of three-compartment sink to sewer per.

Provide a dedicated floor drain with trap primer for three-compartment sink and show connection of sink to sewer side of floor drain trap before it ties into the main sewer per 2016 CPC 704.3.

Provide a floor drain with trap primer for three-compartment sink per 2016 CPC 704.3.

Provide a direct connection of dishwasher to sewer per 2016 CPC 704.3.

Provide a dedicated floor drain with trap primer for dishwasher and show connection of dishwashing machine to sewer side of floor drain trap before it ties into the main sewer per 2016 CPC 704.3.

Provide a floor drain with trap primer in laundry room per 2016 CPC 411.2.3.

Provide floor sinks with seepage flange per 2016 CPC 411.1 and Sacramento County building department policy.

Provide required sewer clean-out on sewer every 100’ per 2016 CPC 707.4.

Provide a trap primer on all floor sinks that are subject to infrequent use per 2016 CPC 1007.0.

Provide a trap primer on all floor drains per 2016 CPC 1007.0.

Provide floor drain with trap primer in restrooms containing (2) or more water closets or a combination of (1) water closet and (1) urinal per 2016 CPC 411.2.1.

Provide a trap for three-compartment sink per 2016 CPC 1001.0 and 1002.0.

Provide required venting for each trapped fixture per 2016 CPC 901.0 and 1002.0.

Provide an indirect waste for food preparation sinks per 2016 CPC 801.2.3.

Provide a floor drain with trap primer in the kitchen area per 2016 CPC 411.2.2.

Provide the required cleanouts per 2016 CPC 707.0.

Horizontal drainage piping shall not be less than ¼” slope per foot per 2016 CPC 708.0. Revise plans to comply with this code section.

Indirect waste receptors shall not be located in any portion of a building not in general use by the occupants thereof, including toilet rooms, closets, cupboards, storerooms, etc. per 2016 CPC 804.1.

For group S-1 occupancies, provide and show drainage to an approved oil separator or trap discharging to the sanitary sewer system per 2016 CPC 1009.0 and CPC 1017.0.

Show compliance with oil/grease interceptor requirements per 2016 CPC 1009.0 and 1017.0.
Combination Waste/Vent System
Revise combination waste/vent system and design per 2016 CPC 910.0 and Appendix B.
Provide a vent downstream the uppermost fixture on the combination waste/vent system per 2016 CPC 910.3.
If you are installing 3” floor sinks, specify on plans that each CWV branch and trap shall be at least two pipe sizes larger (4”) than the 3” tailpiece per 2016 CPC Appendix B, Section B4.

Carbonated Waste
Provide a carbonated liquid waste line for soda fountain per 2016 CPC 811.2 and Sacramento County Policy. See attached form regarding policy.

Roof Drainage
Provide and show primary and secondary roof drainage and sizing on roof plan. Provide anticipated flow (GPM) for each roof drain based on 3”/hr. of rainfall in Sacramento County. See 2016 CPC Chapter 11.
**Show roof drain terminations on plans. Note: Roof drainage shall not drain over a public way per CBC 1506.5.
Storm water shall not drain to the sanitary sewer per 2016 CPC 306.2, 714.2, and 1101.2.

Grease Traps & Interceptors
Provide a grease trap or interceptor for all fixtures that discharge grease per 2016 CPC 1014.0.
Provide grease interceptor sizing per 2016 CPC Table 10-2 or Table 10-3.
Provide required flow control and vent on the inlet side of the hydromechanical grease interceptor per 2016 CPC 1014.2. The flow control vent shall be connected to the sanitary vent system or vent through roof per 2016 CPC 1014.2.
Provide required vent on the outlet side of grease interceptor per 2016 CPC 901.0.
No food waste disposal or commercial dishwasher shall discharge into a hydromechanical grease interceptor (grease trap) per 2016 CPC 1014.1.3. NOTE: A dishwasher may discharge into a gravity grease interceptor per 2016 CPC 1014.3.2.1, however, a food waste disposer shall discharge directly into the building’s drainage system.
Toilets, urinals, and other similar fixtures shall not drain through a grease interceptor per 2016 CPC 1014.1 and 1014.3.2.2.
Each grease interceptor may individually serve only one business establishment per 2016 CPC 1014.3.4.3.
Connect all grease-producing fixtures to drainage system through the grease interceptor per 2016 CPC 1014.1. This includes floor drains in kitchen area, mop sink, etc.

Boiler Room
Provide a one-hour occupancy separation for boiler room per CBC 302.5.
Provide and show clearances for boiler exhaust flue per CMC Table 8-4. Provide detail of flue penetration through roof. Please note that 3M duct wrap is not yet approved in Sacramento County.
Provide boiler specifications with plan re-submittal.
Show that room size is large enough to accommodate boiler per CMC 304.2.
Show that appliance clearances for appliance are met per CMC Table 3-1.
Electrical

Provide

- Complete and accurate one-line diagram.
- Load calculations for all panels with altered loads.
- Location of all panels, main switchboards, and transformers included on the project.
- California Energy Commission forms and compliance.
- Panel schedules for all panels included with the project.
- Floor plans with equipment and panel locations.
- Site plan with panel/equipment.

Comments

Provide panel schedules with circuit and feeder sizes, overcurrent protection, and NEC load summaries for all new and/or affected panels and services (loading has to be evaluated by highest phase); include fault current data, short circuit rating and fault current protection co-ordination.

Provide a single line riser diagram showing all new and/or affected services, feeders, wire sizes and insulation types, and conduit sizes and types.

Indicate number of services and their physical locations; clearly indicate mains and characteristics.

Indicate the grounding electrode conductor size with new and/or affected services and transformers; where necessary provide details or notes on methods. UFFER required in County of Sacramento.

Show physical locations of all new and/or affected panels and switchgear (indicate front).

Indicate receptacle plans with circuitry.

Indicate lighting plans with circuitry.

Show electrical plans for each affected floor, including the roof.

Show wiring method(s), conduit sizes and types, termination temperature (60, 75, 90) requirements, conductor sizes and insulation types.

Indicate the design and/or operation for any of the following applicable life safety systems: emergency generators, smoke evacuation, shaft pressurization and relief, smoke detection, egress and emergency lighting, and fire alarms.

Indicate how special needs such as classified (hazardous), corrosive and patient care are treated.

Provide detailed plan of classified areas, the classifications and how complied with (i.e. hangers, waste treatment and collection, flammable dusts, gases or liquids, spray booths, vehicle servicing and parking, etc.).

Provide all HVAC nameplate data, including MCA and MOCP. List all other appliances and/or equipment (other than those which will be connected to a general use receptacle) with nameplate date (i.e., voltage, phasing, HP, KVA, FLA, RLA, etc.).

Indicate all motor horse power ratings, if not supplied elsewhere.

Indicate the certified testing laboratory or agency (e.g., UL) their test # and hourly ratings of all new and/or affected rated members and assemblies (i.e. columns, beans, floor/ceiling, and ceiling/roof fire-rated design assemblies). Show all new and/or affected fire-rated walls with their ratings, if not shown elsewhere.

All penetrations of fire-rated construction must be per manufacturer’s details. The details shall meet or exceed ratings of construction being penetrated. Penetration details shall be exactly as tested by an approved testing laboratory or agency and shall include their system numbers. New penetrations of existing fire-rated walls and assemblies shall be shown with appropriate designs.

Provide all applicable Energy Conservation California Code compliance data on the Building Code Summary sheet or on the electrical plans.
All submittals should include a listing and labeling statement. (All electrical materials, devices, appliances and equipment shall be labeled and listed by a certified testing laboratory or agency.)

*2016 California Electrical Code and County Ordinance.

**Structural**

**Provide**

- 2016 CBC section 1603-Provide design loads per 1603.1.1 through 1603.1.8 as applicable on the construction plans.
- Provide structural calculations for wind forces per ASCE7-05 Section 6.5.15, seismic forces per Section 13.3, and anchorage details for the 480 pound (also include weight of curb and any accessories) RTU shown on plan sheet M-1. Provide copy of manufacturers RTU cut sheet for model 48HJE004 AC unit. Verify that existing roof framing supporting the new AC unit is adequate for the added load.
- Show roof/floor sheathing 'panel span rating' per CBC Table 2304.7(3) or indicate edge support per footnote f of this table.
- Specify minimum nailing on plans per Table 2304.9.1
- LVL, PSL, and LSL members are exposed to the ambient weather, which is not permitted. Please revise or provide justification from manufacturer. See attached ESR1387 report, paragraph 5.3 for restrictions.
- 2016 CBC Table 1804.2 lists default values for class 5 soil, including 100 psf lateral bearing.
- The minimum design earth load for retaining walls shall be per ASCE7-05 Section 3.2.1 and Table 3-1.
- Provide minimum 7.5 inch thick foundation wall per CBC Sections 1805.5, Table 1805.5 (5) and sections 1805.5.1, 1805.5.5.1 and 1908.1.15.
- Concrete note one on plan sheet S-1 shows f’c=2500 psi. Revise to show 3000 psi per CBC section 1805.9.
- The Enercalc sheets are based upon the obsolete 1997 UBC.
- Per section 1603.3., show on plans how you comply with “Live loads posted” on the second floor areas.
- Indicate that P.T. sill plate fasteners are to be stainless steel, galvanized or silicon bronze or copper. Section 2304.9.5
- Hilti Kwik Bolt 3 anchors are not approved for use in concrete-see ESR 1385. Hilti Kwik Bolt TZ, SS or HDG (ESR1917) is approved for concrete in exterior or damp environment. Please revise call out on plan sheet TK2-2.
- Specify ICC ESR report number or manufacturer and model number of power driven fastener to be used in Detail 6/Y. Check fastener spacing.
- Provide complete metal stud information (yield strength 33 or 50 ksi, stud flange width) on plan so that conformance with 2016 CBC can be verified. Provide cut sheet of applicable AISI cut sheet per CBC Section 2210.
- Splay wire shown in Detail 2/Y causes cross grain bending in existing roof framing member. Please revise connection.
- Revise the 6 inch dimension from grade to siding/sheathing to show 8 inches per CBC Section 2304.11.2.2. See section B/S-2.
- Complete, sign and return our Special Inspection Form.
Design professional is to provide a "statement of special inspections" prior to permit issuance per CBC Sections 1704.1.1 and 1705.

Provide a copy of the soil report as shown in FOUNDATION Note 1/S1.0.

Weather exposed lumber shall be naturally durable (redwood) or preservative-treated wood per CBC Section 2304.11.5.

Reduce 2” and 4” nominal lumber section properties for the incising factor (Cl) per 2005 NDS Section 4.3.8 and Table 4.3.8. See Section C4.3.8 for a commentary.

CBC Section 1607.7.1 requires a 50 plf or minimum 200 pound load applied at the top rail for rail and post design. The post spacing shown in railing Elevation A/A3.1 and stair railing Elevations 1/A7.1 and 2/A7.1 seem unusually long, or some posts were not shown. Either provide typical post spacing of approximately 4 to 5 feet on center, or provide a calculation for post attachment (embedment) and post bending strength. However, if railing posts were inadvertently omitted and are existing, please state this on the plans.

It appears wind load governs over seismic for the RTU per ASCE7-05 Section 6.5.15.1 with the following assumptions:

\[
\begin{align*}
\text{exposure B, } V &= 85 \text{ mph} \\
B &= 94' \text{ (bldg width per section 6.3)} \\
h &= 20' \text{ (bldg height)} \\
A_f &= 37''/12 \times 2.5'' = 7.7 \text{ sf} < 0.1Bh = 0.1 \times 94'' \times 20'' = 188, \text{ therefore use 1.9 factor as stated in section 6.5.15.1.} \\
q_z &= 0.00256 \times K_z \times K_d \times V^2 \\
&= 0.00256 \times 0.7 \times 0.85 \times 85^2 \times 1.0 = 11.0 \text{ psf} \\
\text{From Figure 6-21: } h/D &= 20'/2.5' = 8 \approx 7, \text{ therefore } C_f = 1.4 \\
\text{Eq. 6-28: } F &= q_z \times G \times C_f \times A_f = 11.0 \times 0.85 \times 1.4 \times 7.7 \text{ sf} \times 101\# \times 1.9 = 192\# > 43\# \text{ (seismic).} \\
\end{align*}
\]

Provide a minimum of 0.229” x 3" x3" galvanized steel plate washers. Hole in washer is permitted to be diagonally slotted with a cut washer placed between the plate washer and the nut per CBC Section 2304.9.5 and 2305.3.11 or 2308.12.8.

100 % of the lateral bearing and 100 % of the friction was used in the calculation. CBC section 1804.3 permits only half of the dead load to be used for sliding resistance. Please review and clarify.

Ramset 1500 drive pins are not approved for use in contact with pressure treated wood sills per ESR 1799

Retaining wall foundation drains should comply to CBC Section 1805.5.6 and 1807.4.2

The maximum factored footing moment should comply to ACI 318-05 Section 22.7.5 (a), (b) or (c).

Suspended ceiling references on plans are from the UBC and are obsolete. Please revise to show compliance with CBC Section 803.9 and ASCE705 Section 13.5.6. as well as ASTM 635 and ASTM C 636.

Anchorage per CBC Section 1604.8 and ASCE7-05 Section 12.11

Anchorage of concrete and masonry walls per CBC Section 1604.9.2 and ASCE7-05 Section 12.11.

Anchorage of decks for both vertical and lateral loads per CBC Section 1604.8.3.

Re-submittal: When new sheets are prepared, replace only the revised sheets into the drawing sets and re-staple sets. Re-Submit as updated review sets. Return BOTH the NEW and previously reviewed OLD drawing sets/sheets. If you prefer, you may submit completely new review sets. Please CLOUD and DELTA all changes in any case.

Address any red pencil markings on the plans that I may have neglected to include in this Plan Review Notification.

F.Y.I..... The 3rd and subsequent reviews of plans are billed on an hourly basis.
Please respond in writing to each comment by marking the attached comment list or creating a response letter. A response letter is preferred. Indicate which detail, specification, or calculation shows the requested information. Show all plan corrections on both “JOB” and “OFFICE” sets of plans. Your complete and clear responses will expedite the re-check and hopefully, approval of this project.

**Comments**

Special inspection is required on this project. (Concrete, rebar, HS Bolts, Field welds, Hilti connectors, High load roof diaphragm)

Structural observation is also required per 1702.

Respond to additional notes (made in pencil on S sheets) on the “OFFICE” set of plans. Please return these sheets if removed/replaced.

Per section 1607.3.5, show on plans how you comply to “Live loads posted” on the second floor office and storage areas.

The responsible engineer must stamp/wet sign/date the front page of calculations and all structural sheets pertaining to these calcs (both sets).