



## City of Santa Monica Building and Safety Division

# Rough Plumbing Guide

**This list is to be used as a general guide.**

**It is not inclusive of all code requirements and inspection criteria.**

**Per California Plumbing Code (CPC) and California Energy Code (CEC)**

California Codes available at [www.bsc.ca.gov](http://www.bsc.ca.gov)

Plumbing material, fixtures and devices used in a plumbing system shall be listed, or labeled by a listing agency, and comply with approved applicable recognized standards and submitted for approval by the jurisdiction. (CPC 301.2)

### **PIPE SUPPORT (table 313.3) and PROTECTION (CPC 312)**

- ABS/PVC: Horizontal support every 4 feet, support vertically every story and provide mid-story guide
- Cast iron: Horizontal support every other joint unless over 4 feet, within 18" of joints, and at all horizontal branch connections. Vertical support at base and each floor, not to exceed 15 ft.
- Copper tubing: 1 ½" and less every 6 ft. horizontally and every 10 ft. horizontal for pipe 2" and larger. Support vertical piping every floor, not to exceed 10 ft.
- Protect piping from freezing, breaking and corrosion, and fill voids around pipe per CPC 312

### **SOIL PIPING**

- Pipe supported on firm bed for entire length [CPC 313.5]
- Clean earth or granular fill for the first 12" of backfill above pipe in 6" layers [CPC 314.4]
- Four inches granular fill bed minimum for ABS drain pipe per CPC 314.4.1
- Trenches not to undermine footings within bearing plane (45°) [CPC 314.1]
- Sewer and water pipe minimum 12" deep [CPC 609.1 and 718]
- Thermoplastic sewer pipe trench width shall be 1.25 times outside diameter (O.D.) of pipe plus 12" or O.D. plus 16" per 314.4.1

### **DRAINAGE**

- Minimum slope ¼" per foot, or when preapproved, 1/8" per foot for 4" diameter or larger [CPC 708]
- No reductions in pipe size allowed in direction of flow [CPC 310.5]
- No drilling or tapping to make connections [CPC 310.2]
- Joints between various materials per CPC 705.9
- Minimum trap sizes per CPC table 702.2(1)
- Minimum 18" and maximum 30" to trap from inlet for laundry receptor CPC 804.1



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### **CLEANOUTS (C.O.)**

- Sized per CPC table 707.1.
- Required at upper terminal of horizontal runs on first floor or two way clean out required near building drain connection to building sewer [CPC 707.4]
- Cleanout in horizontal drainage piping every 100' and/or every aggregate 135° change of direction and above urinal(s) [CPC 707.4]
- Clean out clearances per CPC 707.9
- Under floor clean out shall not be farther than 5 ft. from an access point [CPC 707.9]
- Cleanouts for drains that pass through backwater valves shall be identified with permanent label "Backwater valve downstream" per CPC 701.1

### **FIXTURES BELOW SEWER/ BACK WATER VALVES**

- Fixtures to drain by gravity where practicable [CPC 709.1]
- When necessary due to site conditions, install sewer ejector pump per CPC 710.2.
- Backwater valves required for fixtures below next upstream manhole cover [CPC 710.1]
- Fixtures above manhole cover elevation shall not discharge through backwater valves [CPC710.1].
- Back water valves required to be accessible for service [CPC 710.6]

### **TRAPS**

- Trap size no larger than trap arm [CPC 1003.3]
- Fixture trap arm to vent, distance minimum 2X trap arm diameter, or per Table 1002.2.
- Horizontal length of trap arms per CPC table 1002.2.
- Only 1 trap permitted on a trap arm [CPC 1001.2]
- Maximum 1 slip joint allowed on outlet side of trap [CPC 1003.2]
- Clean out required if change of direction is more than 90° [CPC 1002.3]
- Slip joint traps must be accessible, minimum 12" X 12" access [CPC 402.10]

### **VENTS**

- No flat venting (take off below horizontal center line) [CPC 905.2]
- Slope vents toward waste piping and must be free of sags [CPC 905.1]
- No vent opening below trap weir [CPC 905.5]
- Horizontal vents minimum 6" above flood level rim or drainage fittings [CPC 905.3]
- Vents must terminate outdoors 6" minimum above roof [CPC 906.1]
- Termination minimum 12" horizontally from any vertical surface [CPC 906.1]
- Minimum 7 ft. above roofs used as decks if within 10 ft. horizontally [CPC 906.3]
- Clearance from building openings 3 ft. above or 10 ft. away [CPC 906.2]
- Vent terminations minimum 3 ft. from property lines [CPC 906.2]



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### **WATER SUPPLY**

- Minimum water service piping is ¾" (type L copper) [CPC 610.8]
- Steel plate protection for piping if notches or holes are closer than 1" to face of framing [CPC 312.9]
- Steel plate protection must span minimum 1 ½" beyond outside of pipe [CPC 312.9]
- Water hammer arrestors required near quick-acting valves [CPC 609.10]
- Hot water pipe insulation not less than pipe diameter but no less than 1" per CPC 609.11 & CEC 120.3-A
- Ream test required for copper pipe (CPC 309.3)
- Multiple shower heads - only one shower head operational at one time. California Green Building Standards 4.303.1.3.2.
- All materials intended to supply drinking water shall be in accordance with NSF 61 per CPC 604.1

**TPR-** Temperature/pressure relief valves plumbed to drain outside per CPC 608.5

### **REQUIRED VALVES**

- Main shutoff and water heater shutoff valves must be fullway type [CPC 606.2]
- Control valves required immediately ahead of each water supplied appliance per [CPC 606.5]
- Shower valve location such that adjustment may be made without entering stream [CPC 408.9]
- Valves required on cold-water supply at each water heater [CPC 606.2]
- All valves require access [CPC 606.6]
- Vacuum relief valve for water heaters higher than the appliance(s) it serves [CPC 608.7]

### **GAS PIPING**

- Gas piping prohibited underground beneath buildings unless in conduit sealed in building and vented on exterior [CPC 1210.1.6]
- Accessible dry leg required if water vapor in gas (called sediment trap) [CPC 1211.8.1]
- Corrugated stainless steel tubing shall be installed per manufacturer's instructions
- Piping through concrete shall be sleeved [CPC 1210.1.5 and 312.2]
- Continuous corrosion resistant tracer wire minimum 14 AWG buried with plastic pipe per [CPC 1210.1.7.2]
- Protected from physical damage when mounted to the building. [1210.2]
- Piping subject to corrosion shall be protected per CPC 312 and 1210.1.3



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### **PIPING TEST**

- Water test on pipe at working pressure for 15 minutes (or 50 PSI air test for other than plastic pipe (15 minutes) [CPC 609.4]
- Drain waste and vent 10 foot head for 15 minutes or air test 5 PSI for 15 minutes [CPC 712.0]
- Gas test pressure, minimum 10 PSI for 15 min. per CPC 1213.3  
Test gauge per CPC 318
- Test gauge not more than 2X test pressure [CPC 318.5]
- Roof drains tested and approved prior to covering per CPC 1106.2

### **SHOWER PAN (CPC 408)**

- Shower pan sloped to drain, minimum ¼" per foot and maximum ½" per foot
- Minimum 2" and maximum 9" dam and solid backing all around
- Listing and installation instructions for other than hot mop (built up) pans
- Drain weep holes shall not be sealed