

# CITY OF MILPITAS

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## PLUMBING PLAN REVIEW CHECKLIST

### GENERAL (RESIDENTIAL & COMMERCIAL)

The intent of this checklist is to provide a general guideline for the plumbing plan review. This checklist may not include items related to all possible projects. This checklist may include more items than specific set of plumbing plans may encompass.

Referenced Codes:

- 2013 California Plumbing Code (CPC)
- 2013 California Building Code (CBC)
- 2014 Milpitas Municipal Code (MMC)

\* Code section referenced is CPC unless otherwise noted.

	Code Requirements	Code section*	Req'd
<b>A. GENERAL</b>			
1.	Indicate scope of work on plans.		
2.	Indicate the job address on each page of the plan.		
3.	Plans shall bear the registration or license number and signature of engineer, an architect, or contractor, registered by the State of California in the appropriate discipline.		
4.	Provide drawing abbreviation and symbol schedules.		
5.	Show new and existing associated plumbing lines and fixtures on plans: <ul style="list-style-type: none"> <li>a) Differentiate between water supply (hot and cold), waste and vent, gas, and drainage lines.</li> <li>b) Differentiate between pipes that are within building or are below slab within building.</li> <li>c) Show points of connection of new pipe to existing pipe.</li> <li>d) Show all plumbing fixture locations including water heaters and hose bibs.</li> </ul>		
6.	Provide pipe legend matrix indicating the following: <ul style="list-style-type: none"> <li>a) Pipe materials, e.g. copper pipe Types K, L, M etc.</li> <li>b) Pipe uses: water supply (hot, cold), drainage, storm, condensate, etc.</li> <li>c) Pipe locations: below ground, below building, inside of building, exterior exposed to sunlight and weather, etc.</li> </ul>		
<b>B. PLUMBING FIXTURES AND FITTINGS</b>			
7.	Minimum plumbing restroom fixture count shall be per CPC Chapter 4 and Table 422.1 for the type of building occupancy and occupant load factors described in Table A.	Table 422.1 Table A	
8.	Plumbing fixtures shall be constructed of dense, durable, non-absorbent materials and shall have smooth, impervious surfaces, free from unnecessary concealed fouling surfaces. All fixtures shall conform in quality and design to nationally recognized applicable standards.	Table 1401.1 Sec.401.1	

**PLUMBING PLAN REVIEW CHECKLIST  
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Code Requirements		Code section	Req'd
9.	Fixture water consumption: <ol style="list-style-type: none"> <li>a) Lavatory faucets in residences shall not have a flow rate of greater than 1.5 gpm at 60 psi.</li> <li>b) Lavatories in common and public use areas of residential developments (outside dwelling and sleeping units) shall be not more than 0.5 gpm at 60 psi</li> <li>c) Urinals shall have an average water consumption of not more than 0.5 gallons of water per flush.</li> <li>d) Water closets, flush tank, flushometer tank, or flushometer valve operated, shall have an average consumption of not more than 1.6 gallons of water per flush. (1.28 gallons per flush for both single and dual flush toilets in residential construction)</li> <li>e) Showerheads shall have a maximum flow rate of 2.0 gpm at 80 psi.</li> <li>f) Kitchen faucets flow rate shall have a maximum flow rate 1.8 gpm at 60 psi.</li> <li>g) Non-water Urinals (Waterless) should meet all the requirements of section 403.3 including providing water distribution and fixture supply piping.</li> </ol>	403.7 403.8 403.3 408.2 403.6 403.3	
10.	Plumbing fixture clearances for fixtures that are not required to conform to accessibility codes: <ol style="list-style-type: none"> <li>a) Water closets shall not be set closer than 15" from its center to any side wall or obstruction and 30" from center to center of any similar fixture. Provide 24" minimum clear space in front of water closet per sec. 402.5.</li> <li>b) Urinals shall not be set closer than 12" from their center to any side wall or obstruction nor 24" from center to center per sec. 402.5.</li> <li>c) The finished floor slope at shower receptor. Min 1/4" and Max 1/2" per foot. per sec. 408.7</li> <li>d) New shower compartments shall have a finished interior of 1,024 square inches and shall be capable of encompassing a 30 inch circle. The clearance shall be maintained up to 70 inches of height above shower drain. Shower door min 22" clear unobstructed opening per sec. 408.6.</li> <li>e) Plumbing fixtures and fixture fittings for persons with disabilities shall conform to CBC Chapters 11A or 11B for specific accessibility codes.</li> </ol>	CBC Chapters 11A or 11B, 402.5, 408.7, 408.6	
11.	Showers and tub shower combinations shall be provided with individual control valves of the pressure balance, thermostatic, or combination pressure balance/thermostatic mixing valve types that provide scald and thermal shock protection.	408.3	
12.	Provide floor drains. <ul style="list-style-type: none"> <li>• Toilet room containing 2 or more WC or combination of one urinal and one WC.</li> <li>• Commercial kitchens. sec. 704.3.</li> <li>• Laundry rooms in commercial building and common facilities in multifamily projects.</li> </ul>	418.3, 704.3	
13.	Drinking fountains shall not be installed in toilet rooms.	415.4	

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Code Requirements		Code section	Req'd
<b>C. WATER HEATERS</b>			
14.	<p>Provide the following:</p> <ul style="list-style-type: none"> <li>a) Indicate the type, size and capacity of the water heater(s) and water storage tank(s).</li> <li>b) Gas utilization equipment in residential garages shall be installed so that all burners and burner ignition devices are located not less than 18 inches above the floor unless listed otherwise. (sec. 507.13)</li> <li>c) Provide a P &amp; T valve for water heater. Valve shall terminate to an approved location. Show termination location.</li> <li>d) Where a water heater is located in a space where damage may result from a leaking water heater, a watertight pan of corrosion resistant materials shall be installed beneath the water heater with a minimum three-quarter inch diameter drain to an approved location. (CPC 507.4)</li> <li>e) Water heater shall be secured to resist earthquakes in Seismic Design Category D, E or F. One at upper one-third and one at lower one-third of vertical dimension with the lower strap being a minimum distance of 4 inches above the controls. (CPC 507.2)</li> <li>f) Water Heater installation in bedrooms and bathrooms shall be in accordance with one of the conditions in sec.505.1.</li> <li>g) Unlisted water heaters shall be installed with clearance of 12 inches on all sides and rear. Combustible floors shall be protected in an approved manner. (sec. 504.3.2)</li> <li>h) Water Heater supported from ground shall rest on slab or approved base min 3" above adjoining ground. (CPC 507.3)</li> <li>i) Water heater in residential garages shall not be located or protected so it is not subject to physical damage by moving vehicle. (sec. 507.13.1)</li> <li>j) Min 30" x 30" work platform in front of the service area. (sec.508.4.3)</li> <li>k) A permanent 120-volt receptacle outlet and a lighting fixture shall be installed near the appliance. The switch controlling the lighting fixture shall be located at the entrance to the passageway. (sec. 508.4.4)</li> </ul>	507.13, 507.4, 507.2, 505.1, 504.3.2, 507.3, 507.13, 508.4.3, 508.4.4	
15.	<p>Indicate method of supplying combustion air to water heaters. Show combustion air locations and sizes. Conform to manufacturer's requirements.</p> <p>Free area of louvers, grills and screens: wood =25% and steel =75%. Mesh size not less than ¼" mesh. 506.8</p>	506.0 & 506.8	
16.	Indicate the location of existing water heater. No water heater which depends on the combustion fuel for heat shall be installed in any room used or designed to be used for sleeping purposes and bathroom.	504.1	
<b>D. WATER SUPPLY AND DISTRIBUTION</b>			
17.	Water pressure shall be a minimum of 15 pounds per square inch and a maximum of 80 pounds per square inch. For pressure less than 15 pounds a tank and a pump and for pressure more than 80 pounds pressure regulator is required.	608.1 & 608.2	

## PLUMBING PLAN REVIEW CHECKLIST GENERAL RESIDENTIAL & COMMERCIAL (Cont'd)

Code Requirements		Code section	Req'd
18.	<p>The water supply system design submittal shall include the following:</p> <ol style="list-style-type: none"> <li>a) Specify the proposed method for water design (Chapter 6 or Appendix A).</li> <li>b) Provide pipe material schedule. (CPVC under Alternate Methods and Materials and should be approved by Building and Safety Department)</li> <li>c) Provide PLAN VIEW and ISOMETRIC drawings for the proposed work. <ul style="list-style-type: none"> <li>• Show fixture locations and types. Indicate on the plans the types of water closets and urinals (tank or flushometer valves) used.</li> <li>• Indicate meter size, service size (meter to building), and water pressure range considered for system design.</li> <li>• On plans show the total developed length (meter to most remote outlet) and total water supply fixture unit count. 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.</li> <li>• For each branch indicate pipe sizes, lengths and total water supply fixture unit counts.</li> </ul> </li> </ol>	CPC Chapters 604, Table 6-4, Appendix A, Chart A2, & Table A2, 608.1 608.2	
19.	Water pipe and building sewer in a same trench should meet the conditions in 609.2.	609.2	
20.	Approved non-removable backflow prevention devices shall be provided on hose bibs.	602.3	
<b>E. WASTE &amp; VENT SYSTEMS</b>			
21.	Indicate size of existing sanitary sewer and verify that size is adequate to handle additional discharge from the new additional fixtures.		
22.	Waste systems shall comply with Chapter 7 and venting systems shall comply with Chapter 9.	Chapter 7, Chapter 9	
23.	<p>Provide PLAN VIEW and ISOMETRIC drawings for the proposed work.</p> <ol style="list-style-type: none"> <li>a) The Drain, waste, and vent plumbing plans shall show the following: <ul style="list-style-type: none"> <li>• Fixture locations and provide associated drainage fixture unit values for each fixture.</li> <li>• Pipe sizes.</li> <li>• Indicate points of connection to existing system(s).</li> <li>• Provide a minimum of ¼" per foot slope for drainage lines.</li> <li>• Cleanout locations and sizes.</li> <li>• Drainage/vent fixture unit count for each main branch</li> </ul> </li> <li>b) Provide details as required.</li> </ol>	Table 702.1, Table 703.2, Table 707.1	
24.	Provide suds relief. Except single family projects or stacks receiving the discharge from less than three stories of plumbing fixtures	711.0	
25.	Fixtures having concealed slip joint connections shall be provided with an access panel or utility space at least 12 inches in its least dimension so as to make such connections accessible for inspection and repair.	402.11	
26.	<ol style="list-style-type: none"> <li>a) No under-floor cleanout shall be located more than 20 feet of an access door.</li> <li>b) Clearance in front of cleanout: <ul style="list-style-type: none"> <li>• 12" for pipe size of 2 inches or less.</li> <li>• 18" for pipe size of more than 2 inches.</li> </ul> </li> <li>c) Cleanouts in under-floor piping shall be extended to or above the finished floor or shall be extended outside the building when there is less than 18" vertical overall and 30" of horizontal clearance from the means of access to such cleanout.</li> </ol>	707.9	
27.	The aggregate cross sectional area of the vent shall not be less than that of the largest required building sewer.	904.1	
28.	All wet vented fixtures shall be within the same story.	908.1.	
29.	Combination waste and vent system is only allowed where structural conditions preclude the installation of a conventional system.	910.1	
30.	The minimum area of any vent installed in a combination waste and vent system shall be at least ½ the inside cross sectional area of the drain pipe served.	910.3	

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Code Requirements		Code section	Req'd
31.	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 and sec. 910.4.	Chapter 7 910.4	
32.	No vertical waste pipes are allowed in a combination waste and vent system.	910.5	
33.	No toilets or urinals area allowed in a combination waste and vent system.	910.7	
<b>Indirect Wastes</b>			
34.	Ice machines, drink dispensers, coffee machines, freezers, refrigeration coils, and similar equipment shall be indirectly connected to the drainage system. 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.	801.2	
<b>F. STORM WATER</b>			
35.	The roof drainage system submittal shall include (and not necessarily be limited to) the following: <ul style="list-style-type: none"> <li>a) The design shall conform to Chapter 11 or Appendix D.</li> <li>b) Provide all design information including design criteria, CPC table references, and calculations on plans.</li> <li>c) Provide roof/site PLAN VIEW drawings shall show: <ul style="list-style-type: none"> <li>• Drain and overflow locations (if any)</li> <li>• Projected area for each drain</li> <li>• Gutter, rainwater leader and pipe sizes</li> <li>• Points of connection to site storm system</li> <li>• Cleanout locations (identify sizes)</li> </ul> </li> <li>d) Provide details as required.</li> </ul>	Chapter 11 or Appendix D	
<b>G. FUEL PIPING</b>			
36.	The type of all materials to be used for the fuel gas piping system shall meet the requirements of sec. 1208.5.	1208.5	
37.	The gas system submittal shall include (and not necessarily be limited to) the following: <ul style="list-style-type: none"> <li>a) The design shall conform to CPC Chapter 12.</li> <li>b) Indicate gas line pipe system sizing design method(s) referenced in CPC 1208.4.2. Call out CPC Chapter 12 table references utilized in design.</li> <li>c) Provide PLAN VIEW and ISOMETRIC riser diagrams for the proposed work. <ul style="list-style-type: none"> <li>• Gas meter location and pipe locations on plans.</li> <li>• Indicate on plans the total developed length of the system from meter or regulator to most remote gas outlet.</li> <li>• The total developed length for each branch and demand for each branch.</li> <li>• Show all mechanical (e.g. furnace), plumbing (e.g. water heater) and kitchen residential (e.g. range/oven, clothes dryer, etc), gas appliance locations and associated demand factors.</li> <li>• Pipe sizes.</li> </ul> </li> <li>d) Provide details as required.</li> </ul>	Chapter 12, 1208.4.2, 1216.2	
38.	Indicate locations of gas pressure regulators. Gas pressure regulators shall be accessible for servicing. Line pressure regulators shall be marked by a metal tag or other means designating the part of building supplied.	1209.7.	
39.	An approved Seismic Gas Shut-off Device (motion sensitive) or an approved Excess Flow Gas Shut-off Device (non-motion sensitive) shall be installed downstream of the gas utility meter. Excess Flow Gas Shut-off Devices shall be installed at each gas fuel appliance outlet on each gas fuel line where the gas line serves any new building (commercial, industrial, or residential) containing gas fuel piping for which a building permit is issued.	MMC II- 170.1.03, 170.1.04	