



Plumbing Plan Review Checklist

Date: _____

INFORMATION	PROJECT NO.: BPLM	EXPIRATION DATE:	STATUS: 1 st Review
	PROJECT ADDRESS:		
	WORK DESCRIPTION:		
	APPLICANT'S NAME:	TEL. NO.:	
	E-MAIL:		
INSTRUCTIONS	<p>Your application for a permit, together with plans and specifications, has been examined and you are advised that the issuance of a permit is withheld for the reasons hereinafter set forth. The approval of plans and specifications does not permit the violation of any sections of the Plumbing Code or other local ordinances or state laws.</p> <p>In an effort to streamline the plan review process, please follow the steps outlined below to ensure that there is no delay in processing your application and reviewing your responses to these plan check comments.</p> <ul style="list-style-type: none"> Comments with circled item numbers under subtitle "A" apply to this plan check. <u>All Plan Check Comments under subtitle "B", "C", & "D" apply to this plan check.</u> Revised plans and calculations shall incorporate or address all comments marked on the original checked set of plans, calculations, and this plan review checklist. Provide a written response to each comment and show where and how it has been addressed. Identify the sheet number and detail or reference note on the revised plans where the corrections are made. Once all comments on the plans, calculations, and this checklist have been addressed, contact the plan check staff to SCHEDULE AN APPOINTMENT to review the changes made. 		
	PLAN REVIEWER: _____	TEL. NO.: _____	
	ADDRESS: 411 W. OCEAN BLVD., 2 ND FLOOR, LONG BEACH, CA 90802		
	EMAIL: _____	WEBSITE: longbeach.gov/lbcd	
NOTE	<ul style="list-style-type: none"> Should you have any questions or need clarification pertaining to the comments made on your project, you may contact the plan check staff by telephone from 7:30 AM (8:30 AM Wed.) to 4:30 PM (M T W TH F). Bring the original checked set of plans and calculations along with this checklist, your written response to the appointment meeting. Do not schedule an appointment meeting with the plan check staff until all comments have been addressed. We will ensure that the appointment meeting or re-submittal of the plans for recheck will proceed as expeditiously as possible. If an impasse is reached during the appointment meeting, you may request that the plan check supervisor be summoned for a 2nd opinion or to attempt to resolve and/or clarify the matter. Major revisions to the plans that necessitate additional review time may be subject to re-submittal and additional plan check fees as authorized by Section 18.05.040 of the Long Beach Municipal Code. Reviewed plans and/or calculations not picked up within 60 days of notice will be discarded. An application for which no permit is issued within one year following the date of submittal shall expire by limitation pursuant to Section 18.12.140 of the Long Beach Municipal Code. 		
<p>Numbers within the parenthesis () refer to the sections of the applicable code. 2022 California Plumbing Code (CPC). 2022 California Building Code (CBC). 2022 California Green Building Standard Code (CalGreen). 2022 California Energy Code (CEC). Long Beach Municipal Code (LBMC). Health and Safety Code (HSC). Table (T). Long Beach Utilities Department (LBUD). National Fire Protection Association (NFPA).</p>			

A. PERMIT APPLICATION

1. When all required approvals are obtained, the permit application must be signed by the property owner, licensed contractor, or authorized agent at the time the permit is to be issued:
 - a. For owner-builder permits: Owner's signature can be verified with owner's driver license. Owner's representatives must present owner's approval with a notarized letter from the owner.
 - b. For contractor building permits: Prior to the issuance of a building permit, the contractor shall have the following:
 - i. Certificate of workers Compensation Insurance made out to the Contractors State License Board.
 - ii. Copy of Contractors State License or pocket ID.
 - iii. Copy of city business tax registration certificate or a newly paid receipt for one.
 - iv. Notarized letter of authorization for agents.
2. Valuation provided or determined during the initial submittal process was not accurate. Valuation is revised to \$_____. Pay additional required plan check fee of \$_____.

B. ADMINISTRATION

1. Obtain all approvals/clearances from the following department/bureau/agency noted below. It is necessary to apply immediately for the signoff or approval as it can take weeks or months for some departments/bureaus/agencies to review and approve the project. All required approvals or clearances must be secured prior to permit issuance.
 - a. Building Plan Check Review
 - b. Health Department
 - c. Utilities Department – Engineering Development Services Division (Water & Sewer)
 - d. Utilities Department – Gas Engineering Bureau
 - e. Public Works
 - f. Complete Sewer Capacity Charge Form per attachment.

C. PLAN SUBMITTAL

1. Each sheet of the construction documents must bear stamp, wet signature, registration number and expiration date of the Responsible Party. The Responsible Party is the Registered Mechanical Engineer, or Licensed Architect, or Licensed Plumbing Contractor (C-36).
2. The address of the project and the name/address of the owner are required on the first sheet of the construction documents. Include the name/address of the registered design professionals and/or consultants on the construction documents where applicable.
3. Provide the scope of work to be done on the cover sheet.
4. Final set of construction documents will be required during permit issuance. Construction documents must be:
 - a. Quality blue or black line drawings with uniform and light background color
 - b. All required documents, wet signed by the Responsible Party, shall be included on the plans.
 - c. Max. 36" x 48" size with min. 1/8" lettering size
 - d. Provide a complete and accurate Plumbing Permit application.
5. Remove all plans, details or notes that do not pertain to the project from the final set of construction documents.

D. PLUMBING PLAN CHECK COMMENTS

PLAN SUBMITTAL

1. Please provide a written response to each comment of this notice. Indicate where and how each item has been addressed. Identify the sheet number and/or detail or reference note on the revised plans where the corrections are made.
2. Two final sets of corrected plumbing plans will be required for recheck and during permit issuance.

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3. Plans shall bear, on every sheet, the registration or license number and signature of architect, engineer, or contractor, registered in the appropriate classification by the State of California. (State of California Business and Professional Code Div. 3, Chap. 7, Art. 3, Sec. 6735.4)
4. Building Plan Check approval is required for structural plans, details and calculations for method of supporting and anchoring the new domestic water heating equipment and booster pump systems weighing in excess of 400 pounds. Submit a copy of the Building Plan Check approved structural details for supporting and anchoring the new equipment with the plumbing re-submittal. Or, at minimum, submit the details and calculations for Building Plan Check approval prior to re-submitting the plumbing plans and provide confirmation the structural calculations and details have been submitted for review.
5. Building Plan Check approval is required for fire penetration protection for fire rated wall / floor / ceiling assemblies.
6. Verify with the Building Plan Check approved architectural plans all requirements for fire resistance-rated assemblies on this project. Please provide with the plumbing re-submittal, one copy of the Building Plan Check approved architectural plans for or a copy of the architectural plans that include all corrections addressed that are required by the Building Plan Check Division.
7. Verify the re-submitted plumbing plans thoroughly address all required fire protection measures for plumbing pipe penetrations through fire-resistance rated construction as determined by the approved architectural plan. Show the specific locations for all protection methods on the plans.
8. Provide any Architectural sheets identified as "For Reference Only" showing compliance with requirements for accessible features related to Plumbing Plans.
9. Prior to approval of plans, provide approval from the Long Beach Health Department on the following:
 - a. Backflow prevention (interior)
 - b. Food service facility
 - c. Cannabis facilityPlease contact Bradley Thomas at (562) 570-4093 or email Bradley.Thomas@longbeach.gov for information.
Please contact Leila Judd at (562) 570-4152 or email Leila.Judd@longbeach.gov for information. – MMJ
Please contact Mary Aviles at (562) 570-4046 or email Mary.Aviles@longbeach.gov for information. – Food Facility
Please contact Billy Chen at (562) 570-4143 or email Billy.Chen@longbeach.gov for information. – Backflow
10. Prior to approval of plans, provide approval from the Long Beach Utilities – Engineering Development Services Division on the following:
 - a. Backflow prevention (exterior)
 - b. Sewer protection (grease trap/interceptor)
 - c. Industrial wastePlease contact Long Beach Utilities Department, Engineering Development Services at (562) 570-2419 or Water-ServiceCounter@lbwater.org for information. (LBUD Regulation Part 8, CPC 603.2, 1009.0)
11. Long Beach Utilities Plan Check review is required for water meters (for mixed use project). Submit a copy of the Long Beach Utilities Plan Check approved plans with the plumbing re-submittal.
Please contact Long Beach Utilities Department, Engineering Development Services at (562) 570-2419 for information. (LBUD Regulation Part 8)
12. Prior to approval of plans, provide approval from the Long Beach Utilities – Gas Engineering Bureau on elevated gas pressure systems. Submit a copy of the Long Beach Utilities Plan Check approved plans with the plumbing re-submittal.
Please contact Giancarlo Moral at (562) 570-2032 or email giancarlo.moral@longbeach.gov for information.
13. For sewer location information, please contact Long Beach Public Works at (562) 570 6383 or PW-PrivateDevelopment@longbeach.gov.

PLUMBING FIXTURES

14. Show on plans which fixtures are handicap accessible. (CPC 403.2)
15. All fixtures and appliances are to be identified and are required to be listed and labeled by an approved testing agency. (CPC 301.2)
16. The schedule of plumbing fixtures should be detailed to include specifications for each fixture with maximum flows as required by the Energy and the Green Building Codes.
17. Plumbing fixtures shall follow the maximum water use guidelines allowed in sections 5.303.3 through 5.303.6 for water conservation (non-residential) as required in CA. Green Building Standards Code.
18. Plumbing fixtures shall follow the maximum water use guidelines allowed in section 4.303.1 for water conservation (residential) as required in CA. Green Building Standards Code.
19. Provide a schedule of plumbing fixtures and faucets showing compliance to water-conserving fixtures and fittings.
20. Limited the effective flush volume for single flush toilets or dual flush toilets not to exceed 1.28 gallons. (CPC 411.2)
21. Limited the average water consumption for wall-mounted urinals not to exceed 0.125 gallons and floor-mounted urinals not to exceed 0.5 gallons per flush. (CPC 412.1)
22. Where non-water urinals are installed, not less than one water supplied fixture rated at not less than 1 drainage fixture unit (DFU) shall be installed upstream on the same drain line to facilitate drain line flow and rinsing. (CPC 412.1.3)
23. Where non-water urinals are installed, a water distribution line rough-in to each individual urinal location shall be provided to allow for the installation of an approved backflow prevention device in the event of a retrofit. (CPC 412.1.3)
24. Self-closing or metered faucets shall be installed on lavatories intended to serve the transient public, such as service stations, train stations, airports, restaurants, and convention halls. Metered faucets shall deliver a maximum of 0.2 gallons per metering cycle. (CPC 407.2.4 & 407.4)
25. Show the maximum flow rate for kitchen faucet. Limited the maximum flow rate for kitchen faucet not to exceed 1.8 gallons. (CPC 420.2.2 HCD)
26. Show the maximum flow rate for residential lavatory faucet. Limited the maximum flow rate for lavatory faucet not to exceed 1.2 gallons. (CPC 407.2.2 HCD)
27. Show the maximum flow rate for lavatory faucets in common and public use area (outside of dwelling or sleeping units). Limited the maximum flow rate for lavatory faucet not to exceed 0.5 gallons. (CPC 407.2.3 HCD)
28. Show the maximum flow rate for showerheads. Limited the maximum flow rate for showerheads not to exceed 1.8 gallons. (CPC 408.2 HCD)
29. The maximum water temperature discharging from an individual showerhead shall be limited to 120°F by one of the following methods (CPC 408.3.2):
 - a. A shower or tub/shower combination valve conforming to ASSE 1016/ASME A112.1016/CSA B125.16 where either:
 - i. The valve is field adjusted to the required maximum temperature, or
 - ii. The handle position, stop, or temperature limiting control is set in accordance with the manufacturer's instructions to the required maximum temperature.
 - b. For gang showers supplied by a single water supply pipe, a mixing valve that conforms to ASSE 1069 that is field-adjusted to the required maximum temperature.
 - c. A limiting device conforming to either ASSE 1070/ASME A112.1070/CSA B125.70 or CSA B125.3.
 - d. A water heater conforming to ASSE 1084.
 - e. A temperature actuated flow reduction device conforming to ASSE 1062.

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30. Hot water to bathtubs and whirlpool bathtubs shall be limited to 120°F. The maximum temperature shall be regulated by one of the following (CPC 409.4):
 - a. A limiting device conforming to either ASSE 1070/ASME A112.1070/CSA B125.70 or CSA B125.3.
 - b. A water heater conforming to ASSE 1084.
31. Provide a removable panel for access and removing the pump. Whirlpool pump access located in the crawl space shall be located no more than twenty (20) feet from an access door, trap door, or crawl hole. (CPC 409.6)
32. Provide elongated type water closet bowls with open front type or automatic seat cover dispenser of water closet seats for public use. (CPC 411.3)
33. Where food is consumed indoors, water stations shall be permitted to be substituted for drinking fountains. Bottle filling stations shall be permitted to be substituted for drinking fountains up to 50 percent of the requirements for drinking fountains. Drinking fountains shall not be required for an occupant load of 30 or less. (CPC 415.2)
34. Drinking fountains shall be connected directly into the drainage system or indirectly through an air break. (CPC 415.3)
35. Where hot and cold water is supplied to an emergency shower or eyewash station, the temperature of the supply water shall be controlled by a temperature actuated mixing valve and comply with ASSE 1071. Where water is supplied directly to an emergency shower or eyewash station from a water heater, the water heater shall comply with ASSE 1085. (CPC 416.2)
36. Emergency eyewash and shower equipment shall be located on the same level as the hazard and accessible for immediate use. (CPC 416.4)
37. Floor drains with trap primers shall be installed in the following areas (CPC 418.3):
 - a. Toilet rooms containing two or more water closets or a combination of one water closet and one urinal.
 - b. In commercial kitchens and in accordance with CPC Sec. 704.3.
 - c. In laundry rooms in commercial buildings and common laundry facilities in multi-family dwelling buildings.
 - d. Boiler rooms.
38. Food service pre-rinse spray valves shall have a maximum flow rate of 1.6 gallons per minute (gpm) and shall be equipped with an integral automatic shutoff. (CPC 420.3)
39. Hot water to public use lavatory shall be limited to 120°F. Provide limiting device conforming to ASSE 1070/ASME A112.1070/CSA B125.70 or a water heater conforming to ASSE 1084. Please show location of limiting device on plans. (CPC 407.3)
40. Identify which fixtures are for private use and which are for public use.
41. Prior to approval of plans, provide approval from the Building Department on the calculations for the number of occupants, required number and type of plumbing fixtures required vs. plumbing fixtures provided. Submit a copy of the Building Plan Check approved plans with the plumbing re-submittal. Please identify those plans as "For Reference Only". (CPC 422.0)
 - a. Mop/utility sink is required per CPC Table 422.1.
42. Total number of water closets for females shall not be less than the total number of water closets and urinals required for males. (CPC Table 422.1, footnote #3)
43. Where a separate toilet facility is required for each sex, and each toilet facility required to have only one water closet, two family or assisted use toilet facilities shall be permitted in place of the required separate toilet facilities. (CPC 422.2.2)
44. Provide separate toilet facilities, except the following: (CPC 422.2)
 - a. Residential installations.
 - b. In occupancies with a total occupant load of 10 or less, including customers and employees, one toilet facility, designed for use by no more than one person at a time, shall be permitted for use by both sexes.

- c. In business and mercantile occupancies with a total occupant load of 50 or less including customers and employees, one toilet facility, designed for use by no more than one person at a time, shall be permitted for use by both sexes.

WATER HEATERS

45. Indicate the type, size and capacity of the water heaters and water storage tanks.
46. Show location and permanent access to the water heaters.
47. Provide the manufacturer's printed sizing and installation instructions on the tankless water heater.
48. Show location and size of all combustion-air openings. Provide calculations for the combustion air. Air for combustion, ventilation and dilution of flue gases shall comply with CPC Sec. 506.0.
49. Provide seismic restraint details for water heaters / storage tanks. Water heaters shall be strapped to the building at the 1/3-point top and bottom. (CPC 507.2)
50. Drainage pan shall discharge to an observable location with a minimum 3/4" drain pipe. Drainage pan shall be at least 1-1/2" deep. (CPC 507.5)
51. Water heater located in attics and under-floor spaces; the following shall be provided:
 - a. Requires a min. 24" wide walkway, max. 20' in length to appliance working platform. (CPC 508.4.1 & 508.4.2)
 - b. A level working platform not less than 30" x 30" shall be provided at the service side of the appliance. (CPC 508.4.3)
 - c. A permanent 120-volt receptacle outlet and a lighting fixture shall be installed near the appliance with the switch controlling the light to be at entrance to passageway. (CPC 508.4.4)
52. Provide an approved expansion tank or other device designed for intermittent operation for thermal expansion control or excessive water pressure. Show it on the riser diagram. (CPC 608.2 & 608.3)
53. State make and model of the thermal expansion tank. (CPC 608.2 & 608.3)
54. Provide a temperature & pressure relief valve on the water heaters. The valve shall discharge to an approved location. Pressure relief valves for water heaters installed inside a building shall discharge to a floor sink or similar fixture. (CPC 608.3, 608.4, & 608.5)
55. Provide a water pressure relief valve between any water-heating devices connected to a separate storage tank. (CPC 608.6)
56. Provide a vacuum relief valve at hot-water storage tank or an indirect water heater, which is located at an elevation above the fixture outlets in the hot-water system. (CPC 608.7)
57. For systems with a total capacity greater than 167,000 Btu/hr, provide separate remote heaters, heat exchangers, or boosters to supply outlets requiring higher than service water temperature as listed in the ASHRAE Applications Volume (higher than 120°F). (Title 24 Part 6, 110.3(c)1)
58. Install a check valve between the recirculation pump and the water heating equipment. (Title 24 Part 6, 110.3(c)4B)
59. Install a hose bibb between the pump and the water heating equipment. (Title 24 Part 6, 110.3(c)4C)
60. Install an isolation valve between the hose bibb and the water heating equipment. (Title 24 Part 6, 110.3(c)4D)
61. Isolation valves shall be installed on both sides of the pump. (Title 24 Part 6, 110.3(c)4D)
62. Instantaneous water heaters with an input rating greater than 6.8 kBtu/hr (2kW) shall have isolation valves on both the cold water supply and the hot water pipe leaving the water heater, and hose bibs or other fittings on each valve for flushing the water heater when the valves are closed. (Title 24 Part 6, 110.3(c)6)

WATER SYSTEMS & CALCULATIONS

63. Specify the piping materials for the domestic water systems. (CPC 604.0)
64. Plastic materials for building supply piping outside underground shall have a blue insulated copper tracer wire or other approved conductor installed adjacent to the piping. The tracer wire size shall be not less than 14 AWG and the insulation type shall be suitable for direct burial. (CPC 604.10.1)
65. CPVC pipes are proposed for the domestic water systems, the plans should include but not limited to the following:
- Provide calculations and details on the plans for the expansion offsets or loops. Show the expansion offsets or loops on the floor plans;
 - Show hangers and supports details;
 - Show the location of piping transition (i.e. copper to CPVC);
 - Show the flushing procedures/details;
 - Note type of fire penetration protection for fire rated wall / floor / ceiling assemblies. The fire penetration protection shall meet the requirements as listed in the California Building Code;
 - Add note to the plans: "The appropriate plumbing contractor(s) shall provide a signed written "Certificate of Compliance" and "Worker Safety" certificates for installation and use of CPVC plumbing material to the AHJ prior to issuing plumbing permit(s)."
66. The installation of PEX tubing in potable water supply systems must follow individual manufacturer's installation procedures and the procedures set forth in CPC Sections 605.9.1, 605.9.2 and 605.9.3.
67. PEX pipes are proposed for the domestic water systems, the plans should include but not limited to the following:
- Show hangers and supports details;
 - Show the location of piping transition (i.e. copper to PEX);
 - Show the flushing procedures/details;
 - Note type of fire penetration protection for fire rated wall / floor / ceiling assemblies. The fire penetration protection shall meet the requirements as listed in the California Building Code;
 - PEX tubing when placed in the soil and used in potable water systems intended to supply drinking water, the tubing shall be sleeved with a material approved for potable water use in soil or material(s) that are impermeable to solvents or petroleum products. (CPC Table 604.1, footnote #3)
 - PEX tubing shall meet or exceed the requirements of ASTM F876-2013a when used in continuously recirculating hot water systems where chlorinated water is supplied to the system and PEX tubing is exposed to the hot water 100% of the time. (CPC Table 604.1, footnote #4)
 - Add the following notes to the plans:
 - All installations of PEX pipe where it is the initial plumbing piping installed in new construction shall be flushed twice over a period of at least one week. The pipe system shall be first flushed for at least 10 minutes and then filled and allowed to stand for no less than 1 week. After which all the branches of the pipe systems must be flushed long enough to fully empty the contained volume. This provision shall not apply to the installation of PEX pipe where it replaces an existing pipe system of any material.
 - At the time of fill, each fixture shall have a removable tag applied stating: "This new plumbing system was first filled and flushed on (Date) by (Name). The state of California requires that the system be flushed after standing at least one week after the fill date specified above. If this system is used earlier than one week after the fill date, the water must be allowed to run for at least two minutes prior to use for human consumption. This tag may not be removed prior to the completion of the required second flushing, except by the building owner or occupant."
 - Prior to the installation of PEX pipe, the inspector shall require that the contractor, or the appropriate plumbing subcontractors provide written certification that he or she will comply with the flushing procedures set forth in the code.
 - The building official shall not give final permit approval of any PEX plumbing installation unless he or she finds that the material has been installed in compliance with the requirements of the code, including the requirements to flush and tag the system.
 - Any contractor or subcontractor found to have failed to comply with the PEX flushing requirements shall be subject to the penalties in Health & Safety Code, Division 13, Part 1.5, Chapter 6 (Section 17995, et seq.)

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68. PEX tubing when placed in the soil and used in potable water systems intended to supply drinking water, the tubing shall be sleeved with a material approved for potable water use in soil or material(s) that are impermeable to solvents or petroleum products. (CPC Table 604.1, footnote #3)
69. PEX tubing shall meet or exceed the requirements of ASTM F876-2013a when used in continuously recirculating hot water systems where chlorinated water is supplied to the system and PEX tubing is exposed to the hot water 100% of the time. (CPC Table 604.1, footnote #4)
70. Provide the manufacturer specifications and installation instructions for the pipe material. (CPC 604.0)
71. Provide site water piping plans.
72. Provide lot subdivision. Water pipes shall not cross lot lines. (CPC 609.6)
73. Provide riser diagram for hot & cold water systems.
74. The riser diagram shall indicate all the fixtures served, the pipe size, the fixture unit count on each leg of pipe, pressure regulators, backflow prevention devices, and water meter.
75. Show the size of a water meter on the riser diagram. (CPC 610.1)
Water meter must be upsized to ___ inch to accommodate additional plumbing fixtures. (CPC 610.3 & 610.4)
76. Install a control valve in the domestic water supply to each building. (CPC 606.2)
77. Install a control valve in the domestic water supply to each dwelling unit. In multi-dwelling units, one or more shut off valves shall be provided in each dwelling unit so that the water supply to a plumbing fixture or group of fixtures in that dwelling unit can be shut off without stopping water supply to fixtures in other dwelling units. These valves shall be accessible in the dwelling unit that they control. (CPC 606.3)
78. Quick closing valves in a battery (two or more) must have water hammer absorbing devices installed. (CPC 609.11)
(This section not adopted by HCD)
79. State make, model, rated pressure, and gpm of the booster pump(s). (CPC 608.1)
80. Provide the pump performance curve for the booster pump(s) being used.
 - a. Show new and 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.
 - c. Provide manufacturer's specification sheets for the devices shown in item (A) indicating the pressure loss versus the flow.
81. Indicate all fixture unit loads in addition to the loads of the new fixtures including but not limited to, existing fixtures, irrigation load, irrigation load (MMJ cultivation), make up water for cooling towers and boilers, demand for future use, and any other uses. (CPC 610.3 & Appendix A Sec. A 103.0)
82. Show the future water demand. Future fixtures shall be included in sizing of the systems. (Appendix A Sec. A 103.0)
83. Provide 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.
84. Indicate the types of the water closets, urinals, and clinical sinks (tank or flushometer valves) used. (CPC 413.0, 610.0, Table 610.3, Appendix A Sec. A 103.0)
85. New commercial buildings or additions in excess of 50,000 ft² shall install separate sub-meters or meters per CGC Sec. 5.303.1.1 as following:

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- a. For each individual leased, rented, or other tenant space within the building projected to consume more than 100 gallons per day, including, but not limited to, spaces used for laundry or cleaners, restaurant or food service, medical or dental office, laboratory, or beauty salon or barber shop.
 - b. Where potable water is used for industrial/process uses, for water supplied to the following sub-systems:
 - i. Makeup water for cooling towers where flow through is greater than 500 gpm.
 - ii. Makeup water for evaporative coolers greater than 6 gpm.
 - iii. Steam and hot-water boilers with energy input more than 500,000 Btu/h.
86. Provide separate water meters for residential and non-residential units. New water service for a mixed-use project must have a separate service connection dedicated solely to the residential units and a separate service connection dedicated solely to the non-residential units. The systems for each must be independent of the other and not cross-connected. (LBMC 18.47.090 and LBUD Rules & Regulations Sec. 204.2.2(c))
87. Provide sub-water meter to each individual residential dwelling unit for any new construction of a multi-family residential building or mixed use residential and commercial building. (California Water Code, Division 1, Chapter 8, Article 5, Section 537-537.5, LBUD Rules and Regulations Section 204.2.2(B))
88. Newly constructed multiunit residential structures or residential portion of newly constructed mixed-use residential and commercial structures will be required to provide measurement of the quantity of water supplied to each individual unit by either individual water meters or sub-meters. (CPC 601.2.2)
89. Provide separate water meters dedicated solely to irrigation service at residential sites with landscapes over 5,000 square feet and for non-residential sites with landscapes over 1,000 square feet. The systems for each must be independent of the other and not cross-connected. (California Code of Regulations Sections 490-495, Chapter 2.7, Division 2, Title 23, California Water Code Section 535, and LBUD Rules and Regulations Section 204.4)
90. Provide hydraulic calculations for sizing the cold and hot water systems (CPC 610.2). The calculations should be submitted showing the following information:
 - a. Minimum and maximum water pressure.
 - b. Height of highest outlet above meter.
 - c. Meter size and losses through it.
 - d. Maximum developed length.
 - e. Total fixture units and GPM.
 - f. Type of pipe.
 - g. Residual pressure (minimum 15 psi).
 - h. Any other losses (Regulators, RP devices, water filter, and tankless water heater shown).
 - i. Table showing SIZE OF PIPE vs. FIXTURE UNITS allowed.
- It should be noted that maximum velocity of 8ft/sec for cold water and 5ft/sec for hot water should be maintained for copper tubing as required by CPC section 610.12. (CPC 610.0 & Appendix A)
91. Pressure loss through the backflow device, water softener, mixing valve, tankless water heater, water sub-meter, and similar devices shall be included when sizing the water systems. (CPC 610.2)
92. 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 & Appendix A)
93. Verify the pipe size of the water system after adjusting the pipe sizing table.
94. Clearly identify each hydraulic design zone on the riser diagram. Show any node points on the riser used in the calculations.
95. 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)
96. Provide pipe sizing charts for each zone.

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97. 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)
98. Insulation shall be provided on all hot water and circulating piping and the first 5' on the cold water from the water heater per CPC Sec. 609.12 and Title 24 Part 6 as follow:
- A. All domestic hot water piping shall be insulated as specified in Section 609.11 of the California Plumbing Code. In addition, the following piping conditions shall have a minimum insulation wall thickness of 1 inch or a minimum insulation R-value of 7:
 - i. The first 5 feet (1.5 meters) of cold water pipes from the storage tank.
 - ii. All hot water piping with a nominal diameter equal to or greater than 3/4 inch (19 millimeter) and less than 1 inch.
 - iii. All hot water piping with a nominal diameter less than 3/4 inch that is:
 - a. Associated with a domestic hot water recirculation system;
 - b. From the heating source to the kitchen fixtures;
 - c. From the heating source to a storage tank or between storage tanks; or
 - d. Buried below grade.
 - B. Hot water pipe insulation shall have a minimum wall thickness of not less than the diameter of the pipe for a pipe up to 2 inches in diameter. Insulation wall thickness shall be not less than 2 inches for a pipe of 2 inches or more in diameter. (CPC 609.12.2)
99. Modify the pipe insulation requirements as follow per CEC150.0(j)2A:
- A. All domestic hot water piping shall be insulated as specified in Section 609.11 of the California Plumbing Code. In addition, the following piping conditions shall have a minimum insulation wall thickness of 1 inch or a minimum insulation R-value of 7:
 - i. The first 5 feet (1.5 meters) of cold water pipes from the storage tank.
 - ii. All hot water piping with a nominal diameter equal to or greater than 3/4 inch (19 millimeter) and less than 1 inch.
 - iii. All hot water piping with a nominal diameter less than 3/4 inch that is:
 - a. Associated with a domestic hot water recirculation system;
 - b. From the heating source to the kitchen fixtures;
 - c. From the heating source to a storage tank or between storage tanks; or
 - d. Buried below grade.
 - B. Hot water pipe insulation shall have a minimum wall thickness of not less than the diameter of the pipe for a pipe up to 2 inches in diameter. Insulation wall thickness shall be not less than 2 inches for a pipe of 2 inches or more in diameter. (CPC 609.12.2)
100. Note on plan the insulation requirements on plans. All hot water supply & return piping shall be insulated as follows (CPC 609.12.2):
- a. 1" Insulation thickness required for 3/4" pipe.
 - b. 1-1/2" Insulation thickness required for 1" to 1-1/2" pipe.
 - c. 2" Insulation thickness required for 2" pipe & larger.

101. Provide venting, overflow, and valves at potable water supply tank. (CPC 607.0)

PRESSURE REGULATING VALVES

102. Provide an approved pressure-regulating valve to reduce the water pressure at any fixture to 80 psi or less. (CPC 608.2)
103. Show make, model and size of the pressure-regulating valve.
104. Provide a copy of the manufacturer's catalog for the pressure-regulating valve used showing pressure drop through them. (CPC 608.2)
105. The pressure regulating valve shall be accessibly located aboveground or in a vault equipped with a properly sized and sloped drain to daylight. The pressure-regulating valve shall not be installed in a pit where it can become submerged in water. (CPC 608.2)

BACKFLOW DEVICES (RP)

106. Provide a reduced pressure backflow device at the meter. (CPC 603.0, Table 603.2, and Long Beach Water Department Rules & Regulations)
107. Show make, model, and size of the reduced pressure backflow device on the plans.
108. Provide a copy of the manufacturer's catalog for the reduced pressure backflow device used showing pressure losses.
109. The reduced pressure backflow device 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. Installations of the backflow device exceeding five feet above the floor or grade shall be provided with a permanent platform capable of supporting a tester or maintenance person. (CPC 603.4.3, 603.4.9, & Table 603.2)
110. Provide backflow devices for carbonated beverage machines or dispensers such as soda and beer dispensers, coffee machines. (CPC 603.5.12)
111. Provide backflow prevention device at the water stub out for the future reverse osmosis systems. Detail, as applicable, must be included on plans.
112. Anti-siphon and/or backflow protection required at lawn sprinklers and irrigation systems. (CPC 603.5.6)

WASTE AND VENT SYSTEMS

113. Specify the piping materials for waste and vent systems. (CPC 701.0 & 903.0)
114. Provide riser diagram for the waste and vent systems. The waste system shall extend to the property line.
115. The riser diagram shall indicate all the fixtures served, the pipe sizes, and the fixture unit count on each leg of pipe.
116. Show all pipe sizes on the plan.
117. Verify the DFU count between the riser diagrams and fixture calculations. The values do not match between the two.
118. Pot, scullery, dishwashing, silverware sinks, and other similar fixtures shall be directly connected to the drainage system. A floor drain shall be provided adjacent to the fixture, and the fixtures shall be connected on the sewer side of the floor drain trap, providing that no other drainage line is connected between the floor drain waste connection and the fixture drain. (CPC 704.3)
119. Please clarify: Are grease waste with grease trap/interceptor proposed? All floor drains, mop sinks, prep sinks, floor sinks, and drains receiving grease waste from any food prep sinks must drain through a grease trap or interceptor, depending upon the amount of grease receiving fixtures. (CPC 1014.1 & 1014.2)
120. A clean-out shall be installed above the fixture connection fitting, serving each urinal, regardless of the location of the urinal in the building. (CPC 707.4)
121. An approved type of two-way clean-out fitting installed inside the building wall near the connection between the building drain and the building sewer or installed outside the building at the lower end of a building drain and extended to grade, shall be permitted to be substituted for an upper terminal clean-out. (CPC 707.4(4))
122. Clearance in front of the clean-out shall be a minimum 18" for 2" clean-out or less and 24" for clean-out larger than 2". Under floor clean-outs shall not be greater than 5' from the under-floor access point. (CPC 707.9)
123. Plumbing fixtures shall drain to the public sewer or private sewer by means of gravity unless such fixtures are below the level of the main sewer. (CPC 709.1 & 710.2)

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124. Provide site plans showing the building sewer and the city sewer main size.
125. Provide lot subdivision. The building sewer shall not cross lot lines. (CPC 721.1)
126. Specify the slope of the horizontal drainage piping. (CPC 708.1)
127. State on plan, the discharge method of the runoff from the irrigation / plants. (MMJ Cultivation)
128. Show size of the sewer main in the street.
129. Building drain/building sewer clean-out should be shown on the plans (2' outside the building) in compliance with CPC Section 719.1.
130. 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 & 719.6)
131. Rain, surface, or subsurface water shall not be connected to or discharged into any sanitary drainage system. (CPC 714.2)
132. Indicate the waste stacks that carry the discharge of suds producing fixtures. Drainage connections shall not be made into a drainage piping system within eight (8) feet of any vertical to horizontal change of direction of a stack containing suds-producing fixtures. (CPC 711.1)
133. Clearly indicate on the plans the waste stacks that carry the discharge of the suds producing fixtures. (CPC 711.1)
Drainage connections should not be made into a drainage piping system within 8 feet of any vertical to horizontal change of direction of a stack containing suds-producing fixtures. (This applies to stacks carrying waste from bathtubs, laundries, washing machines, kitchen sinks and/or dishwashers.) Section 711 of the California Plumbing Code. (Except Single Family residences or stacks from less than 3 stories of fixtures.) Current configuration should be changed so the first floor fixtures connect at least 8, away from the base of the stack receiving discharge from suds-producing fixtures.
134. The fire pump room shall be provided with a floor drain and a floor sink. (NFPA 20 Sec. 4.12.7.2)
135. Vent sizes through the roof must equal or exceed the size of the building sewer in area. (CPC Table 703.2 & 904.1)
136. Show details for the island venting. (CPC 909.1)
137. The island sink drain, upstream of the returned vent, shall serve no other fixtures. (CPC 909.1)
138. Provide yoke vents and show the yoke vents on the riser diagram. (CPC 907.2)
139. All wet vents fixtures shall be within the same story. (CPC 908.1)
140. Only private bathroom groups may be wet vented horizontally. (CPC 908.2)
141. No more than one bathroom group located on the same floor may be connected to a horizontal wet vent system. (CPC 908.2)
142. 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 908.2.4)
143. A bathroom group located on the same floor level shall be permitted to be vented by a horizontal wet vent with the following conditions: (CPC 908.2)
 - a. Same floor;
 - b. Only one private bathroom group is allowed (water closet, lavatories, bathtub, shower, bidet, floor drain);
 - c. Dry vent to be a vent for bidet, shower, bathtub, or 1 or 2 lavatories (not WC or FD);

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- d. Only 1 wet vented fixture drain or trap arm upstream of dry vent;
 - e. Dry vent connection as per CPC Sec. 905.2 & 905.3.
- 144. Show on plans type & use of each fixture served by the combination waste and vent systems.
 - 145. Show the combination waste and vent piping on floor plans.
 - 146. Combination waste and vent system is only allowed where structural conditions preclude the installation of a conventional system. (CPC 910.1)
 - 147. Toilets or urinals are not allowed in a combination waste and vent system. (CPC 910.7)
 - 148. Combination waste and vent systems shall not be utilized where solids or grease waste is anticipated. (CPC Appendix B Sec. B 101.0)
 - 149. Vertical waste pipes are not allowed in a combination waste and vent system. (CPC 910.5)
 - 150. Show a detail of the connection of the branches of a waste and vent system to the main horizontal line. (CPC 910.2 & 910.5)
 - 151. Each drainpipe 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 California Plumbing Code. (CPC 910.4)
 - 152. 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 drainpipe served. (CPC 910.3)
 - 153. Show a typical detail of the tailpiece and trap. (CPC 910.2 & 910.4)
 - 154. Provide a separate vent for each waste branch line exceeding fifteen (15) feet in length and provide a vent downstream of the furthest fixture. (CPC 910.3)
 - 155. Provide a vent downstream of the uppermost fixture. (CPC 910.3)
 - 156. Relief vents shall be provided every one hundred (100) feet along the mains. (CPC Appendix B Sec. B 101.4)
 - 157. Venting or drainage line from any equipment shall not be connected with the vent pipe serving the waste line.
 - 158. Traps serving sink that are part of the equipment of bars, need not be vented as long as is indirectly connected to an open floor sink or other approved type of receptor. (CPC 902.2)
 - 159. Vent pipe and fittings shall be in accordance with CPC 701.2 standard, except that: galvanized and stainless steel shall not be installed underground and less than 6" above ground. ABS and PVC DWV is permitted with the applicable standard referenced in Table 1701.1. (CPC 903.1.1 HCD)
 - 160. Each plumbing fixture trap shall be vented. Unless prohibited by structural conditions each vent shall vertically to a point not less than six (6) inches above the flood level rim of the fixture; or less than 12 inches from a vertical surface. (CPC 906.1)

SEWAGE EJECTORS

- 161. Show size, length and type of material of the sewage ejector discharge line. (CPC 701.0)
- 162. Provide an accessible check valve and gate valve or ball valve at the discharge line from the ejector. (CPC 710.4)
- 163. Gate valve or ball valve and check valve shall be located outside the pit. (CPC 710.4)
- 164. Provide dual pumps each capable of handling the load independently shall be provided in "public use" occupancy. (CPC 710.9)

165. Provide airtight cover for the sumps. (CPC 710.10)
166. Sewage ejector sump shall be provided with a separate vent pipe, which shall extend through the roof. (CPC 710.7 & 710.10)
167. Show load discharging into the sump.
168. Show make, model and HP of sewage ejector.
169. Provide pump performance curves.
170. Provide a riser diagram showing the sumps, sump inlet & outlet check valves and gravity line.
171. The discharge line of the pump shall connect to the horizontal gravity line from the top through a wye branch fitting (CPC 710.4)
172. State the length of pipe & elevation difference between the bottom of the sumps and the gravity line.
173. Show high water level. It shall be at least two (2) inches below the lowest inlet. (CPC 710.9)
174. Sump receiving waste from water closets shall have a minimum two (2) inch discharge for single-family dwelling. Three (3) inch discharge is required for commercial building. (CPC 710.3)
175. When calculating fixture unit, allow two fixtures units for each gallon per minute discharging from the sewage ejector. (CPC 710.5)
176. Specify the type of material of the sump on the plans, or specify make, model of the prefabricated sump.
177. Provide audio and visual alarm. (CPC 710.9)

SEWAGE EJECTORS CALCULATIONS

178. Determine the flow of water in gallons per minute discharging into the sump.
179. Provide calculations for the system curve. Take into consideration losses due to all the fittings, gate valve, and backwater valve.
180. 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.
181. 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)
182. The pump shall have a discharge capacity of not less than 20 gpm. (CPC 710.3(1))

INDIRECT WASTE SYSTEMS

183. Ice machines, iceboxes, drink dispensers, coffee machines, freezers, refrigeration coils, and similar equipment shall be indirectly connected to the drainage system. (CPC 801.3)
184. For walk-in coolers, floor drain shall be permitted to connect to a separate drainage line discharging into an outside receptor. Such floor drain shall be trapped and individually vented. (CPC 801.3.2)
185. 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 801.3.3)

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186. Bins, sinks, and other equipment having drainage connections and used for the storage of unpackaged ice used for human ingestion, or used in direct contact with ready-to-eat food, shall be indirectly connected to the drainage system by means of an air gap. (CPC 801.3.3)
187. Each indirect waste pipe from food-handling fixtures or equipment shall be separately piped to the indirect waste receptor and shall not combine with other indirect waste pipes. (CPC 801.3.3)
188. Where the sink in a bar, soda fountain, or counter is so located that the trap serving the sink cannot be vented, the sink drain shall discharge through an air gap or air break into an approved receptor that is vented. The developed length from the fixture outlet to the receptor shall not exceed five (5) feet. (CPC 801.4)
189. No indirect receptor shall be installed in a storeroom or other portion of the building not in general use. (CPC 804.1)
190. No piping or equipment discharges under pressure shall directly connect to the drainage system. Except approved fixtures and devices, such as commercial dishwashers, where the drainage system is properly sized. (CPC 805.1)
191. Commercial dishwashing machines shall discharge indirectly through an air gap. (CPC 807.1)
192. Drainage discharge from steam and/or hot water (above 140°F) requires an indirect waste line. (CPC 810.1)
193. Pipe from boilers shall discharge by means of indirect waste piping. (CPC 810.1)
194. Carbonated liquid waste piping shall be of corrosive resistive material. Do not use copper or cast iron until proper neutralization or dilution has occurred. (CPC 811.0)
195. Chemical (corrosive) waste shall discharge in a manner approved by the Authority Having Jurisdiction. (CPC 811.7)

CONDENSATE SYSTEMS

196. Specify the piping materials for condensate drains.
197. Provided a manufacturer's printed literature or specification sheet on the drywell to justify the setback requirements.
198. All condensate from air-cooling coil, evaporative cooler, and air conditioning equipment shall be collected and discharge to an approved plumbing fixture or disposal area or by means of an indirect waste pipe. The minimum condensate pipe size per CPC Table 814.3. (CPC 814.3)
199. Provide a primary and a secondary condensate drain for cooling coils installed above the ceiling or in furred spaces. The secondary drain shall terminate in a visible location.
200. Condensate pump for primary drain shall be installed per CPC Sec. 814.1.1.
201. Pump discharge shall rise vertically to a point where it is possible to connect to a gravity condensate drain and discharged to an approved disposal point. (CPC 814.1.1)
202. Each condensing unit shall be provided with a separate sump and interlocked with the equipment to prevent the equipment from operating during a failure. (CPC 814.1.1)
203. Separate pumps shall be permitted to connect to a single gravity indirect waste where equipped with check valves. (CPC 814.1.1)

TRAPS, GREASE INTERCEPTORS, HYDRO-MECHANICAL INTERCEPTORS (GREASE TRAPS) or OTHER INTERCEPTORS

204. One trap serving a three-compartment sink shall have the trap centrally located. (CPC 1001.2)
205. Floor drains directly connect to the drainage system and subject to infrequent use shall be provided with a trap primer. Trap primers shall be placed in an accessible location for maintenance. (CPC 1007.1)

206. All floor drains, mop sinks, prep sinks, floor sinks, and drains receiving grease waste from any food prep sinks must drain through a grease trap or interceptor, depending upon the amount of grease receiving fixtures. (CPC 1014.1 & 1014.2)
207. Show all grease waste piping on the plans.
208. Interceptors or clarifiers shall be properly vented. (CPC 1009.4)
209. Show detail of grease interceptors, hydro-mechanical interceptors, or clarifiers on plans.
210. Show locations of the grease interceptors, hydro-mechanical interceptors, or clarifiers on the lay out.
211. Food waste disposal unit or dishwasher shall not be connected to or discharge into any grease interceptor. (CPC 1014.1.3)
212. Size of hydro-mechanical interceptors is determined using Table 1014.2.1 of CPC.
213. All plumbing equipment and fixtures connected to a grease trap must drain through an approved vented flow control device installed in a readily accessible and visible location. No drain or vent connection may be made between the vented flow control device and the grease trap inlet. (CPC 1014.2)
214. Provide product literature for the hydro-mechanical grease interceptors.
215. Size of grease interceptors is determined using Table 1014.3.6 of CPC.
216. Provide product literature for the grease interceptors.
217. Gravity grease interceptors shall not be installed in a part of the building where food is handled, and shall be placed as close as practical to the fixtures they serve. Location of the grease interceptor shall meet the approval of the Long Beach Water Department. (CPC 1014.3.4)
218. Each business establishment shall have an interceptor that serves only that establishment unless otherwise approved by the AHJ. (CPC 1014.3.4.2)
219. Car wash racks are required to have an interceptor. (CPC 1011.0)
220. Commercial and industrial laundries are required to have an interceptor when the laundry equipment does not have integral strainers. (CPC 1012.0)
221. The following locations are required to drain to an approved sand, or oil and flammable liquid interceptors interceptor (CPC 1016.0 & 1017.0):
 - a. Parking Lots.
 - b. Gas Stations and auto repair shop.
 - c. Roof top parking areas.
222. Show any garage (under roof cover) parking area emergency drains. Provide riser diagram.
223. Elevator sumps are to be drained through an oil separator before draining into the sanitary system, or the sump is to be drained to a holding tank with a liquid level alarm. (CPC 1017.1)
224. Hair or solids interceptors shall be provided for barber shops, beauty salons, pet grooming shops, animal hospitals or any other business expected to discharge hair into the public sanitary sewer system. (CPC 1009.0)
225. Lint or solids interceptors shall be provided for laundry equipment in commercial or industrial buildings that does not have integral strainers. (CPC 1009.0 & 1012.0)

STORM DRAINAGE SYSTEMS

- 226. Specify the piping materials for storm drainage systems. (CPC 1101.4 & 1102.0)
- 227. Rainwater drains shall not be connected to sanitary system. (CPC 1101.3)
- 228. Provide a riser diagram for storm drainage systems.
- 229. Indicate on riser diagram, the area (ft²) covered by each drain. (CPC Appendix D, 1101.12.1, Table 1101.12, & Table 1101.8)
- 230. Indicate the slope of horizontal piping. (CPC Table 1101.8)
- 231. Provide overflow drains. Overflow drains having the same size as the roof drains shall be installed with the inlet flow line located two (2) inches above the low point of the roof. Otherwise, indicate the reasons for not having them. (CPC 1101.12.2)
- 232. If scuppers are used as overflow drains, they shall be sized having area equivalent to the one of the drains as determined by Sec. 1101.12.1. 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 (Diameter x π). (CPC 1101.12.2.1)
- 233. Roof drains and overflow drains shall be piped independently to the outside of the building. (CPC 1101.12.2.2.1)
- 234. Backwater valves shall be installed to prevent flooding of the garage.
- 235. Open subsurface space adjacent to a building, serving as an entrance to the basement or cellar of a building, shall be provided with a drain or drains. The areaway drains shall be not less than 2 inches (50 mm) in diameter for area ways at a maximum of 100 square feet (9.29 m²) in area and shall be discharged in the manner provided for subsoil drains not serving continuously flowing springs or groundwater (see Section 1101.6.1). Areaways exceeding 100 square feet (9.29 m²) shall not drain into subsoil drains. The drains for areaways exceeding 100 square feet (9.29 m²) shall be sized in accordance with Table 1103.2. (CPC 1101.8)

SUBSURFACE DRAINAGE SYSTEMS

- 236. Provide drainage calculations from the soils engineer for the subsurface drains and amount of rain (GPM) the drains were sized for, this information will help in sizing the rain water system.
- 237. Provide a statement from a California registered Civil Engineer showing the required flow.
- 238. Show subsurface drainage on the floor plans.
- 239. Specify the piping materials for the subsurface drains. (CPC 1101.4)
- 240. Subsurface drains shall not terminate into sanitary drainage system; 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. (CPC 1101.6.1)
- 241. Backwater valves shall be installed to prevent flooding of the garage.

SUMP PUMPS

- 242. Provide an approved modification from Grading allowing the site drainage to drain into a sump system.
- 243. Provide a riser diagram showing the sump, sump inlet & outlet, backwater valves and gravity line.
- 244. Backwater valves and gate valves shall be located outside the pit. (CPC 710.6)
- 245. The gate valve shall be located on the discharge side of the check valve (CPC 710.4)

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246. Sumps shall be made of concrete, metal or other approved materials. (CPC 710.8)
247. Specify the type of material or specify make, model and research report number of the prefabricated sump.
248. Provided an airtight cover. (CPC 1101.6.2)
249. The sump pit shall be at least 15 inches in diameter and 18 inches in depth. (CPC 1101.6.2)
250. Show high water level. It shall be at least two (2) inches below the lowest inlet. The lowest inlet to the sump shall have a minimum clearance of two (2) inches above the high water level. (CPC 710.9)
251. Sumps shall be provided with a vent pipe, which shall extend a minimum of six (6) inches above the solid sump cover. (CPC 710.7 & 906.1)
252. The pumps shall have an audio and visual alarm, readily accessible, that signals pump failure or an overload condition. (CPC 710.9)
253. Show load discharging into the sump.
254. Provide a detail showing the sump location, the inlet lines, the outlet line, and gravity line.
255. Show the gravity line all the way to the approved point of disposal.
256. When discharging to the public street, the pressure line shall connect to a gravity pipe within the property. (Long Beach Public Works)
257. When discharging under the curb, the drain line shall not be smaller than three (3) inch diameter or greater than four (4) inch diameter. (Long Beach Public Works)
258. When the gravity line from rain water exceeds four inch in diameter, for the portion under the curb, either use rectangular fitting having height between three and four inches and a cross section equal or greater the cross section of the pipe, or manifold multiple pipes having aggregate cross sectional area equal or greater the cross sectional area of the gravity pipe. (Long Beach Public Works)
259. Show size, length and type of material of the pump discharge line.
260. The discharge line from the sump pump shall be provided with an accessible backwater valve and gate valve. (CPC 710.4)
261. Backwater valve and gate valve shall be located outside of the pit. (CPC 710.6)
262. Provide dual sump pumps. (CPC 1101.14)
263. Minimum size of pump shall be 15 gpm. (CPC 1101.6.2)
264. The discharge line from the sump pump shall be at least 1-1/2 inch diameter. (CPC 1101.6.2)
265. 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)
266. Show make, model and horsepower of pump.
267. Provide pump performance curves.
268. State length of pipe & elevation difference between the bottom of the sump and the gravity line.

SUMP PUMPS & CALCULATIONS

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269. Determine the flow of water in gallons per minute going into the sump.
270. Calculate the amount of water collected at the rate of 0.021 gpm per square foot.
271. Provide a hydrologic report based on the proper 50-year isohyetal, and the calculations shall be according to the Peak Rate Method for a concentration time of 5 minutes.
272. Provide calculations for the system curve. Take into consideration all the fittings, gate valve, and backwater valve.
273. Draw the system curve on the pump curve to determine the point of intersection, which will determine the volume flow coming out of the pump.
274. Determine the square footage loading of the gravity drain by allowing 47.62 square feet of area for every gallon per minute pumped by the sump pump.
275. Provide calculations showing that the discharge to the street does not exceed 7 ft/s. (Long Beach Public Works)

NATURAL GAS SYSTEMS

276. Specify the piping materials for the gas systems. (CPC 1208.6)
277. CSST (corrugated stainless-steel tubing) gas pipe systems shall be bonded to the electrical service grounding electrode system at the point where the CSST gas piping enters the building. The bond jumper shall be a minimum 6 awg. Copper. (CPC 1211.2)
278. Sediment traps shall be installed as close as practical to the inlet of the gas utilizing equipment. Ranges shall not be required to be so equipped. (CPC 1212.9)
279. Indicate the total developed length of the system from the meter or regulator to the most remote gas outlet. (CPC 1215.1.1 & 1215.1.2)
280. Description of each appliance of the gas piping system is required.
281. Indicate the hourly volume (CFH) of gas required at each outlet. Include both new and existing outlet CFH demand for proper sizing approval of gas systems. (Note: 1000BTU = 1CFH) (CPC 1208.4.1 & 1215.4)
282. Provide riser diagram for the gas systems.
283. The riser diagram shall indicate all the equipment or appliances being served, the pipe sizes, and the hourly volume (CFH) of gas on each leg of pipe.
284. Provide a separate gas shut-off valve for each tenant. (CPC 1210.9.2)
In multiple tenant buildings supplied through a master meter or through a service regulator where a meter is not provided or where meters or service regulators are not readily accessible from the equipment location, an individual shut off valve for each apartment or tenant line shall be provided at a convenient point of general accessibility.
285. No gas pipe shall be installed under the building unless it is properly sleeved. (CPC 1210.1.6)
286. Gas piping installed on roof surfaces shall be elevated above the roof surface and shall be supported in accordance with Table 1210.2.4.1.
287. Show points of connection of new pipe to existing pipe.
288. The existing gas pipe shall be enlarged or a separate gas piping shall be provided to ensure adequate capacity of piping is provided. (CPC Sec.1208.1.1)
289. Gas piping with 5psi and above located inside a structure is prohibited unless one of the following conditions is met (CPC 1208.5):

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- a. Pipe system is welded or brazed.
- b. The piping joints are flanged, and all pipe-to-flange connections are made by welding or brazing.
- c. Pipe is in a ventilated chase.
- d. Pipe is located in buildings or separate area of building used exclusively for
 - i. Industrial heating or processing,
 - ii. Research,
 - iii. Warehousing,
 - iv. Boiler or mechanical equipment room.
- e. Piping is temporary for buildings under construction.
- f. The gas system is an LP-Gas system with a design operating pressure exceeding 20psi and in accordance with NFPA 58.

290. Add the following note on plan, "Provide twenty-four (24) hour graph test on elevated pressure gas system or low-pressure gas systems with piping greater than two and one quarter (2 ¼) inches in outside diameter and over two hundred (200) feet in length".

GAS PRESSURE REGULATORS

291. Show the size, make, model, orifice size, spring number, pressure at the inlet of the pressure regulator, and setting of pressure regulator.
292. Provide manufacturer's cut-sheet for regulator showing inlet and outlet pressures at the selected setting.
293. An overpressure protection device shall be installed when the serving gas supplier delivers gas at a pressure greater than 2 psi for piping systems serving appliances designed to operate at a pressure of 14 inches water column or less. (CPC 1208.9)
294. Pressure regulator shall be vented to the outside of the building and shall terminate not less than 3 feet from a source of ignition. (CPC 1208.4(3))
295. Provide an approved gas valve immediately preceding each regulator. (CPC 1210.9)
296. Line pressure regulators at multiple regulator installations shall be marked by a metal tag or other permanent means designating the building or the part of the building being served by such regulator. (CPC 1208.8.7)

SEWER CAPACITY CHARGE

297. Complete and sign the attached Sewer Capacity Charge Form. Do not print form on plans.
298. Provide demolition plan(s) with stamp, wet signature, registration number and expiration date of the responsible party (i.e. Licensed Architect, Engineer) showing the locations of the plumbing fixtures that are being demolish; or a copy of the demolition permit that included the plumbing fixture counts for sewer capacity credit.

2022 CALIFORNIA BUILDING ENERGY EFFICIENCY STANDARDS

299. Show on the plumbing plan, the Compliance Form (Performance or prescriptive method) for water heating system per 2022 California Building Energy Efficiency Standards. The forms shall be completed and signed by a licensed professional as described in Section 10-103.
300. Provide supportive documents to justify that the water heaters proposed have met and recognized by the California Energy Commission. For certified appliances, go to <https://cacertappliances.energy.ca.gov/Pages/ApplianceSearch.aspx>

SWIMMING POOLS AND SPAS

301. Pool Drainage. In accordance with the Long Beach Utilities Department – Engineering Development Services Division requirements and the LBMC Chapter 18.61 NPDES and SUSMP Regulations, drainage to the sanitary sewer or storm drain system shall be as follows:

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- a. Periodic Draining of Swimming Pool. Dechlorinated swimming pool water from periodic draining can be discharged into the storm drain system per the LBMC §18.61.030.
Exception: *Rising pool water due to rain may be discharged to the sewer system to lower the water level without obtaining approval from the Long Beach Utilities Department – Water Division. If the pool water must be drained completely for any reason, it should be dechlorinated and discharged into the storm drain system*
- b. Deck Drainage. Uncontaminated water on decks built around the swimming pools or spas shall not drain into the sanitary sewer system and should be conducted to the storm drain system via non-erosive device.
- c. Other Types of Drainage. All other swimming pool, spa or filter backwash discharges, including open and unenclosed shower or washing area adjacent to the pool for general rinsing, shall be discharged into the sanitary sewer system.

OTHERS

302. Note on plans that all exposed piping running within the parking levels shall maintain a minimum clearance of 7 feet as required by CBC 406.2.2. Additional clearance in the amount of a minimum of 8 feet 2 inches is required for areas that are required to be accessible per CBC 1109A.8.
303. Ensure all continuation points on riser diagrams reflect correct pages.
304. Provide use of each floor sink on plan.
305. Provide a kitchen/cooking equipment schedule.
306. Provide Civil sheets with site utilities for the next review.
307. Show the job address on each sheet of the plans.
308. Indicate on the plans the scope of the work to be done.
309. Please provide on the front sheet of the plans a detailed scope of work. Scope of work on the application does not seem to match the work proposed. Please correct.
310. Provide drawing abbreviation and symbol schedules.
311. Update all code reference to reflect the most current code reference section and/or table number.
312. Remove all plans, details, or notes that do not pertain to the proposed project scope of work from the final sets of construction documents.
313. The following note(s) for sub-meters shall be added to plan:
 - a. Sub-meters in California are regulated by the California Department of Food and Agriculture, Division of Measurement Standards (AKA: Weights and Measures or W&M). Please contact W&M at (562) 622-0412 to obtain the current list of approved type gas and water meters.
 - b. All meters must be submitted to the local County W&M office for testing, registration, and certification prior to being installed.
 - c. Each sub-metered complex must be registered with W&M.
 - d. All sub-meters shall be installed in an accessible location, where the tenant or owner can visually read the meter and if this is not possible, a remote readout display device should be installed.
 - e. All sub-meters shall be clearly tagged with permanent marker with the unit number marked on the body of the sub-meter.
314. The following note(s) shall be added to plan:
 - a. All work to comply with 2022 California Plumbing Code, 2022 California Building Code, 2022 California Green Code (CALGREEN), 2022 California Building Energy Efficiency Standards, and Title 18 of Long Beach Municipal Code.
 - b. Water pipe and fittings with a lead content which exceed 0.25% shall be prohibited in systems conveying potable water. (CPC 604.2 & California Health & Safety Code 116875).
 - c. All plumbing fixtures shall meet the flow rate requirements of CGBC Section 5.303.3.

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- d. All fixtures in handicap restrooms shall be installed in accordance with the requirements of the State of California Handicap Code and local handicap codes having jurisdiction.
- e. All fixtures, equipment, piping, and materials shall be listed. (CPC 301.2)
- f. Plumbing piping systems in residential accommodations shall be designed and installed in conformance with sound limitations as required in the California Building Code. (CPC 309.5)
- g. All piping shall be supported at intervals not to exceed those shown in CPC Table 313.3.
- h. Public lavatories shall have controls to limit to the water temperature to 120°F.
- i. All service water heating equipment to be in compliance with the model energy code requirements and labeled.
- j. Each plumbing fixture shall be independently valve per code.
- k. Install all plumbing to avoid interference with electrical and mechanical equipment and structural framing. No water or drain lines permitted over or under electrical panels.
- l. All hose bibbs and janitorial service sinks shall be equipped with approved, properly installed atmospheric type vacuum breakers. Devices shall be accessible for testing and maintenance.
- m. Installation of soil or drain pipes in food handling establishments will comply with CPC Sec. 317.0.
- n. Plastic pipe and the fittings used for plastic pipe, other than those for gas, shall meet the requirements of NSF14.
- o. New or repaired potable water systems shall be disinfected prior to use according to the method set in CPC Sec. 609.10.
- p. Insulation shall be provided on all hot water and circulating piping and the first 5' on the cold water from the water heater.
- q. The premise owner or responsible person shall have the backflow prevention assembly tested by a certified backflow assembly tester at the time of installation.
- r. Potable water supply to beverage dispensers, carbonated beverage dispensers, or coffee machines shall be protected by approved type non-removable pressure vacuum breaker device.
- s. Protective sleeves shall be provided when piping is penetrated thru concrete or masonry wall. Provide details including size of the protective sleeve and method of sealing at exterior walls. (CPC 312.10.1)
- t. All faucets in public restrooms shall be self-closing or self-closing metering faucets. (CPC 407.4)
- u. Provide listed water hammer devices for all quick acting water valves. Required at the dishwasher, ice maker, washing machine, and similar fixtures. (CPC 609.11)
- v. All required clean-outs should be installed as per CPC Sec. 707.0 & 719.0.
- w. All sanitary and grease waste piping to be minimum 2% slope.
- x. Plumbing vent through roof shall terminate vertically not less than one (1) foot from any vertical surface and not less than ten (10) feet horizontally or at least three (3) feet above any window, door, opening, air intake or shaft.
- y. Sanitary waste vents shall rise vertically to a point not less than six (6) inches in height above the flood level rim of the fixture before being connected to any other vent.
- z. ABS and PVC piping exposed to sunlight shall be protected by water based synthetic latex paints. (CPC 906.1)
- aa. Drainage piping serving fixtures which have floodwater rims located below the elevation of the next upstream manhole cover of the sewer serving such drainage piping shall be protected from backflow of sewage by installing an approved type backwater valve.
- bb. Vent terminals that terminate through an outside wall of a building shall be located not less than 10 feet horizontally from an operable opening in an adjacent building. This shall not apply to operable openings that are not less than 2 feet below or 25 feet above the elevation of the vent terminal. (CPC 509.8.5)
- cc. The boilers and venting systems shall be installed in accordance with all requirements of the boiler and listed vent/chimney manufacturer's listing and installation instructions.
- dd. Water having a temperature above 140°F shall not be discharged under pressure directly into any part of the drainage system. Pipes from boilers shall be discharged by means of indirect waste piping.
- ee. Indirect wastes longer than five (5) feet must be trapped, and longer than fifteen (15) feet must be trapped and vented indirect wastes from food service equipment must discharge to receptor with a minimum air-gap of one (1) inch.
- ff. Primary condensate piping to terminate at tailpiece of lavatory/sink in the unit it serves, floor sink or dedicated roof top receptor.
- gg. Secondary condensate piping to terminate at exterior observable location or interior over lavatory/sink.
- hh. Roof drains, overflow drains, and rainwater piping within the interior of the building shall be tested in accordance with the provisions of the CPC for testing drain, waste and vent systems.
- ii. Roof drains and overflow piping within the building shall utilize approved drainage fittings.

