

2013 CPC – Plumbing Plan Check Correction List

A. GENERAL REQUIREMENTS:

A.1 Plans shall bear, on every sheet, the registration or license number and signature of an architect, contractor, or engineer, registered in the appropriate classification by the State of California. (CPC 101.5.2; CPC 101.5.6; CPC 103.2.1)

A.2 Show the job address on each sheet of the plans. (CPC 101.5.1; CPC 103.2.2)

A.3 Indicate on the plans the scope of work to be done. (CPC 103.2.2)

B. POTABLE WATER SYSTEM:

B.1 Specify which fixtures are for private use and which are for public use (CPC 103.2.1).

B.2 Specify the piping materials for the domestic water system (CPC 604.0).

B.3 Add the following note on the plans: All fixtures, equipment, piping, and materials shall be listed. (CPC 103.2.1, CPC 301.1)

B.4 Add the following note on the plans: All plumbing fixtures shall meet the flow requirements specified in the California Plumbing Code. (CPC 403.0)

B.5 Add the following note on the plans: All faucets in public restrooms shall be self-closing or self-closing metering faucets. (CPC 403.4)

B.6 Add the following note on plans: “Public lavatories shall have controls to limit the water temperature to 120°F.” (CPC 421.2)

B.7 Add the following note on the plans: “Water pipe and fittings with a lead content which exceeds 8% shall be prohibited in systems conveying potable water” (CPC 604.11).

B.8 Provide site water piping plans (CPC 103.2.1).

B.9 Provide lot subdivision. Water pipes shall not cross lot lines (CPC 609.6).

B.10 Install a control valve in the domestic water supply to each building (CPC 606.2).

B.11 Provide riser diagrams for hot & cold water systems (CPC 103.2.1).

B.12 The riser diagram shall indicate all the fixtures served the pipe sizes and the fixture unit count on each leg of pipe, pressure regulators, back flow prevention devices, and water meter. (CPC 103.2.1)

B.13 Show the size of a water meter on the riser diagram (CPC 610.1).

B.14 (A) Show all new and all existing devices located 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. (CPC 610.2)

(B) State the make(s), model(s), and size(s) of the devices shown in item (A), and indicate if they are new or existing. (CPC 610.2)

(C) Provide manufacturer’s specification sheets for the devices shown in item (A) indicating the pressure loss versus the flow. (CPC 610.2)

B.15 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 (CPC Appendix A Sect. A2.0).

B.16 Show the future water demand (CPC Appendix A Sec. A2.0).

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- B.17 Provide on the plan a table with calculations for the total number of fixture units to be installed. Table shall indicate the total of each type of fixture, the associated hot and/or cold fixture unit value for each, total contribution of hot and cold fixture units in the system and the total number of fixture units in the building. (CPC 103.2.1)
- B.18 Indicate on the plans the type of the water closets and urinals (tank or flushometer valves) used (CPC 610.0; CPC Table 610.3; CPC Appendix A Chart A 2.1, CPC Appendix Table A 2.1).
- B.19 An approved pressure regulating valve (PRV) shall be installed to reduce the water pressure at any fixture to 80 psi or less (CPC 608.2).
- B.20 The pressure regulating valve (PRV) shall be installed at above grade or finished floor. The PRV shall not be installed in a pit where it can become submerged in water (CPC 608.2).
- B.21 Show make(s), model(s) and size(s) of the PRV(s) on the plans. (CPC 608.2)
- B.22 Provide a copy of the manufacturer's catalog for the pressure regulating valve(s) (PRV) used showing pressure drop through them. (CPC 608.2)
- B.23 Provide a reduced pressure back flow device (RP) at the meter. (CPC 603.0, Table 603.2)
- B.24 The reduced pressure back flow device (RP) shall be installed at least 12 inches above grade or finished floor. The RP shall not be installed in a pit where it can become submerged in water (CPC Table 603.2; CPC 603.4.3)
- B.25 Show make, model and size of the reduced pressure back flow device (RP) on the plans (CPC 610.2).
- B.26 Provide a copy of the manufacturer's catalog for the reduced pressure back flow device (RP) used showing pressure losses. (CPC 610.2)
- B.27 Indicate the type, size and capacity of the water heater(s) and water storage tank(s). (CPC 608.2)
- B.28 State the first hour rating (in gallons) of the water heater and the number of bathrooms and bedrooms (CPC 501.1, Table 501.1)
- B.29 Provide the manufacturer's printed sizing and installation instructions on the tank-less water heater. (CPC 501.1)
- B.30 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, floor sink or similar fixture (CPC 608.3; CPC 608.5).
- B.31 Provide an approved thermal expansion tank at the water heater. Show the expansion tank on the riser diagram (CPC 608.2; CPC 608.3).
- B.32 State make and model of the thermal expansion tank (CPC 608.2; CPC 608.3).
- B.33 Provide the manufacturer's sizing instructions for the thermal expansion tank. (CPC 608.2; CPC 608.3)
- B.34 Showers shall be provided with individual tempering valves (CPC 408.3).
- B.35 State make, model, rated pressure, and g.p.m. of the water pump(s) (CPC 608.1).
- B.36 Provide the pump performance curve for the water pump(s) being used. (CPC 103.2.1)
- B.37 The pump systems shall be listed by a recognized agency (CPC 301.1).
- B.38 (A) The heat exchanger shall be listed, double wall type and the space between the two walls shall be vented to the atmosphere. (CPC 603.5.4)
- (B) State on plans the heater transfer medium. The medium shall be either potable water or fluids with toxicity rating of 1. (CPC 505.4.1)

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B.39 Provide separate remote heaters or busters to supply outlets requiring higher than service water temperature as listed in the ASHRAE Applications Handbook Chapter 49, Table 2 (higher than 120°F; CPC 421.2; CPC 409.4; CPC 408.3; Title 24 Sect. 113(c)1)

B.40 Provide hydraulic calculations for sizing the cold and hot water systems (CPC 610.0; CPC Appendix A).

B.41 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. (CPC 608.1)

B.42 For each zone, provide hydraulic calculations showing the pressure losses from the city main to the pressure reducing valve for each zone (CPC 610.0)

B.43 Provide pipe sizing charts for each zone. (CPC 103.2.1; CPC 103.2.2)

B.44 For each down-feed zone, provide calculations for the highest and lowest floors in the zone to show that the pipe sizing chart is adequate for every floor in the zone and that no more than 80 psi is delivered to any point in the zone. (CPC 608.2)

OSHPD 3 REQUIREMENTS:

B.45 Add the following note: “Sensor operated flush valves shall be capable of functioning during loss of normal power. (CPC 413.3)

B.46 CPVC piping is not allowed. Change the piping material to an approved one. (CPC 604.1)

B.47 Install a sectional valve at each riser or branch both in hot and cold water systems. (CPC 608.8)

B.48 State on the plans at which temperature hot domestic water is supplied. It shall be in compliance with Table 613.1 (CPC 613.0)

B.49 Provide at least two sources of hot water equipment to supply hot water for dishwashing and minimum patient services such as hand washing and bathing. (CPC 613.2)

B.50 Install valves to automatically control the temperature of hot water to fixture used by patients within the range of 105°F to 120°F. (CPC 613.5)

B.51 Hot water serving patient care areas shall have a continuous recirculating system. (CPC 613.6)

B.52 Dialysis water feed lines shall be made out of material allowed by Section 614.1 (CPC 614.1)

C. WASTE AND VENT SYSTEM:

C.1 Specify the slope of the horizontal drainage piping. (CPC 708.0)

C.2 Provide site plans showing the building sewer and the City or County sewer main size (CPC 101.5.3, CPC 103.2.1)

C.3 Provide lot lines. The building sewer shall not cross lot lines (CPC 721.1).

C.4 Provide complete riser diagrams for the waste and vent systems. The waste system shall extend to the property line.

C.5 The riser diagram shall indicate all the fixtures served the pipe size and the fixture unit counts on each branch of pipe.

C.6 Indicate on the plans the piping materials (CPC 701.0).

C.7 Show all pipe sizes on the plan.

C.8 Show size of the sewer main in the street.

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- C.9 Provide suds relief (show them on the riser) except single family residence (CPC 711.0).
- C.10 The aggregate cross sectional area of the vent shall not be less than that of the largest required building sewer (CPC 904.1).
- C.11 Pot sinks, scullery sinks, dishwashing sinks, silverware-washing machines, commercial dishwashers, shall be directly connected to the drainage system. Provide a floor drain adjacent to the fixture with the fixture connected on the sewer side of the floor drain trap. (CPC 704.3)
- C.12 Ice machines drink dispensers, coffee machines, freezers, refrigeration coils, and similar equipment shall be indirectly connected to the drainage system (CPC 801.2).
- C.13 Food-preparation sinks, steam kettles, potato peelers, dipper wells, and similar equipment shall be indirectly connected to the drainage system by means of an air-gap (CPC 801.2.3).
- C.14 Show location(s) of the grease interceptor(s) on the site plan (CPC 103.2.2)
- C.15 Provide product literature for the grease interceptor. (CPC 1014.0)
- C.16 Show details for the island venting (CPC 909.1).
- C.17 The island sink drain, upstream of the returned vent, shall serve no other fixtures (CPC 909.1)
- C.18 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 135° (CPC 719.1, CPC 719.6).
- C.19 Provide yoke vents (CPC 907.1).
- C.20 All wet vented fixtures shall be within the same story (CPC 908.1).
- C.21 Only private bathroom groups may be wet vented horizontally. (CPC 908.2)
- C.22 No more than two bathroom groups located on the same floor may be connected to a horizontal wet vent system (CPC 908.2)
- C.23 Lavatories shall not be installed in horizontal wet vent systems. (CPC 908.2)
- C.24 The water closet in a horizontal wet vent system shall connect to the conventional sewer and shall be installed downstream of any wet vented fixture. (CPC 908.2)
- C.25 Combination waste and vent system is only allowed where structural conditions preclude the installation of a conventional system (CPC 910.1).
- C.26 Discharge from toilets or urinals is not allowed in a combination waste and vent system (CPC 910.7).
- C.27 Combination waste and vent systems shall not be utilized where solids or grease waste is anticipated (CPC Appendix B Sect. B1.0).
- C.28 No vertical waste pipes are allowed in a combination waste and vent system. (CPC 910.5)
- C.29 Show a detail of the connection of the branches to the main horizontal line. (CPC 910.2; CPC 910.5)
- C.30 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 of the Plumbing Code (CPC 910.4).
- C.31 Show a typical detail of the tailpiece and trap (CPC 910.2; CPC 910.4)
- C.32 Provide a separate vent for each waste branch line exceeding 15' in length (CPC 910.3).
- C.33 Provide a vent downstream of the uppermost fixture (CPC 910.3).
- C.34 Relief vents shall be provided every 100 feet along the mains. (CPC Appendix B Sect. B3.0)
- C.35 The minimum area of any vent installed in a combination waste and vent system shall be at least one-half the inside cross-sectional area of the drain pipe served (CPC 910.3).

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- C.36 Show on plans type & use of each fixture served by the combination waste and vent system. (CPC 103.2.2)
- C.37 Show the combination waste and vent piping on floor plans. (CPC 103.2.2)
- C.38 Show size, length and type of material of the sewage ejector discharge line (CPC 701.0)
- C.39 The discharge line from the sewage ejector shall be provided with an accessible check valve and gate valve or ball valve (CPC 710.4).
- C.40 Gate valve or ball valve and check valve shall be located outside the pump pit (CPC 710.4).
- C.41 Provide dual pumps each capable of handling the load independently (CPC 710.9)
- C.42 Provide air tight cover for the sump (CPC 710.10)
- C.43 Sump(s) shall be provided with a vent pipe which shall extend through the roof (CPC 710.7).
- C.44 Show load discharging into the sump (CPC 103.2.2)
- C.45 Show make, model and HP of sewage ejector on plan (CPC 103.2.2)
- C.46 Provide pump performance curves (CPC 103.2.1)
- C.47 Provide a riser diagram showing the sump, sump inlet & outlet, check valve, gate valve, levels, alarm and gravity line. (CPC 103.2.2)
- C.48 The discharge line of the pump shall connect to the horizontal gravity line from the top through a wye branch fitting (CPC 710.4).
- C.49 State length of pipe & elevation difference between the bottom of the sump and the gravity line.
- C.50 Show high water level. It shall be at least 2 inches below the lowest inlet. (CPC 710.9)
- C.51 Sumps receiving waste from water closets shall have a minimum 2 inch discharge (single family dwelling). 3 inch discharge is required for commercial buildings. (CPC 710.3)
- C.52 Allow two fixtures units for each gallon per minute discharging from the sewage ejector. (CPC 710.5)
- C.53 Sump(s) shall be made of concrete, metal or other approved materials. (CPC 710.8).
- C.54 Specify the type of material of the sump on the plans, or specify make, model and research report number of the prefabricated sump (CPC 710.8).
- C.55 Provide calculations for the system curve. Take into consideration losses due to all the fittings, gate valve and backwater valve (CPC 103.2.1).
- C.56 Draw the system curve on the pump curve to determine the point of intersection, which will determine the volume flow rate coming out of the pump (CPC 103.2.1).
- C.57 Determine the waste fixture unit load of the gravity line by allowing 2 fixture units for every gallon per minute pumped by the sewage ejector. (CPC 710.5)
- C.58 Provide relief vent stack. (CPC 907.1)
- C.59 Provide yoke vents. Show yoke vents on the riser diagram. (CPC 907.2)
- OSHPD 3 REQUIREMENTS:**
- C.60 Remove floor drains from operating and delivery rooms (CPC 310.10)
- C.61 ABS and PVC for waste and vent systems are not allowed (CPC 701.1(2); CPC903.1.2)
- C.62 Each vent shall terminate not less than 25 feet from any air intake or vent shaft (CPC 906.2.1)
- C.63 Grease interceptor shall not be installed in the kitchen (CPC 1014.1(B); CPC 1014.1(C); CPC 1015.6; CPC 1015.7)

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D. GAS SYSTEM:

- D.1 Provide a complete riser diagram for the gas system. (CPC 103.2.2)
- D.2 The riser diagram shall indicate all of the appliances/equipment being served, the pipe sizes, and the hourly volume (CFH) of gas on each leg of pipe. (CPC 103.2.2; CPC 1208.1; CPC 1216.1)
- D.3 Indicate on the plans the total length of the system from the gas meter or regulator to the most remote gas outlet. (CPC 1216.1.1)
- D.4 Indicate on the plans the material for the gas piping. (CPC 1201.2; CPC 1208.5)
- D.5 Provide a separate gas shut-off valve for each tenant. (CPC 1210.11.1.1)
- D.6 Indicate on the plans the hourly volume (CFH) of gas required at each outlet. (CPC 1208.4.1)
- D.7 No gas pipe shall be installed under the building unless it is properly sleeved. (CPC 1210.1.6)
- D.8 Show on the plans the size, make, model, orifice size, spring number, pressure setting, and inlet pressure of the gas pressure regulator. (CPC 103.2.2)
- D.9 Provide manufacturer's cut-sheet for the gas pressure regulator showing the inlet and outlet pressures at the selected setting. (CPC 103.2.1)
- D.10 An approved gas shut-off valve shall be installed immediately preceding each regulator. (CPC 1210.11)
- D.11 Pressure regulator shall be vented to the outside of the building. (CPC 1208.7.5.3)
- D.12 The pressure regulator(s) shall be provided with factory installed overpressure protection devices to limit the pressure downstream of the line pressure regulator to 2 psi in the event of failure of the line pressure regulator. (CPC 1208.7.1)
- D.13 Provide engineering calculations used in sizing the gas piping system. (CPC 1216.3)
- D.14 Provide any sizing tables published by the pipe manufacturer in the product literature. (CPC 1208.4.2)
- D.15 Provide product literature for the gas sub-meter(s) showing capacity, pressure losses, and listing. (CPC 103.2.1; CPC 1208.6)
- D.16 Include the losses due to the gas sub-meter (CPC 1208.4)

E. STORM DRAINAGE SYSTEM:

- E.1 Provide complete riser diagrams for the rain water system. (CPC 103.2.2).
- E.2 Indicate on the riser diagram the area (ft²) covered by each drain (CPC 103.2.2, Appendix D Sect. D-3.1, CPC 1101.11.1, CPC Table 1101.11, and CPC Table 1101.7).
- E.3 Indicate on the plans the piping material of the rain water system. (CPC 1101.3, CPC 1102.0).
- E.4 Indicate on the plan the slope of horizontal piping (CPC Table 1101.7).
- E.5 Provide overflow drains. (CPC 1101.11.2).
- E.6 If scuppers are used as overflow drains, they shall be sized having area equivalent to the one of the drains as determined by section 1101.11.1. Furthermore, scupper openings shall not be less of 4" high and have a width at least equal to the circumference of the roof drain required for the area served. (CPC 1101.11.2.1).
- E.7 Roof drains and over flow drains shall be piped independently to the outside of the building (CPC 1101.11.2.2(A)).

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- E.8 Backwater valves shall be installed to prevent flooding of the garage (CPC 1101.5.4).
- E.9 Provide a riser diagram showing the sump, sump inlet & outlet, backwater valves and gravity line (CPC 103.2.2)
- E.10 Backwater valve and gate valve shall be located outside the pit. (CPC 710.6)
- E.11 The gate valve shall be located on the discharge side of the check valve (CPC 710.4).
- E.12 Sump(s) shall be made of concrete, metal or other approved materials. (CPC 710.8; CPC 301.1)
- E.13 The sump pit shall be installed with an air-tight cover. (CPC 1101.5.2)
- E.14 The sump pit shall be at least 15 inches in diameter and 18 inches in depth. (CPC 1101.5.2)
- E.15 The lowest inlet to the sump shall have a minimum clearance of 2 inches above the high water level. (CPC 710.9)
- E.16 Sump(s) shall be provided with a vent pipe which shall extend through the roof (CPC 710.7; CPC 906.1)
- E.17 Provide a detail showing the sump location, the inlet lines, the outlet line, and gravity line (CPC 103.2.2).
- E.18 Show the gravity line all the way to the approved point of disposal (CPC 103.2.2).
- E.19 When discharging to the public street the pressure line shall connect to a gravity pipe within the property.
- E.20 Show size, length and type of material of the pump discharge line (CPC 103.2.2).
- E.21 The discharge line from the sump pump shall be provided with an accessible backwater valve and gate valve. (CPC 710.4)
- E.22 Provide dual sump pumps. (CPC 1101.13)
- E.23 Minimum size of pump shall be 15 gpm. (CPC 1101.5.2)
- E.24 The discharge line from the sump pump shall be at least 1½ inch diameter. (CPC 1101.5.2)
- E.25 Where the sump pump discharge line connects to a horizontal drain line, such connection shall be made from the top through a wye branch fitting. (CPC 710.4)
- E.26 Show make, model and HP of pump on plan. (CPC 103.2.1)
- E.27 Provide pump performance curves (CPC 103.2.1)
- E.28 State the length of pipe & elevation difference between the bottom of the sump and the gravity line. (CPC 103.2.2)

F. SEWAGE AND SUMP PUMP SYSTEMS:

- F.1 Provide air tight cover for the sump (CPC 710.10).
- F.2 Provide a plot plan or lay out showing the sump location, the inlet lines, the outlet line, and gravity line (CPC 103.2.2).
- F.3 Sewage ejectors located in single family dwellings and receiving waste from water closets or urinals, shall be able to pass a 1-1/2 inch diameter ball (CPC 710.3 (2))
- F.4 Sewage ejectors located in single family dwellings and receiving waste from water closets or urinals, shall have a minimum pump size of 2" and shall be connected to a discharge pipe of at least 2 inch (CPC 710.3.(2)).
- F.5 In other than single dwellings, sewage ejectors receiving waste from water closets or urinals, shall be able to pass a 2 inch diameter ball (CPC 710.3(3)).
- F.6 Sewage ejectors, in other than single dwellings, and receiving waste from water closets or urinals shall have discharge piping, check valves, and gate valves not less than 3 inch in diameter (CPC 710.3(3))

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F.7 Provide pump performance curve (CPC 101.5.1, CPC 101.3.2)

F.8 Provide calculations for the system curve. Take into consideration all the fittings, gate valve and backwater valve.

F.9 Determine the fixture unit loading of the gravity drain by allowing two (2) fixture units for every gallon per minute pumped by the sewage ejector (CPC 702.3, CPC 710.5).

F.10 The pump shall have a discharge capacity of not less than 15 gpm. (Subsoil drainage only) (CPC 1101.5.2)

F.11 The pump shall have a discharge capacity of not less than 20 gpm (Sewage ejectors CPC 710.3(1))