



CITY OF LOS ANGELES
LARUCP PLUMBING/MECHANICAL
PLAN CHECK LIST



Plan Check No. _____ Plan Check Expiration Date _____
Job Address: _____
Square Footage _____ Use Zone _____ Fire Zone _____
Occ. Group _____ Type of Construction _____ No. of Stories _____
Applicant _____ Phone _____ E-Mail _____
Reviewed by _____ Date _____ Telephone _____
2nd Review by _____ Date _____ Telephone _____

Your application for a permit, together with plans and specifications, has been examined and the issuance of a permit is withheld for the reasons set forth. The approval of plans and specifications does not permit the violation of any section of the Los Angeles Plumbing Code, Los Angeles Mechanical Code, or other local ordinance or state law.

NOTE: Numbers in the parenthesis () refer to Code sections of the 2002 edition of the Los Angeles Plumbing Code (P.C.), the 2002 Los Angeles Mechanical Code (M.C.) and the 2002 Los Angeles Building Code (B.C.).

INSTRUCTIONS:

- Corrections with circled item numbers apply to this plan check.
• In the left-hand margin of the circled corrections, please indicate the sheet number and detail or note number on the plans where the corrections are made. Resubmit marked original plans and two corrected sets of plans, calculations and this plan review list.
• Incomplete or unreadable drawings or calculations will not be accepted.
• The plan check engineer will be available for conference and telephone calls between the hours of _____ and _____ on the following days: _____. Appointments are required to schedule for conferences.
• Incorporate all comments as marked on the checked set of plans and calculations and this correction sheet.

P. PLUMBING (WATER)

- P1. Plans shall bear the registration or license number and signature of an architect, contractor, or engineer, registered by the State of California in the appropriate discipline. (94.101.3.2, 94.101.3.6, 94.103.2.2).
- P2. Indicate the job address on each page of the plan. (94.101.3.1, 94.103.2.3)
- P3. Provide an approved variance to allow plans at a scale smaller than 1/8 inch per foot. (94.101.3.4, 94.103.2.3)
- P4. Indicate on the plans the scope of the work to be done. (94.101.3.4, 94.103.2.3)
- P5. Provide site water piping plans. (94.101.3.4, 94.103.2.3)
- P6. Install a control valve in the domestic water supply to each building. (94.605.2)
- P7. Provide riser diagrams for hot & cold water systems. (94.101.3.3, 94.103.2.3)
- P8. The riser diagram shall indicate all the fixtures served. The pipe size and the fixture unit count on each leg of pipe, pressure regulators, back flow prevention devices, and water meter. (94.101.3.1, 94.101.3.3, 94.103.2.3)
- P9. Specify which fixtures are for private use and which are for public use. (94.103.2.3, 94.101.3.1, Table 6-4, Table A-2)
- P10. Show all new and all existing devices locate between the city water service and the building plumbing system that cause pressure losses or gains in the system. Devices shall include but not be limited to pumps, water softeners, and sub meters. (94.101.3.1, 94.103.2.3, 94.610.2)
- P11. State the make(s), model(s), size(s), of the above items and indicate if they are new or existing. (94.101.3.1, 94.103.2.3, 94.610.2)
- P12. Provide manufacturer's specification sheets for such devices indicating the pressure loss through the device(s) from 0 flow to the rated flow. (94.101.3.1, 94.103.2.3, 94.610.2)
- P13. Indicate on the plans, all fixture unit loads in addition to the loads of the new fixtures including but not limited to, existing fixtures, irrigation load, make up water for cooling towers and boilers, demand for future use, and any other uses.(94.101.3, 94.103.2.3, UPC Appendix A Sec. A2)
- P14. Show the future water demand.(UPC Appendix A Sec. A2)
- P15. Provide hydraulic calculations for sizing the cold and hot water systems.(94.0610.0 & UPC Appendix A)
- P16. The minimum water pressure supplied to the most remote fixture shall be not less than the requirements of that fixture and not less than 15 PSI, whichever is higher.(94.608.1)
- P17. Indicate on the plans the makes and models of the water closets, urinals, and water heaters used.(94.101.3.1, 94.402.2, 94.402.4, 94.608.1)

- P18. Indicate on the plan the piping materials for the domestic water system.(94.0604.0)
- P19. An approved pressure regulating valve (PRV) shall be installed to reduce the water pressure at any fixture to 80 psi or less. (94.608.2)
- P20. Show makes, models and sizes of the PRV's on the plans.(94.0608.2)
- P21. Provide a copy of the manufacturer's catalog for the PRV's used showing pressure drop through them. (94.0608.2)
- P22. Provide a reduced pressure back flow device (RP) at the meter.(DWP rule 16D)
- P23. Show make, model and size of the RP on the plans.(94.101.3.1 & 94.610.2)
- P24. Provide a copy of the manufacturer's catalog for the RP used showing pressure losses. (94.101.3.1 & 94.610.2)
- P25. Show size of a water meter on the riser diagram.(94.101.3.1 & 94.610.2)
- P26. Provide a temperature & pressure relief valve on the water heater. The valve shall discharge to an approved location. Pressure relief valves for water heaters installed inside a building shall discharge to a floor drain.(94.608.3 & 94.608.5)
- P27. Provide an approved thermal expansion tank at the water heater. Show it on the riser diagram.(94.608.3)
- P28. State make and model of the thermal expansion tank.(94.608.3)
- P29. Showers shall be provided with tempering valves.(94.420.0)
- P30. State make, model, rated pressure, and g.p.m. of water pump(s).(94.101.3.1)
- P31. Provide a pump performance curve for the water pump(s) being used. Packaged systems shall be L.A. City Testing Laboratory approved.(94.101.3.1, 94.101.15.5)
- P32. Provide water heater budget.(Title 24 Sect. 151(b)1 & 151(f)8)

W. WASTE & VENT SYSTEM

- W1. Plans shall bear the registration or license number and signature of an architect, contractor, or engineer, registered by the State of California in the appropriate discipline. (94.101.3.2, 94.101.3.6, 94.103.2.2)
- W2. Indicate the job address on each page of the plan. (94.101.3.1, 94.103.2.3)
- W3. Provide an approved variance to allow plans at a scale smaller than 1/8 inch per foot. (94.101.3.4, 94.103.2.3)
- W4. Indicate on the plans the scope of the work to be done. (94.101.3.4, 94.103.2.3)
- W5. Provide riser diagrams for the waste and vent systems. (94.101.3.3, 94.103.2.3)

- W6. The riser diagram shall indicate all the fixtures served, the pipe size and the fixture unit count on each leg of pipe. (94.101.3.3, 94.103.2.3)
- W7. Indicate on the plans the piping materials. (94.0701.0)
- W8. Show all pipe sizes on the plan. (94.101.3.3, 94.103.2.3)
- W9. Show the slope of the horizontal drainage piping. (94.0708.0)
- W10. Show size of the sewer main in the street. (94.101.3.3, 94.103.2.3)
- W11. Provide suds relief. (94.711.0)
- W12. The aggregate cross sectional area of the vent shall not be less than that of the largest required building sewer. (94.904.1)
- W13. Provide clearance from 'Industrial Waste'.(94.307.0)
- W14. Provide product literature for the grease interceptor. (94.101.3.1, 94.103.2.3)
- W15. Show details for the island venting. (94.909.0)
- W16. Provide a floor drain in the elevator pit. (ASME A17.1 rule 106.1b(3))
- W17. Indicate on the plans if the elevator is electric or hydraulic. (94.1014.1, Elevator Code Rule 106.1b)
- W18. Elevator pit drains shall discharge to a holding tank with the following conditions: (A) The holding tank shall be a minimum of 250 gallons. (B) The holding tank shall be equipped with a high/low water alarm.
- W19. Install a clean out every 100 feet or a manhole every 300 feet in the building sewer (site sewer) in straight runs and for each aggregate horizontal change in direction exceeding 135E. (94.719.1, 94.719.6)
- W20. Provide yoke vents. (94.907.1)
- W21. Provide lot subdivision. The building sewer shall not cross lot lines. (94.721.1)
- W22. All wet vented fixtures shall be within the same story. (94.908.1)
- W23. Combination waste and vent system is only allowed where structural conditions preclude the installation of a conventional system. (94.910.1)
- W24. Provide a separate vent for each waste branch line exceeding 15' in length. (94.910.3)
- W25. The minimum area of any vent installed in a combination waste and vent system shall be at least ½ the cross sectional area of the drain pipe served. (94.910.3)
- W26. 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 9. (94.910.4)
- W27. No vertical waste pipes, toilets or urinals area allowed in a combination waste and vent system. (94.0910.5, 94.0910.7)
- W28. Relief vents shall be provided every 100' along the mains. (UPC Appendix B Sect. B3)
- W29. Show on plans type & use of each fixture served by this system. (94.101.3.1, 94.103.2.3)
- W30. Show combination waste and vent system on floor plans. (94.101.3.1, 94.103.2.3)
- W31. Provide a vent downstream of the furthest fixture. (94.910.3)
- W32. Show size, length and type of material of the pump discharge line. (94.101.3.3)
- W33. The discharge line from the ejector shall be provided with an accessible check valve and gate valve or ball valve. The gate valve or ball valve shall be located on the discharge side of the check valve. Gate valve or ball valve and check valve shall be located outside the pit. (94.710.4)
- W34. Provide dual pumps each capable of handling the load independently. (94.710.9)
- W35. Provide air tight cover for the sump. (94.710.10)
- W36. Sump(s) shall be provided with a vent pipe which shall extend through the roof. (94.710.7)
- W37. Show load discharging into the sump.(94.101.3.3, 94.103.2.3)
- W38. Show make, model and HP of pump on plan. Also provide pump performance curves.(94.101.3.1, 94.103.2.3)
- W39. Provide a riser diagram showing the sump, sump inlet & outlet check valves and gravity line. (94.101.3.3, 94.103.2.3)
- W40. State length of pipe & elevation difference between the bottom of the sump and the gravity line. (94.101.3.3, 94.103.2.3)
- W41. Show high water level. It shall be at least 2 inches below the lowest inlet.(94.710.9)
- W42. Sumps receiving waste from water closets shall have a minimum 2 inch discharge (single family dwelling). 3 inch discharge is required for commercial buildings.(94.710.3)
- W43. Allow two fixtures units for each gallon per minute discharging from the sewage ejector.(94.710.5)
- G. NATURAL GAS SYSTEMS**
- G1. Plans shall bear the registration or license number and signature of an architect, contractor, or engineer, registered by the State of California in the appropriate discipline. (94.101.3.2, 94.101.3.6, 94.103.2.2)
- G2. Indicate the job address on each page of the plan. (94.101.3.1, 94.103.2.3)
- G3. Provide an approved variance to allow plans at a scale smaller than 1/8 inch per foot.(94.101.3.4, 94.103.2.3)
- G4. Indicate on the plans the scope of the work to be done.(94.101.3.4, 94.103.2.3)

- G5. Provide riser diagrams for the gas systems.(94.101.3.3, 94.103.2.3)
- G6. Indicate on the plans the material for the gas piping. (94.1210.0)
- G7. Indicate on the plans the total developed length of the system from the meter or regulator to the most remote gas outlet. (94.1217.2)
- G8. Provide a separate gas shutoff valve for each system. (94.1211.12)
- G9. Indicate on the plans the hourly volume (CFH) of gas required at each outlet. (94.1216.2)
- G10. Provide an approved type seismic gas shutoff valve. (94.1219.2)
- G11. Show on plan size, make and model of seismic gas shut off valve. (94.1219.2)
- G12. The seismic shut off shall be installed shall be mounted rigidly to the exterior of the building or structure containing the fuel gas piping. (94.1219.3.2)
- G13. No gas pipe shall be installed under the building. (94.1211.4)
- G14. Provide a letter from the gas company stating that they will deliver the desired pressure and volume of gas. (94.1217.4, 94.1218.2)
- G15. Show on plans size, make, model, orifice size, spring number, pressure at the inlet of the pressure regulator, and setting of pressure regulator. (94.1218.4, 94.103.2.3)
- G16. Provide manufacturer's cut-sheet for regulator showing outlet pressure at the selected setting. (94.1218.1, 94.103.2.3)
- G17. An approved gas valve shall be installed immediately preceding each regulator. (94.1218.5)
- G18. Pressure regulator shall vented to the outside of the building. (94.1218.4)
- G19. Provide engineering calculations used in sizing the piping system.(94.1217.3)
- G20. Provide a copy of the approved variance allowing the use of high pressure gas. (94.1217.4)
- G21. Specify type of fittings. (Flanges are not approved fittings.) (94.1211.1)
- G22. Provide a copy of approved variance for the following items:
 - A. Using flanged type unions. (94.1211.1)
 - B. Connecting unit to more than one gas system. (94.1215.1)
 - C. Not to use a two way three port valve. (94.1211.12)
 - D. Using a Non approved type check valve (94.1210.4)
- G23. Provide a copy of manufacturer's cut-sheet for vapor extraction unit showing volume pressure of gas required to operate the unit.(94.1216.2)

- G24. Provide an approved type check valve at each gas connection to the vapor extraction unit.(94.1210.4)
- G25. Vapor extraction unit shall be approved by the Los Angeles City Mechanical Testing Laboratory.(94.101.15.4, 94.101.15.5)

R. RAINWATER SYSTEMS

- R1. Plans shall bear the registration or license number and signature of an architect, contractor, or engineer, registered by the State of California in the appropriate discipline. (94.101.3.2, 94.101.3.6, 94.103.2.2)
- R2. Indicate the job address on each page of the plan. (94.101.3.1, 94.103.2.3)
- R3. Provide an approved variance to allow plans at a scale smaller than 1/8 inch per foot. (94.101.3.4, 94.103.2.3)
- R4. Indicate on the plans the scope of the work to be done. (94.101.3.4, 94.103.2.3)
- R5. Indicate on the plan the type of piping material. (94.1101.3)
- R6. Provide a riser diagram. (94.101.3.3, 94.103.2.3)
- R7. Indicate on riser diagram the area (ft²) covered by each drain. (94.103.2.3, Appendix D Sect. D-3, 94.1101.11.1, 94.101.3.3)
- R8. Indicate on the plan the slope of horizontal piping. (UPC Table 11-2)
- R9. Indicate overflow drain. Otherwise, indicate the reasons for not having them. (94.1101.11.2.1)
- R10. Roof drain and over flow drains shall be piped independently to the outside of the building. (94.1101.11.2.2)
- R11. Show size, length and type of material of the pump discharge line. (94.101.3.1, 94.103.2.3)
- R12. Backwater valves shall be installed to prevent flooding of the garage from outside water. (94.1101.5.5)
- R13. The discharge line from the sump shall be provided with an accessible backwater valve. (94.710.4)
- R14. Backwater valve shall be located outside the pit. (94.710.4)
- R15. Sump(s) shall be made of concrete, metal or other approved materials. Fiberglass sumps shall be approved by the Los Angeles city Mechanical Testing Laboratory. (94.710.8 & 94.103.4)
- R16. Please specify the type of material on the plan or specify make, model and research report number of the prefabricated sump. (94.101.15.4, 94.101.15.5)
- R17. Provide dual sump pumps. (94.1101.13)
- R18. Minimum size of pump shall be 15 gpm. (94.1101.5.3)
- R19. Provided an air tight cover. (94.1101.5.3)

- R20. The sump pit shall be at least 15 inches in diameter and 18 inches in depth. (94.1101.5.3)
- R21. The discharge line from the sump shall be at least 1 ½ inch diameter. (94.1101.5.3)
- R22. Where the pump discharge line connects to a horizontal drain line, such connection shall be made from the top through a wye branch fitting. (94.0710.4)
- R23. The lowest inlet to the sump shall have a minimum clearance of 2 inches above the high water level. (94.0710.9)
- R24. Sump(s) shall be provided with a vent pipe which shall extend a minimum of six inches above the solid sump cover. (94.710.7 & 94.906.0)
- R25. Show load discharging into the sump. (94.101.3.3)
- R26. Show make, model and HP of pump on plan. Also provide pump performance curves. (94.101.3.3)
- R27. Provide a riser diagram showing the sump, sump inlet & outlet, backwater valves and gravity line. (94.101.3.3, 94.103.2.3)
- R28. State length of pipe & elevation difference between the bottom of the sump and the gravity line. (94.101.3.3 & 94.103.2.3)
- R29. Show high water level. It shall be at least 2 inches below the lowest inlet. (94.710.9)

S. SUBSURFACE DRAINS

- S1. Show subsurface drainage on the floor plans. (94.101.3.1)
- S2. State piping material. (94.1101.3)
- S3. Non perforated piping shall be made of metal as in sanitary drainage systems.(94.1101.3.1)
- S4. Provide a statement from a civil engineer showing the required flow. (94.101.3.1)
- S5. Either terminate the subsurface drains to the city storm drain, or provide a soil report showing that there is no continuously flowing springs or ground water. (94.1101.5.2)
- S6. Show size, length and type of material of the pump discharge line.(94.1101.3)
- S7. Backwater valves shall be installed to prevent flooding of the garage from subsurface water. (94.1101.5.5)
- S8. Sump shall discharge into a gravity pipe. (94.710.12, 94.710.2)
- S9. The discharge line from the sump shall be provided with an accessible check valve. (94.710.4)
- S10. Check valve shall be located outside the pit. (94.710.4)
- S11. Sump(s) shall be made of poured concrete, metal or other approved materials. Fiberglass sumps shall be approved by the Los Angeles City Mechanical Testing laboratory. (94.710.8)

- S12. Please specify the type of material on the plan or specify make, model and research report number of the prefabricated sump. (94.710.8)
- S13. Minimum size of pump shall be 15 g.p.m. (94.1101.5.3)
- S14. Provide an air tight cover. (94.1101.5.3)
- S15. Where the pump discharge line connects to a horizontal drain line, such connection shall be made from the top through a wye branch fitting.(94.710.4)
- S16. The lowest inlet to the sump shall have a minimum clearance of 2 inches above the high water level.(94.710.9)
- S17. Sump(s) shall be provided with a vent pipe which shall extend a minimum of six inches above the solid sump cover or above the roof. (94.710.7 & 94.906.0)

A. GENERAL REQ. HVAC

- A1. Plans shall bear the license number and signature of an architect, engineer or contractor licensed in the appropriate discipline. (Chap. 7, Div. 3, Business and Professional Code, Art. 2, Sec. 6735.4)
- A2. Show job address on plans. (95.113.3 (2)).
- A3. Plans shall be clearly legible, and at a scale no smaller than 1/8 inch per foot. (95.113.2 (4)).
- A4. Show equipment schedule on the plans. (95.113.3-1).
- A5. Show the occupancy of each area. (95.113.3-1j).
- A6. Show the intended use of each room. (95.113.3-1j).
- A7. Show all fire rated walls and ceilings. (95.113.3-1k).
- A8. Indicate if rated corridors are tunnel type or full height. (95.113.3-1k).

FURNACES

- A9. The furnace closet shall be provided with an opening not less than 24 inches wide. (95.303.0).
- A10. The furnace closet shall be 12 inches wider than the furnace with a minimum clearance of 3 inches along the sides, back and top. (95.904.1).
- A11. Show location and size permanent access to the furnace. (95.305.0 & 95.308.0).
- A12. Show roof access. (95.910.7).
- A13. Provide an approved structural plan showing that the anchorage of the roof is designed to withstand all dead loads and all required live loads. (94.910.1, 94.910.5 & 94.304.4).
- A14. Floor furnaces shall be installed not less than 3 inches above grade. (95.909.3).
- A15. Show location and size of all combustion-air openings or ducts. (95.702.1, table 7-1).

- A16. Provide calculations for the combustion air. Size of openings or ducts shall be per table 7-1 of the Uniform Mechanical Code. (95.707).
- A17. Combustion-air duct shall be of galvanized steel. (95.704.1).
- A18. Dampers are not allowed in combustion-air ducts. (95.702.2 & 95.704.2).
- A19. Provide a fire rated enclosure around the vent. (95.704.2).
- A20. Provide an elevation of the furnace: show draft hood, vent size and type (E.G. double wall type B vent, positive pressure vent etc.), clearances and vent termination. (95.303, 95.304, 95.307, 95.804, 95.805, 95.806).
- A21. The vent shall be double wall type B. (95.802.1).
- A22. The vent shall be positive pressure type. (95.816.2).
- A23. The vent diameter shall be equal or greater than the diameter of the vent collar of the appliance. (95.808.1).
- A24. The vent termination shall be at least 5 feet above the vent collar. (95.806.2).
- A25. 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; and shall be 4 feet away from the property line. (95.806.1 & 95.806.6.1).
- A26. Vents shall terminate at least 4 feet below or horizontally from, and 1 feet above any opening into the building. (95.806.6).
- A27. The vent shall extend vertically, except on 60E offset is allowed. (95.805.1).
- A28. The total horizontal run of a vent plus the length of horizontal vent connector shall not exceed 75% of the vertical height of the vent. (95.805.1).
- A29. Provide manufacture brochure showing the venting criteria for the condensing furnaces. (95.802.5).
- A30. Vents shall not extend into or pass through ducts or plenums. (95.804.0).
- A31. Connectors entering a common venting system shall be offset. (95.809-2).
- A32. The area of a common vent connector shall not be less than the area of the largest vent connectors plus 50% of the areas of the additional vent connectors. (95.809.3).
- A33. Specify according to which table in Appendix C, Chapter 8 of the Uniform Mechanical Code the venting system has been designed. (95.801.0).
- A34. Provide an approved variance allowing the draft inducer. (95.816.1).

AIR CONDITIONING

- A35. Provide a primary and a secondary condensate drain (watertight pan) for cooling coils installed above the

ceiling or in furred spaces. The secondary drain shall terminate in a visible location. (95.1105.13).

- A36. Show on plan duct materials and gages. Gages shall be per tables 6-A, 6-B & 6-C. (95.601.1).
- A37. Ducts shall be constructed in accordance with chapter 6 of the Uniform Mechanical Code. SMACNA is not an adopted code. (95.601.1).
- A38. 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 return air plenum or a common outside air duct are considered to be one system for the determination of the cfm. In lieu of duct type smoke detectors, complete coverage area detectors may be installed. (95.609).
- A39. Provide duct type smoke detectors in every ventilation system in excess of 2,000 cfm. Multiple units serving the same room are considered one system. In lieu of duct type smoke detectors, complete coverage area detectors any be installed. (95.609).
- A40. Show all fire rated walls and ceilings on plans. (95.113.3).
- A41. Indicate if rated corridors are tunnel type or full height. (95.113.3).
- A42. Listed fire dampers and smoke dampers are required to be installed at all duct penetrations through area separation and occupancy separation walls. (91.713.10 & 91.713.11).
- A43. Listed fire dampers and smoke dampers are required to be installed at all duct penetrations through fire rated shafts. (91.713.10 & 91.713.11).
- A44. Listed fire dampers are required to be installed at all duct penetrations through fire rated ceilings. (91.713.11).
- A45. Provide combination smoke/fire dampers to isolate ducts serving rated corridors. (91.713.10 & 91.713.11).
- A46. Provide combination smoke/fire dampers in ducts penetrating elevator lobbies. (91.713.10 & 91.713.11).
- A47. Fire dampers shall be dynamic type. (91.713.12).
- A48. Remove all return air registers from the corridor. (95.602.1).
- A49. Provide an approved structural plan showing that the anchorage of the roof is designed to withstand all dead loads and all required live loads. (94.304.4)
- A50. Provide a copy of the manufacturer catalogs for the mechanical equipment used.
- A51. Provide a permanent roof access. (95.307.5)

TITLE 24

- A52. Provide outside air. (Title 24 Sect. 121).
- A53. Make-up air shall be electrically interlocked with their associated exhaust systems. (95.402 & 95.505.3).

- A54. Backdraft dampers shall be provided in outdoor air supply and exhaust systems. (Title 24 Sect. 150(m)7).
- A55. Provide economizer in every cooling unit exceeding 2,500 cfm. (Title 24 Sect. 144(e)).
- A56. Show thermostats. (Title 24 Sect. 122).
- A57. Show signed statement of compliance (form Mech-1) on the plans. (Title 24 Sect. 10-103(a)2.A).
- A58. Also provide Mech-2, Mech-3, and Mech-4 with the submittal. (Title 24 Sect. 10-103(a)2.C).
- A59. Provide heating and cooling load calculations. (Title 24 Sect.144(b)).
- A60. Provide complete Title 24 documentation. (Title 24 Sect.10-103).
- A61. Show compliance with at least one of the exceptions of section 144(g) of title for the electrical resistance heating or provide energy budget. (Title 24 Sect.144(g); 152(c)).

V. VENTILATION SYSTEM (GENERAL)

- V1. Exhaust ducts under positive pressure and venting systems shall not extend into or pass through ducts or plenums. (95.602.1)
- V2. Show location & sizes of all ventilation ducts & openings. (95.113.3-1)
- V3. Environmental exhausts duct shall terminate outside the building and shall be equipped with a back draft damper. (95.504.1)
- V4. Exhaust outlets shall be 3 feet from property line; 3 feet from opening into the building. (95.504.5)
- V5. Exhaust outlets for product conveying systems shall be 10 feet from property line; 3 feet from exterior roof/wall; 10 feet from opening into the building; 10 feet above grade. (95.506.9.2)
- V6. Make-up air shall be provided for all rooms with exhaust. (95.505.3)

LAUNDRY ROOMS

- V7. Exhaust duct for domestic dryers shall be 4 inches min. and shall not exceed a total length of 14 feet including two 90E elbows. Two feet shall be deducted for each 90E elbow in excess of two. (95.504.3.2)
- V8. Provide an approved variance allowing you to exceed 14 feet for the dryer vent. (95.504.3.2)
- V9. Dryer exhausts shall terminate at least 3 feet from property line and three feet from openings into any building.(95.504.5)
- V10. Dryer exhaust ducts shall be made out of metal. (95.504.3.2.1)

- V11. Laundry ventilation exhaust shall terminate at least 3 feet from property line and 3 feet from openings into any building.(95.504.5)
- V12. Clothes dryer moisture exhaust duct shall not extend into or through ducts or plenums. (95.504.3.1)
- V13. Laundry exhaust ducts under positive pressure shall not extend into or pass through ducts or plenums. (95.602.1)
- V14. No fire dampers are allowed in the dryer exhaust duct. (95.504.3.1)
- V15. Laundry room exhaust ducts shall be made out of metal. (95.504.3.2.1)
- V16. Residential laundry rooms shall have 5 air changes per hour. (91.1203.3)
- V17. Exhaust ducts shall terminate outside of the building and shall be equipped with back draft dampers. (95.504.3)
- V18. Show make up air for the laundry room exhaust system.(91.402)
- V19. The make up air system shall be interlocked with the associated exhaust system. (95.402, 95.505.3 & 95.505.1)
- V20. Laundry room make up air shall take into consideration the air exhausted by the dryers.
- V21. Provide an approved variance allowing a draft inducer. (95.504.3.2)
- V22. Provide combination fire smoke dampers where the laundry exhaust ducts penetrate a fire rated shaft. (91.713.10; 91.713.11).
- V23. Provide combination smoke/fire dampers where the laundry exhaust ducts penetrate an area separation or occupancy separation wall. (91.713.10; 91.713.11).
- V24. Provide combustion air openings. (95.701.1)

TOILET ROOMS

- V25. Toilet rooms in commercial buildings shall have 4 air changes per hour. (91.1202.2.1)
- V26. Toilet rooms in residential buildings shall have 5 air changes per hour. (91.1203.3)
- V27. Toilet exhausts shall terminate at least 3 feet from property line and 3 feet from openings into any building. (95.504.5)
- V28. Show make up air for the toilet exhaust. (91.505.3)
- V29. The make up air system shall be interlocked with the associated exhaust system. (95.402)
- V30. Remove return air grill from the bathroom. (95.906.6.6)
- V31. Provide a duct type smoke detector in the toilet exhaust system exceeding 2,000 cubic feet per minute. (95.609)
- V32. Toilet exhaust ducts shall be made out of metal. (95.604.0)

- V33. Toilet exhaust ducts under positive pressure shall not extend into or pass through ducts or plenums. (95.602.1)
- V34. Provide combination fire smoke dampers where the toilet exhaust ducts penetrate a fire rated shaft. (91.713.10; 91.713.11)
- V35. Provide combination fire smoke dampers at every penetration of area separation and occupancy separation wall. (91.713.10; 91.713.11)

CORRIDOR VENTILATION

- V36. Remove the return air registers from the corridor. (95.602.1)
- V37. Listed fire dampers and smoke dampers area required to be installed at all duct penetrations through fire rated shafts. (91.713.10; 91.713.11).
- V38. Listed fire dampers are required to be installed at all duct penetrations through fire rated ceilings. (91.713.11)
- V39. Provide combination smoke/fire dampers to isolate ducts serving rated corridors. (91.713.11)
- V40. Fire dampers shall be dynamic type. (91.713.12)
- V41. Corridors shall have supply and/or exhaust air inlets and/or outlets. (95.602.1)
- V42. Rooms adjacent to the corridor shall not draw air from the corridor or transfer air to the corridor. (95.602.1)

GARAGE VENTILATION

- V43. Provide calculations showing that the exhaust fan is capable of uniformly exhausting 1.5 cfm per square foot of gross floor area. (91.1202.2.7)
- V44. A variance is required to size the garage ventilation system based on 14,000 cfm per moving vehicle. (91.1202.2.7)
- V45. Provide make up air. (95.505.3)
- V46. Show the termination of the garage exhaust. Exhaust outlet shall terminate not less than 10 feet from property line, 3 feet from exterior wall or roof, 10 feet from openings into the building, 10 feet above adjoining grade. (95.506.9.2)
- V47. Provide combination fire/smoke dampers where the garage exhaust ducts penetrate the fire rated shaft. (91.713.10, 91.713.11)
- V48. Provide combination fire/smoke dampers where the make up air ducts penetrate a fire rated shaft.(91.713.10, 91.713.11)
- V49. Do not connect any other ventilation system to the garage ventilation system. (95.505.1)
- V50. Ducts shall be made out of metal or poured in concrete, dry wall is not acceptable. (95.602.1)

**H. KITCHEN HOODS
TYPE I HOODS**

- H1. Provide kitchen lay out plans showing location of hoods, ducts, shafts, make-up air, openable windows and their area, and the volume of the kitchen. (95.113.3(1), 95.508.4, 95.508.9).
- H2. Provide roof plans showing the location of the kitchen exhaust blower, property line and any openings into the building. (91.6302(3) & 95.508.9).
- H3. Provide make-up air. (95.509.9).
- H4. Show sizes, gauges, and materials of all ducts and hoods. (95.509.2 & 95.508.1).
- H5. Specify on plan make, model, HP, cfm and static pressure rating of fans used. (95.113.3(1)E).
- H6. Specify on plan make, model, size, free area and number of filters used. (95.509.5).
- H7. List type of cooking equipment on plans. (95.113.3(1)L).
- H8. 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, show also make-up air duct and factory built-in fire damper. (95.509.10, 95.509.7, 95.509.7.1, 95.509.7.2, 95.508.8, 95.508.9.3, 95.508.5, 95.508.7.4, 95.508.9, 95.509.6, 95.509.7, 95.503.1 & 95.509.3).
- H9. Please note that general specifications in lieu of the actual sectional elevation are not acceptable. (95.113.3).
- H10. Each exhaust outlet within a hood shall serve not more than a 12-foot section of hood. (95.509.10).
- H11. Duct system shall have a slope not less than 1/4 inch per linear 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 linear foot. (95.508.2).
- H12. Duct enclosures from the point of ceiling, wall or floor penetration shall be at least one hour, except it shall be two-hour fire resistive construction in Type I & II buildings. (95.508.4).
- H13. The duct enclosure shall be sealed around the duct at the point of penetration. (95.508.4).
- H14. A clearance of at least 3 inches and not more than 12 inches shall be maintained between duct and enclosure. (95.508.4).
- H15. Provide product literature for the grease exhaust blower and the make-up air fan, showing CFM, static pressures, and, if required, UL listing. (95.113.3E).
- H16. Provide product literature for the cooking equipment showing that it is listed by AGA, UL, or approved by the City of Los Angeles or other recognized agency. (95.113.3(1)L).

- H17. Provide product literature for the compensating and/or ventless hood. The equipment shall be UL listed and/or LA City approved. (95.113.3(1)L).
- H18. Provide product literature for the filters showing the size, free area and friction loss. (95.509.5).
- H19. Provide calculations for sizing exhaust fans and make-up air units. Calculations shall show that the fan is capable of providing the minimum required volume of air. (95.509.7 & 95.509.8).
- H20. Air velocity within the duct system shall be not less than 1,500 feet per minute and shall not exceed 2,500 ft/min. (95.508.6).
- H21. Exposed grease duct/hood systems serving a Type I hood shall have a clearance from unprotected combustible construction of at least 18 inches. Clearance may be reduced to not less than 3 inches when the combustible construction is protected with material required for one-hour fire-resistive construction. (95.509.4).
- H22. Hoods less than 12 inches from the ceiling or wall shall be flashed solidly with materials as specified in Sec. 95.508.1. (95.508.8 & 95.509.4)
- H23. Exhaust outlets serving grease duct systems shall terminate above the roof surface, 10 feet from property line, 10 feet from air intake openings and 10 feet above adjoining grade. Base of fan shall be 2 feet above roof surface. (95.508.9)
- H24. A grease gutter shall drain to a receptacle accessible for cleaning. (95.509.3).
- H25. Type I Hoods for use over solid-fuel cooking equipment shall be provided with separate exhaust systems. (95.509.7.1)
- H26. Remove all the return air grills from the kitchen area. (95.906.6.6)
- H27. Indicate on plans what provisions have been made for fire protection in the hood and in the duct. (95.510.2, 95.510.2.3 & 95.510.2.4).
- H28. The fire-extinguishing system shall be interconnected to the fuel or current supply so that the fuel or current is automatically shut off to all equipment under the hood when the system is actuated. (95.510.2.4.2).
- H29. The exhaust and make-up air systems shall be connected by electrical interlock switch. (95.509.9).
- H30. Provide clearance from the Health Department. (95.113.3.1.L.2)
- H31. Provide clearance from the Southern California Air Quality Management Division. (95.113.3.1.L.3)
- H32. Provide cleanouts per code. (95.508.3)
- TYPE II HOODS**
- H33. Provide kitchen layout plans showing location of hoods, ducts, eventual shafts and make-up air. (95.113.3(1), 95.508.4)
- H34. Provide roof plans showing the location of the kitchen exhaust blower, property line and any openings into the building. (91.6302(3) & 95.508.9)
- H35. Provide make-up air. (95.509.9)
- H36. Show sizes, gauges, and materials of all ducts and hoods. (95.509.2 & 95.508.1)
- H37. Specify on plan make, model, HP, cfm and static pressure rating of fans used. (95.113.3(1)E)
- H38. List type of cooking equipment on plans. (95.113.3(1)L)
- H39. 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 roof. (95.509.10, 95.509.7, 95.509.7.1, 95.509.7.2, 95.508.8, 95.508.9.3, 95.508.5, 95.508.7.4, 95.508.9, 95.509.6, 95.509.7, 95.503.1 & 95.509.3).
- H40. Please note that general specifications in lieu of the actual sectional elevation are not acceptable. (95.113.3)
- H41. Each exhaust outlet within a hood shall serve not more than a 12-foot section of hood. (95.509.10)
- H42. Provide product literature for the exhaust blower and the make-up air fan, showing CFM, static pressures, and, if required, UL listing. (95.113.3.1E)
- H43. Provide product literature for the cooking equipment showing that it is listed by AGA, UL, or approved by the City of Los Angeles or other recognized agency. (95.113.3(1)L).
- H44. Provide calculations for sizing exhaust fans and make-up air units. Calculations shall show that the fan is capable of providing the minimum required volume of air determined by formulas. (95.509.7 & 95.509.8)
- H45. Remove all the return air grills from the kitchen area. (95.906.6.6)
- H46. The exhaust and make-up air systems shall be connected by electrical interlock switch. (95.503.1)
- H47. Provide clearance from the Health Department. (95.113.3.1.L.2)
- H48. Provide cleanouts per code. (95.508.3)
- H49. Provide kitchen plans showing location of hoods, duct shafts, make-up air, openable windows and their area and the volume of the kitchen. (95.113.3(1), 95.508.4 & 95.508.7)
- H50. Type II exhaust outlets shall be 10 feet from property line, 10 feet from air intake openings and 10 feet above adjoining grade. (95.508.9)
- H51. Provide a list of items (menu) to be cooked or baked under the hood. (95.507.0)

**M. REFRIGERATION
MACHINERY ROOM**

- M1. A 3 feet wide & 6 feet 8 inches high clearance shall be provided around at least two sides of all moving machinery. (95.1106.3)
- M2. Door(s) shall swing in the direction of exit. (91.1007.4.4)
- M3. Provide 2 separate exits. (91.1007.4.1; 95.1106.3)
- M4. Provide calculation showing that the capacity of the exhaust system complies with section. (95.1106.7)
- M5. A switch of the break-glass type, controlling the emergency purge ventilation system, shall be provided adjacent to and outside of the exit door. (95.1108.5)
- M6. Switch controlling fans providing ventilation shall be in glass covered enclosures and shall be located adjacent to and outside of the exit door. (95.1108.6)
- M7. Show make-up air inlets and exhaust outlets on plan. (95.1108.1)
- M8. Make-up air shall be from outside of the building and shall be equipped with a back draft damper. (95.1107.1; 95.1108.9)
- M9. Exhaust shall be discharged at least 20 feet from property line. Show that on plans. (95.1108.7)
- M10. Only equipment essential to the operation of refrigeration system shall be allowed in the machinery room. (95.1109)
- M11. Show on plans make, model, HP, cfm & static pressure rating of all fans. (95.113.3.1E)
- M12. Provide product literature for all fans used showing their cfm & static pressure rating. (95.113.3.1E)
- M13. State type of refrigerant. (95.1102)
- M14. Show location of refrigerant-vapors detectors. (95.1107.4)

FIRE PUMP & GENERATOR ROOM

- M15. Show engine exhaust pipe.
- M16. Show clearances for the engine exhaust pipe. It shall be a minimum of 18 inches from combustible construction and 2 inches from non combustible construction. (95.814.2)
- M17. Show termination of engine exhaust pipe. (95.806.1 & 95.806.6)
- M18. The engine exhaust pipe shall extend above the roof surface, and shall be located not less than 12 inches from any openings into the building, 2 feet from an adjoining building and 7 feet above grade when located adjacent to a public walkway. (95.816.5)
- M19. Enclose the engine exhaust pipe in a fire rated shaft. (95.814.1.7)
- M20. Show combustion air. (95.701.1)

- M21. Dampers are not allowed in combustion-air ducts. (95.704.2)
- M22. Show room ventilation. (95.113.3.1G)
- M23. The room ventilation shall be added to the combustion air. (95.706)
- M24. Show room ventilation exhaust. (95.504.1)
- M25. Show point of termination outside of the building of the room ventilation. (95.504.5)
- M26. Justify either through product literature or engineering calculations the amount of outside air. (95.706)
- M27. Combustion air shall not be drawn from the garage. (95.703.3)

A. SMOKE CONTROL

- C1. Write sequence of operation of the smoke control system on plans. (91.905.1)
- C2. Provide calculations for the smoke control system.
- C3. Write the cfm at every register during smoke mode.
- C4. Provide outside air registers and exhaust air registers in every room.
- C5. Provide fire control panel. (91.905.13)
- C6. The fire control panel shall be approved by the Fire Department. (Cal. Fire Code 1007.2.12.8)
- C7. Correct the colors of the lamp-type indicators of the remote control panel in accordance to section 91.905.13.1 of the Los Angeles Building Code.
- C8. Provide calculations showing that the maximum force to open a door in the stairshaft and in the vestibule does not exceed 8.5 lbs. For exterior doors, 5 lbs. For interior doors not required to be fire rated and 15 lbs. For interior doors required to be fire rated. Please be cautioned that the door between the stairshaft and the vestibule is not a fire rated door.
- C9. Provide calculations showing that the staircase has a minimum positive differential pressure of 0.05 inches of water gauge. (91.1005.3.3.7.1.4)
- C10. Provide calculations showing that the vestibule has a minimum positive differential pressure of 0.05 inches of water gauge. (91.1005.3.3.7.1.4)
- end. Please call to make an appointment and bring the original set of plans along with the corrected sets.

