CITY OF NEWPORT BEACH

COMMUNITY DEVELOPMENT DEPARTMENT

BUILDING DIVISION

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

ELECTRICAL/MECHANICAL/PLUMBING
NEW COMMERCIAL
PLAN REVIEW COMMENTS

Project Description:		
Project Address:		
Plan Check No.:	Date Filed:	No. Stories:
Use:	Occupancy:	Const. Type:
Architect/Engineer:		Phone:
Owner:	Phone:	Submitted Valuation:
Checked by:	Phone: (949) 644-32	Permit Valuation:

[X] 1st Check [ ] 2nd Check [ ] 3rd Check
[ ] 4th Check*

***NOTE: Do not resubmit after the 3rd plan check. Call plan check engineer an in-person recheck appointment.**

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

2010 CBC; 2010 CPC; 2010 CEC; 2010 CMC; 2008 Building Energy Efficiency Standards (BEES); 2010 California Green Building Standards Code (CALGreen); & Chapter 15 of the Newport Beach Municipal Code (NBMC).

- *TO EXPEDITE PROJECT APPROVAL:* Please provide a written response indicating how and where each comment was resolved on the plans.
- Resubmit all previously reviewed plans, updated plans and supporting documents with each subsequent review.
- *AFTER 2nd PLAN REVIEW*: Please call the plan check engineer listed above to schedule a plan review appointment, to expedite project approval.
- For clarification of any plan review comment, please call the plan check engineer listed above.
- Plan review status is available online at ***www.newportbeachca.gov***. Project status is also available using the interactive voice response system at 949-644-3255, or by speaking with a permit technician at 949-644-3288 during business hours.

GENERAL

1. Include the following on all plan sheets in the title block:
   a. Site address,
   b. Plan preparer's name, address and telephone number,
   c. Property owner's name, address and telephone number.
2. All permits related to the proposed project shall be issued at the same time, or separate plans and plan review will be required for items not issued with this review. Provide additional permit worksheets for the following:
   a. Accessory structures, detached patio covers and trellises,
   b. Detached or free-standing trash enclosures,
   c. Masonry or concrete fences over 3.5 ft high,
   d. Retaining walls over 4 ft high from the bottom of the foundation to the top of the wall.
3. Obtain plan review approval from the following:
   a. Building Department – EMP Plan Review,
   b. Fire Department,
   c. Grading Plan Review,
   d. Planning Department,
   e. Public Works Department,
   f. Public Works – Harbor Resources Division,
   g. Orange County Health Department.
4. All plan sheets shall be signed by the appropriate design professional(s). If the project scope allows plan preparation by other than a licensed individual, such plan preparer shall sign and date all plan sheets. BPCS 5500, et seq.
5. Provide clear, legible drawings, with a print density appropriate for archival and reproduction. Drawing should be 1/4 or 1/8 inch scale. Plan details and text may be of a scale or font size appropriate for the item. Colors shall not be used to show different line types, contrast, or shading. Color photos may not be used to detail architectural or structural elements of the plan.
6. Calculations, reports and other documents shall have an easily removed binding, such as staples or spiral. Permanent edge or glued binding methods are not acceptable.
7. Provide at least two identical plan sets for permit issuance. When multiple plan sets are submitted, or resubmitted, for departmental reviews all sets shall be identical.

ELECTRICAL/MECHANICAL/PLUMBING

Administrative

1. Show equipment schedule on the plans.
2. Show the use of each area. List type of equipment on plans.
3. Show the intended use of each room.
4. Show all fire rated walls and ceilings.

MECHANICAL

5. Show location and size of permanent access to mechanical equipment. (304.1)
6. Show seismic restraint for H.V.A.C. system on the plans.
7. Show roof access to H.V.A.C. equipment on the roof.
8. Show all locations of H.V.M.C. equipment on the plans.

Venting

9. Provide duct type smoke detectors in the supply air ducts in every air conditioning system in excess of 2,000 cfm. Multiple units serving the same room, or having a common outside air duct is considered to be one system (609)
10. The vent termination shall be at least 5 feet above the vent collar.

11. Vents shall extend above the roof and shall terminate in a vent cap. Termination point shall be at least 3 feet above any forced air inlet into the building located within 10 feet.(802.6.2.5)
12. Vents shall terminate at least 4 feet below or horizontally from, and 1 foot above any opening into the building.(802.8.2)
13. The vent shall extend vertically, except one 60 degree offset is allowed.(802.6.1)
14. The total horizontal run of vent plus the length of the horizontal vent connector shall not exceed 75% of the vertical height of the vent.(802.6.1)
15. Provide manufacturers installation instructions showing the venting criteria for the condensing furnaces. (802.1.2)
16. Vents shall not extend into or pass through ducts or plenums.(602.1)
17. Connectors entering a common venting system shall be offset.(802.10.4.2)
18. The area of common vent connector shall be sized per section 803.2.

Condensate

19. Provide a primary condensate drain discharging to tailpiece of lavatory, floor sink or mop sink in the unit it serves and secondary condensate drain (watertight pan) installed above the ceiling or in furred spaces. The secondary drain shall terminate over a plumbing fixture in an interior location or to a visible location at the exterior of the building or use listed wet/float switch.

Duct Systems

20. Show on the plans the duct materials and gages.(602.1)
21. Provide duct type smoke detectors in every ventilation system in excess of 2,000 cfm. Multiply units serving the same room are considered one system. In lieu of duct type smoke detectors, complete coverage area detectors may be installed.

Fire Dampers

22. Show listed fire dampers and smoke dampers as required to be installed at all duct penetrating through Fire walls, Horizontal exits, Fire barriers, Shaft enclosures, Fire partitions, corridors, smoke barriers, Smoke partitions, and Horizontal assemblies. (716.5)
23. Fire dampers shall be of the dynamic type. (716..3.1)

Title 24

24. Provide an economizer in every cooling unit exceeding 2,500 cfm. (title 24, Sec. 144 (e))
25. Show location of thermostats. (Title 24, Sec. 122)
26. Show signed statement of compliance (form Mech-1) on the plans. (Title 24, Sec. 10-103(a)2.C)
27. Provide heating and cooling load calculation. (title 24, Sec. 144 (b))
28. Provide complete Title 24 2005 documentation. (title 24, Sec. 10-103)
29. Show compliance with at least one of the exceptions of Sec. 144 (g) for the electrical resistance heating or provide energy budget. (title 24, Sec. 144(g); 152 (c))

Exhaust Ducts

30. Exhaust ducts under positive pressure and venting systems shall not extend into or pass through ducts or plenums. (601.3)
31. Show location & sizes of all ventilation ducts and openings.
32. Exhaust outlets for product conveying systems shall be 10 feet from the property line, 3 feet exterior roof/wall; 10 feet opening into the building; 10 feet above grade. 506.9.2
33. Make-up air shall be provided for all rooms with exhaust. (505.3)

34. Exhaust duct for domestic dryers shall be 4 inches min. and shall not exceed a total length of 14 feet including two 90 degrees elbows. Two feet shall be deducted for each 90 degree elbow in excess of two. (504.3.2.2)
35. Provide engineering for dryer ducts exceeding 14 ft. in length. (504.3.2.2)
36. Dryer exhaust ducts shall be made out of metal. (504.3)
37. Laundry ventilation exhaust shall terminate at least 3 feet from the property line and 3 feet from openings into any buildings. (504.5)
38. Clothes dryer moisture exhaust duct shall not extend into or through ducts or plenums. (504.3.1)
39. Laundry room exhaust ducts shall be made out of metal. (504.1)
40. Show make-up air for the laundry room exhaust system. (504.3.2)
41. The make-up air system shall be interlocked with the associated system.
42. Provide combustion air openings (701.1)
43. Toilet rooms in commercial buildings shall have 4 air changes per hour. (1202.2.1, CBC)
44. The make-up air system shall be interlocked with the associated exhaust system
45. Toilet exhaust ducts shall be made of metal. (504.1)
46. Toilet exhaust ducts under positive pressure shall not extend into or pass through ducts or plenums. (602.1)

Garage Ventilation

47. Provide calculations showing design per CMC 403.8 and Table 4-4.

Type I Kitchen Hoods

48. Provide roof plans showing the location of the kitchen exhaust blower, property line and any openings into the building. (510.8)
49. Provide make- up air. (511.3)
50. Show sizes, gauges, and materials of all ducts and hoods. (508.1.1&510.5.1)
51. List type of cooking equipment on plans.
52. Provide elevations showing finished floor, cooking equipment, grease exhaust hood, distance between cooking equipment and grease filters, overhang, finished ceiling, flushing, fire rated shaft, clearance between duct and shaft, cleanouts, slope of horizontal ducts, roof blower, diverter, distance of outlet termination above roof. In compensating hoods, also show the make-up air duct and factory built-in fire damper.
53. Each exhaust outlet within a hood shell serves not more than 12-foot section of hood. (508.9)
54. Duct system shall have a slope not less than ¼ inches per lineal foot toward the hood or toward an approved grease reservoir. When horizontal ducts exceed 75 feet in length, the slope shall not be less than 1 inch per lineal foot. (510.1.4)
55. The duct enclosure shall be sealed around the duct at the point of penetration. (507.6)
56. A clearance of at least 6 inches to limited combustible materials. Shall be maintained between duct and enclosure. (510.7.2)
57. Provide product installation instructions for the grease exhaust blower and the make-up air fan, showing cfm, static pressures, and, if required, listing by a nationally recognized testing and listing agency.
58. Provide product installation instructions for the cooking equipment showing that it is listed by nationally recognized testing and listing agency.
59. Provide product listing for compensating and/or ventless hoods. The equipment shall be listed by a nationally recognized testing and listing agency.
60. Provide calculations for sizing exhaust fans and make-up air units. Calculating shall show that the fan is capable of providing the minimum required volume of air. (511.2)

61. Air velocity within the duct system shall be not less than 500feet per minute and all not exceed 2,500 ft./min. 511.2.1
62. Exposed grease duct/hood systems serving a Type I hood shall have a clearance from unprotected combustible construction of at least 18 inches. Detail clearances per 507.2 (Hoods less than 12 inches from the ceiling or wall shall be flashed solidly with materials as specified in Sec. 508.2
63. Exhaust outlets serving grease duct systems shall be 40 inches above roof surface, 10 feet from property line, 10 feet from air intake openings and 10 feet above adjoining grade. (510.8.2)
64. Type I Hoods use over solid –fuel cooking equipment shall be provided with separate exhaust system. (517)
65. The fire-extinguishing system shall be interconnected to the fuel or current (electrical) supply so that the fuel or current (electricity) is automatically shot off to all equipment under the hood when the system is actuated. (513.4)
66. The exhaust and make-up air systems shall be connected by electrical interlock switches.
67. Specify on the plans, the make, the model, HP, cfm, and static pressure rating of fans used.
68. List type of cooking equipment on plans.
69. Provide elevations showing finished floor, equipment under the hood, hood, distance between finished ceiling, flushing, eventual fire rated shaft, clearance between duct and shaft, cleanouts, roof, blower, diverter, distance of outlet termination above the roof.
70. Provide construction detail for fire resistive grease duct shaft.
71. Provide installation instructions for the exhaust blower and the make-up air fan, showing cfm, static pressure, and, if required, listing by nationally recognizing testing and listing agency.
72. Provide product listing for the cooking equipment showing that it is listed by nationally recognized testing and listing agency.
73. Provide cleanouts per code (510.3)
74. Provide a list of items to be cooked or baked under the hood.
75. Provide manufacturer listing on approved Type I hood fire-resistive duct wrap minimum two layer system required.

Refrigeration

76. A 3-foot wide and 6 feet 8 inches high clearance shall be provided around at least two sides of all moving machinery. (1107.2)
77. Provide calculations showing that the capacity of the exhaust system complies with the section. (1108.2)
78. A switch of the break-glass type, controlling the emergency purge ventilation system, shall be provided adjacent to and outside of the exit door. (1108.5)
79. Show make-up air inlets and exhaust outlets on the plan. (1108.1)
80. Make-up air shall be from the outside of the building and shall be equipped with a back draft damper. (1108.1,1108.9)
81. Exhaust shall be discharged at least 20 feet from the property line. Show this on the plans.(1108.7)
82. Only equipment essential to the operation of the refrigeration system shall be allowed in the machinery room. (1109.1)
83. Show on the plans the make, model, HP, cfm, & static pressure rating of the fans.
84. Provide product listing for all fans used showing their cfm & static pressure rating.
85. State type of refrigerant. (1102)
86. Show location of refrigerant-vapor detectors. (1121)

Combustion Air

87. Show location and size of all combustion-air openings or ducts. (701.0)

88. Provide calculations for the combustion air.
89. Dampers are not allowed in combustion-air ducts. (701.11)
90. Show combustion air. (701.1)

PLUMBING

Water Supply

157. Install a control valve in the domestic water supply to each building. (605.2)
158. Show all new and all existing devices located between the city water services and building plumbing system that causes pressure losses or pressure gains in the system. Devices shall include, but not be limited to pumps, water softeners and submeters. (610.2)
159. State the make(s), model(s), size(s) of the above items and indicate if they are new of existing. (610.2)
160. Provide manufacturer's specification sheets for each device indicating the pressure loss through the device(s) from 0 flow to the rated flow. (610.2)
161. Indicate on the plans, all fixture unit loads in addition to the loads of new fixtures including but not limited existing fixtures, irrigation loads, make up water for cooling towers and boilers, demand for future use, and any other uses. (Appendix A, Sec A2)
162. Provide hydraulic calculations for sizing the cold and hot water systems. (610)
163. The minimum water pressure supplied to the most remote fixture shall not be less than the requirements of the fixture and not less than 15 psi, whichever is higher. (608.1)
164. Indicate on plans the makes and models of the water closets, urinals and water heaters used. (608.1)
165. Indicate on the plans the piping materials for the domestic water system. (604)
166. An approved pressure regulating valve (PRV) shall be installed to reduce the water pressure at any fixture to 80 psi or less. (608.2)
167. Provide a copy of the manufacturer's listing for the PRV's used showing pressure drop through them. (608.2)
168. Provide a reduced pressure principle backflow preventer (RP) at the meter. Show the make, model, and size of the RP on the plans. (610.2)
169. Provide a copy of manufacturer's listing for the RP used showing the pressure losses. (610.2)
170. Show the size of the water meter on the riser diagram. (610.2)
171. Provide a temperature and pressure relief valve on the water heater. The valve shall discharge to exterior grade. Pressure relief valves for water heaters installed inside a building shall discharge to a floor sink or mop sink. (608.3 & 605.5)
172. Provide an approved thermal expansion tank at the water heater. Show it on the riser diagram. (608.3)
173. State the make and model of the thermal expansion tank. (608.3)
174. Showers and tub showers shall be provided with individual control valves of the pressure balance or the thermostatic mixing valve type. (420.0)
175. State make, model, rated pressure, and gpm, of water pumps.
176. Provide a pump performance curve for the water pump(s) being used.
177. Provide water heater budget. (Title 24, Sec. 151 (b) 1 & 151 (f) 9)

Sanitary Drainage

178. Indicate the piping materials on the plans. (701.0)
179. Show the slope of the horizontal drainage piping. (708.0)
180. Provide suds relief. (711.0)

181. The aggregate cross sectional area of the vent shall not be less than that of the largest required building sewer. (904.0)

182. Provide clearance from Industrial Waste. (307.0) **Water Quality Department.**

183. Show details for the island venting. (909.0)

185. Install a cleanout every 100 feet or manhole every 300 feet in the building sewer (site sewer) in straight runs and for each aggregate horizontal change in direction exceeding 135 degrees. (719.1 & 719.6)

186. Provide lot subdivision. The building sewer shall not cross lot lines. (721.1)

187. All wet vented fixtures shall be within the same story. (908.1)

188. Provide a separate vent for each waste branch line exceeding 15 feet in length. (910.3)

189. The minimum area for any vent installed in a combination waste and vent system shall be at least 2 the cross sectional area of the drain pipe served. (910.3)

190. Each drain pipe and each trap in a combination waste and vent system shall be 2 pipe sizes larger than the sizes required by Chapter 7, Sanitary Drainage. (910.4)

191. No vertical waste pipes, toilets, or urinals are allowed in combination waste and vent systems. (910.5 & 910.7)

192. Relief vents shall be provided every 100 feet along mains. (App. B, Sec B3)

193. The discharge line from the ejector shall be provided with an accessible check valve and gate valve. The gate valve shall be located on the discharge side of the check valve. The gate valve and check valve shall be located outside the pit. (710.4)

194. Provide dual pumps each capable of handling the load independently. (710.1)

195. Provide air-tight cover for the sump. (710.10)

196. Sump(s) shall be provided with a vent pipe which shall extend through the roof. (710.7)

197. Show high water level. It shall be at least 2 inches below the lowest inlet. (710.9)

198. Sumps receiving waste from water closets shall have a minimum 2 inches discharge. (710.3)

199. Allow two fixture units for each gallon per minute discharging from the sewer ejector. (710.5)

Fuel Gas Piping

200. Indicate on the plans the material for the gas piping.

201. Indicate on the plans the total developed length of the system from the meter or regulator to the most remote gas outlet.

202. Provide a separate gas shutoff valve for each system.

203. Indicate on the plans the hourly volume (CFH) of gas required at each outlet.

204. No gas pipe shall be installed under the building.

205. Medium pressure systems over 14 inches W.C. (1/2 PSI) must have a pre-approval from the gas company.

206. Provide manufacturer's cut-sheet for regulator showing outlet pressure at the selected setting

207. An approved gas valve shall be installed immediately preceding each regulator.

208. Pressure regulator shall be vented to the outside of the building.

209. Provide a copy of manufacturer's cut-sheet for vapor extraction unit showing volume and pressure of gas required to operate the unit.

210. Provide an approved type check valve at each gas connection to the vapor extraction unit.

211. The vapor extraction unit shall be approved by the administrative authority or tested and listed to a nationally recognized standard, or tested and certified to a standard acceptable to the administrative authority.

212. Indicate on the plans the type of piping material. Underground (U/G) piping to be (P.E.) polyethylene plastic pipe.

Storm Drainage

213. Provide riser diagram.
214. Indicate on the riser diagram the area, in square feet, covered by each drain. (App. D, Sec. D-3, 1101.11.1)
215. Indicate on the plans the slope of horizontal piping. (Table 11-1 and Table 11-2).
216. Indicate overflow drain. Otherwise, indicate the reasons for not having them. (1101.11.2.1)
217. Roof drain and overflow drains shall be piped independently to the outside of the building. (1101.11.2.2)

Sump Pumps

218. Show size, length, and type of material of the pump discharge line. (1101.3)
219. Backwater valves shall be installed to prevent flooding of the garage from outside water. (1105.5.5)
220. The discharge line from the sump shall be provided with an accessible backwater valve. (710.4)
221. Check valve shall be located outside the pit. (710.4 & 1110.2)
222. Sump(s) shall be made of concrete, metal or other approved materials. Fiberglass sumps shall be approved materials. Fiberglass sumps shall be approved by the administrative authority.
223. Provide dual sump pumps. (1101.13)
224. Minimum size of pump shall be 15 gpm (1101.5.3)
225. Provide an airtight cover. (1101.5.3)
226. The sump pit shall be at least 15 inches in diameter and 18 inches in depth. (1101.5.3)
227. The discharge line from the sump shall be at least 1-1/2 inches in diameter. (1101.5.3)
228. Where the pump discharge line connects to a horizontal drain line, such connection shall be made from the top through a wye branch fitting. (710.4)
229. The lowest inlet to the sump shall have a minimum clearance of 2 inches above the high water level. (710.9)
230. Sump(s) shall be provided with a vent pipe which shall extend to the roof. (710.7)
231. Show load discharging into the sump.
232. Show the make, model, and HP of the pump on plan. Also provide pump performance curves
233. Provide a riser diagram showing the sump, sump inlet and outlet, check valves and gravity line.
234. State length of pipe and elevation difference between the bottom of the sump and gravity line.
235. Show high water level. It shall be at least 2 inches below the lowest inlet. (710.9)
236. Show subsurface drainage on the plumbing plans (Civil drawings are for reference only).
237. State piping materials (1101.3)
238. Non-perforated piping shall be made of approved materials for sanitary drainage system. (1101.3a)
239. Backwater valves shall be installed to prevent flooding of the garage from subsurface water. (1105.5)
240. Sump shall discharge into a gravity pipe. (710.12 & 710.2)
241. The discharge line from the sump shall be provided with an accessible check valve. (710.4)
242. Check valve shall be located outside of the pit. (710.4 & 1110.2)
243. Sump(s) shall be made of concrete, metal, or other approved materials. Fiberglass sumps shall be approved administratively. (710.8)
244. Please specify the type of material on the plan or specify make, model, and research report number of the prefabricated sump. (710.8)
245. Minimum size of pump shall be 15 gpm. (1101.5.3)
246. Provide an airtight cover. (1101.5.3)

247. Where the pump discharge line connects to a horizontal drain line, such connection shall be made from the top through a wye branch fitting. (710.4)

248. The lowest inlet to the sump shall have a minimum clearance of 2 inches above the high water level. (710.9)

ELECTRICAL

General Requirements

249. Provide single line diagram. (215-5). Show conduit and conductor sizes with ground electrode detail.

250. Specify the interrupting rating, withstand rating of devices, %impendence of transformer(s), line impedance per ft. (110-9, 110-10)

251. No piping, ducts or equipment foreign to electrical equipment shall be permitted to be located within 6 feet above the electrical equipment or to the structural ceiling above the space of electrical equipment whichever is lowest.

252. Indicate the provisions to insure the proper operation of G.F.I. equipment on a separately grounded service and generator system. (110-10)

253. Provide and maintain required work space, adequate illumination, access to work space and head room for and about electrical equipment.

254. For electrical equipment rated 1200 amperes or more and over 6 feet wide, there shall be one entrance not less than 24 inches wide at each end. (110-16 (c))

255. Provide protection from physical damage for switchboards, panel boards and other electrical equipment. (384-4, 110-17(b))

256. Equipment in fan room shall only serve the load that is permitted in such rooms. (300-22(b), MC Sec. 601.1.2)

257. Add note to plans, “City of Newport Beach amendments to 2004 CEC use rigid metal conduit in all areas exposed to weather, provide ground wire inside all flexible metal conduit, and metal conduit shall not be installed in contact with earth.”

Service Calculations

258. Correct excessive voltage drop on branch circuit(s). (210-19(a))

259. Provide a receptacle outlet within six feet of any point along the wall in livable rooms of dwelling occupancies. (210-52(a))

260. Provide show window lighting(s) and receptacle branch circuit(s) and outlets. (210-62, 220-12)

261. A single receptacle installed on an individual branch circuit shall have an ampere rating of an individual branch circuit shall have an ampere rating of not less than that of a branch circuit. Indicate the receptacle rating. (210-21 (b)(1))

262. Correct excessive voltage drop on feeder(s).(215-2 (b))

Branch Circuits

263. Provide 150 VA loading for every 2 feet or track light.

264. Provide proper feeder, panel board, and branch circuit ampacity for general lighting as required for particular occupancy. (220-3(b) & 10, 215-5)

265. Provide a minimum of 1200 VA exterior sign or outline lighting system branch circuit. (800-5(b)(3))

266. Provide a dedicated branch circuit for lighting in each elevator car. (620-22)

267. Provide a minimum of 200 VA for each linear foot of show window. (220-12)

268. Feeder and branch circuit rating shall be based on not less than non-continuous loads and 125% of continuous loads.(220-3, 220-10(b))

269. Provide 180 VA of load for each general use receptacle. (220-3(c)(7)

270. Small Appliance branch circuits shall be rated at 1500 VA each. (220-15(a))

Service Equipment

271. Service disconnect(s) shall be located nearest the point of entrance of the service entrance conductors. Service entrance conductors shall not extend horizontally into a building unless encased in minimum 2 inches of concrete (230-780(a))
272. No more than six service disconnecting means is permitted at any one location. (230-71(a))
273. No more than one service disconnecting means is permitted for motor control centers. (430.95)
274. The service equipment shall have a rating not less than the load served. This load shall be calculated per article 220. (230-79)
275. The two to six disconnects as permitted in section 230-71 shall be grouped. (230-72(a))
276. Ground fault protection is required on each 1000 amperes or more, 4W, 277/480 volts wiring system of a service or a feeder disconnecting means. (230-95,215-10)
277. Service equipment shall have a short-circuit rating of not less than the available short circuit current and motor(s) contribution at its supply terminals. (230-65)
278. A building or other structure shall be supplied by one service. (230-2)
279. When more than one building or other structure is on the same property and under single management, each building or structure shall be provided with means for disconnecting all ungrounded conductors. (225-8(b))
280. Equipment shall not be connected to the supply side of the service disconnect means. (230-82)
281. In a multiple occupancy building occupants shall have access to their service disconnecting means. (230-72(c))
282. Submit over current coordination study. (240-12)
283. Provide proper over current production for conductors on circuits. (240-3)
284. Over current devices shall be connected at the supply point of under grounded conductors. (240-21)
285. Provide short circuit analysis. (110-9, 10)
286. Indicate the series combination interrupting rating of over current devices. Identify the fuse class and the circuit breaker manufacturer, model designation, type and electrical rating used as part of series rating. (240-83(c))
287. Series combination interrupting rating shall not be used when the second device in the series is subjected to a total connected full load motor current of more than 1% of its AIC rating. (110-3)
288. Motor circuit protectors shall not be used as part of a series combination interrupting rating. (110-3)

Grounding

289. Provide properly sized electrode grounding conductors on service. (250-5, 220-25, 250-94)
290. Separately derived systems shall be separately grounded. (250-5(d), 26)
291. When more than one building is supplied by a service, the grounded conductor supplying each building shall be adequately sized and grounded at each building or an equipment grounding conductor shall be provided from the main service to each building. (250-24 & 81)
292. All services supplying a building shall have the same grounding electrode system. (250-54)
293. Two or more buildings supplied from common service will require separate ground electrode at each building (250-32).

Wiring Methods

294. Rooms containing raised floors shall have a smoke detection system. (645-2)
295. Wiring methods beneath the raised floors shall comply with all requirements of Article 645
296. Provide an equipment grounding conductor between remote panel board and service. (680-2(d))

297. Provide an equipment grounding conductor for all pool related equipment. (680-25)
298. Patient care area receptacles shall be grounded by an insulated copper conductor. (517-13(a))
299. Exit signs shall not be used as J-boxes. Show location of required junction boxes. (700-9)
300. Indicate type of conduit(s) used. (Appendix C)
301. Provide permanent access to roof mounted equipment (380-8(a))
302. Switches, circuit breakers, etc. shall be readily accessible. (380-8 (a))
303. Provide individual over current protection on the supply protection on the supply size of each lighting and appliance branch circuit panel board. (384-16(a))
304. Provide weather proof GFCI protected outlets within 25 feet of roof mounted equipment. (210-63, 210-8(b)(2))
305. Fire pump circuit shall be encased in no less than 2 inches of concrete. (695-8, 230-6)
306. Over current protecting for fire pump services shall provide short circuit protection and shall be set to carry fire pump motor locked rotor current indefinitely. (695-8(c))
307. Provide an emergency source of power for fire pump. (BC 904.1.2, NFPA 20-96 6-2, 700-12)
308. No disconnecting means shall be installed within the fire pump feeder circuit. (695-3(c))
309. Transfer of power shall take place within the fire pump room. (BC 904.1.2, NFPA 20-96, 6-6.5)

Motors

310. Provide the nameplate current rating of the following (430-6,-22 Exception 1, Table 430-150):

    a. Locked-rotor current or torque motors. .
    b. AC adjustable voltage motors.
    c. Low Speed (1200 RPM or Less) motors.
    d. Multi-speed motors.
    e. Noncontinuous duty motors.

311. Indicate the Duty-cycle service and designs of motors. This information should include the motors duty and time rating. (430-22, Table 430-22(a) Exception)
312. Provide proper conductor size for motor(s). (430-22(a), -24)
313. Provide overload protection for motor(s)**.**
314. Provide proper short circuit protection for motor(s) (specify breaker/fuse type). (430-52)
315. An individual branch circuit is required for each motor over one horsepower or 6 amperes of full load current. (430-53(a))
316. Provide properly located disconnects on motor(s) (430-101, -102, -103, -109, -110).

Transformers

317. Provide over current protection on the primary of the transformer. (450-3)
318. Provide over current protecting for the secondary conductors from the transformer. (240-21)
319. Provide adequate ventilation in transformer room(s). (450-9))
320. Indicate transformer(s) secondary tap length(s). (240-21)
321. Provide ground electrode conductor sized per (250-66). Show termination point (ground rod / cold water / building steel).

Clinics

322. Indicate type of clinic(s). (CBC XX)

323. Equipment classified for life-support purpose shall be supplied from an essential system as required per sections 517-30 through 517-35. (517-50(c)Exemption 1)

324. Indicate if the clinic is or will be licensed by the State of California. (CBC XX)

325. Provide a generator to supply all the loads in the ambulatory surgical clinics. (517-50Exp.2)

326. Wiring within an ambulatory surgical or hemodialysis clinics shall be in a accordance with 517-50(d) & (e)

327. Provide a nurse call system in the birthing clinic. (CBC XX)

328. Operating room of surgical clinic shall include a clock and elapsed timer and an x-ray film illuminator. (CBC XX)

329. If Ethylene Oxide sterilizers are on emergency power, the exhaust system shall also be supplied from the emergency source. (CBC XX)

330. Provide an audible and visual alarm system to alert sterilizer operating personnel. (CBC XX)

331. Provide two branch circuits at the patient bed location in a surgical clinic. One circuit shall be from a normal panel and other from an emergency panel. (517-18(a.1) Ex. 2)

Hazardous Locations

332. Provide hazardous classifications by class, division, or zones and group, and show boundaries of the hazardous area(s). (Art 500)

333. Wiring in hazardous areas shall comply with the Code provisions for those areas. (Art 500 thru 516)

334. Provide conduit seals at boundaries of hazardous areas. (501-5(c)(6)

335. Submit details of the natural or mechanical ventilation provided in garage area(s) (511-3(a))

336. Provide GFCI protection for outlets in repair garages. (511-10)

337. Classify the pits in the garage area. (511-3(b))

Emergency Circuits

338. Provide (a) properly sized emergency power source(s) for required emergency load(s). (700-5)

339. A completely independent raceway and wiring system shall be installed for emergency circuits. (700-9)

340. Emergency lights shall be provided a uniformly distributed minimum of 1.0 fc illumination at floor level. Provide foot-candle calculations. (CBC1003.2.9.1)

341. Provide emergency exit illumination for space/area with occupant load of 100 or more. (CBC1003.2.92)

342. Emergency exit illumination shall be supplied from a generator, storage battery or a unit equipment. (CBC 1632.6.4.3, 700-12)

343. Provide exit signs. (CBC 1003.2.8.2)

344. Provide low level exit path marking. (CBC 1007.2.8)

345. Provide battery calculation. (700-5, 12(a))

346. Storage batteries shall comply with article 480.

347. Provide proper type and size of over current protection for high voltage feeders. (710-20, 240-100)

348. Medium voltage equipment shall be listed by an approved testing laboratory. (110-2)

349. Provide detail and specifications for the following:

    a. Cables

    b. Over current protective devices (electrical ratings, listing, type, AIC rating, close-and-latch-rating, breakers “K” factor, MVA rating, continuous current rating, fuse time-current curves, etc.)

    c. Transformer(s) (rating, listing, etc.)

    d. Raceway(s) (size, material, etc.)

e. Terminations and Splices.

f. Pull boxes and Manholes.

g. Disconnect devices (type, size, electrical rating, magnetizing current interrupting ratings, cable charging rating, fault close rating, etc.)

h. Switchgear(s), substation(s) , Unisubstation(s)

i. Grounding impedance (continues and wait rating, etc.)

j. Bracing

350. Clarify the grounding method used. Include information on size and termination method. (ART 250)

351. Provide detail on high impedance grounding. (Art 250)

352. Provide capacitive current charge calculation. (250-51)

353. Provide detailed short circuit analysis including a coordination study. The analysis should reflect the three and single phase fault as well as ground fault and line to line ground fault (when applicable) (110-9, 10, 240-21)

354. Provide a coordination protection for the motor circuit. This coordination shall include fault current overload, circuit conductors, and motor control apparatus. (430-125)

355. Identify all Class 2 and Class 3 circuits. (725-31)

Title 24 Lighting

356. Submit lighting calculations on approved lighting compliance forms for new building or additions and alterations on existing building. (146)

357. The certificate of compliance shall be signed by the person responsible for its preparations prior to plan check approval. (10-103(a))

358. Electric resistance heating systems shall not be used for space heating. (144(g), 151(f)(7))

359. Certificate of compliance form LTG-1-C/OLTG-1-C shall be printed on plans. (10-103(a))

360. One or three lamp fluorescent luminaries within 10’ shall be tandem wired. (132)

361. Lamps used in luminaries for general lighting in kitchens and bathrooms shall have efficacy of not less than 40 lumens per watt. (130(b), 150(k))

362. Provide automatic shut-off control for lighting with override switching device. (131(d) 1.2)

363. Provide an independent switching or control device for each area enclosed by ceiling-height partitions. (131(a))

364. Provide dual switching for the general lighting. (131(b))

365. Provide an independent control for at least 50% of the lights in daylight areas. (131(c))

366. The switching or control device shall be located so that a person using the device can see the lights or area controlled by the switch. (131(a))

367. Display lighting shall be separately switched on circuits that are 20 amperes or less. (131(e))

368. Exterior lighting controlled from interior building lighting panels shall be controlled by directional photocell or astronomical time switch that automatically turns off the exterior lighting when daylight is available. (131(f))

369. Comply with TITLE 24 2005 California Energy Efficiency Standards; provide all required compliance forms and mandatory measures on the plans.