

CITY OF MILPITAS

Building & Safety Department
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Milpitas, CA 95035
408-586-3240

www.ci.milpitas.ca.gov



RESIDENTIAL WATER PIPING

1. PERMIT INFORMATION:

- This permit is for the replacement of existing water piping with new (for example, galvanized with copper). Plumbing faucets and valves may be replaced in the same location as part of the water piping replacement permit.
- This permit does not include replacing or repairing the tub or tub-shower enclosure, lavatories or sinks, adding new water piping as part of a larger remodeling project, or relocating plumbing fixtures, faucets, or valves.
- Extensive removal of the walls or ceiling structure requires a building permit.
- A Permit may be issued only to a State of California Licensed Contractor with the proper license classification or the Homeowner.
- If the work is performed by the Homeowner personally or by his/her workers, and an inspection indicates the work cannot be completed satisfactorily, then a licensed contractor must perform the work.
- If the Homeowner hires workers, State Law requires the Homeowner to obtain Worker's Compensation Insurance. Proof of this insurance is required prior to inspection.

2. INSTALLATION REQUIREMENTS

- Building Codes:** All work must comply with the 2016 California Residential Code (CRC) or 2016 California Building Code, 2016 California Electrical Code (CEC), 2016 California Mechanical Code (CMC), 2016 California Plumbing Code (CPC), 2016 California Energy Code, 2016 California Green Building Code and 2016 Milpitas Municipal Code (MMC).
- NOTE:** Please save all fixture boxes for the inspector to verify the GPM. See "Fixtures" below and the "*Water Conserving Certificate of Compliance*" for additional information.
- See the "*Residential Water Service*" handout for installation of piping between the meter and the building.
- If replacing the water heater along with the re-piping work, refer to the "*Residential Water Heater*" handout for additional information. There is an additional fee for replacing the heater.
- Before saw cutting or breaking a slab-on-grade, verify if it is a post tension slab. Cutting a tendon in these slabs can be very dangerous and expensive to repair.
- The size of each water supply pipe from the meter to the fixture supply branches, risers, fixtures, connections, outlets, or other uses shall be based on the total demand and shall be determined according to the methods and procedures outlines in CPC Section 610.0.
- Materials for water distribution (inside and underneath the building)::
 - Pipe may be brass, copper, CPVC (chlorinated poly vinyl chloride), ductile-iron, galvanized steel, malleable iron, PE-AL-PE (polyethylene-aluminum-polyethylene), PE-RT (polyethylene of raised temperature), PEX (cross-linked polyethylene), PP (polypropylene) or stainless steel (CPC Table 604.1).

- All pipe, pipe fittings, traps, fixtures, material, and devices used in a plumbing system shall be listed or labeled (third-party certified) by an approved listing agency (CPC 301.2).
 - Each length of pipe and each pipe fitting, trap, fixture, material, and device used in a plumbing system shall have cast, stamped, or indelibly marked on it the manufacturer's mark or name, which shall readily identify the manufacturer to the end user of the product. When required by the approved standard that applies, the product shall be marked with the weight and the quality of the product. Such marking shall be done by the manufacturer. Field markings shall not be acceptable. (CPC 301.2.1)
 - Pipe, tube, fittings, solvent cements, thread, sealants, solvents and flux used in potable water systems intended to supply drinking water shall meet the requirements of NSF 61. Materials used in the water supply system, except valves and similar devices, shall be of a like material. Materials shall be in accordance with the applicable standards referenced in Table 604.1. (CPC 604.1)
 - Copper tube for water piping shall have a weight of not less than Type L, except Type M copper tubing shall be permitted to be used above ground in, or on, a building or underground outside of structures (CPC 604.3).
 - Hard-drawn copper tubing for water supply and distribution in addition to the required incised marking, shall be marked in accordance with ASTM B 88 Seamless Copper Water Tube as referenced in Table 604.1. The colors shall be: Type K, green; Type L, blue; Type M, red. (CPC 604.4)
 - PEX plastic tubing and fitting joining methods shall be installed in accordance with the manufacturer's installation instructions and CPC Sections 605.9 & 605.9.1 & 605.9.2.
 - PEX-AL-PEX plastic pipe or tubing and fitting joining methods shall be installed in accordance with the manufacturer's installation instructions and CPC Sections 605.10 & 605.10.1 & 605.10.1.1.
 - Flexible corrugated connectors of copper & copper alloy, or stainless steel shall be limited to the following lengths: fixture connectors, 30 inches; washing machine connectors, 72 inches; dishwasher and icemaker connectors, 120 inches (CPC 604.12).
 - Flexible metallic water heater connectors or reinforced flexible water heater connectors connecting water heating to the piping system shall be in compliance with the applicable standards referenced in Table 1401.1 and shall not exceed 24" in length (CPC 604.13).
 - No person shall use any pipe, pipe or plumbing fitting or fixture, solder, or flux that is not lead free. Lead free means not more than 0.2 percent lead when used with respect to solder and flux and not more than a weighted average of 0.25 percent when used with respect to the wetted surfaces of pipes and pipe fittings, plumbing fittings, and fixtures. All pipe, pipe or plumbing fittings or fixtures, solder, or flux shall be certified by an independent ANSI accredited third party. (CPC 604.2 and Health & Safety Code 116875)
- Joints and connections:
- Joints and connections shall be in accordance with CPC Sections 315.0 and 605.0.
 - Burred ends of all pipe and tubing shall be reamed to the full bore of the pipe or tube, and all chips shall be removed (CPC 309.3 & 609.1).

Fixtures:

- Water closets shall have an effective flush volume not to exceed 1.28 gallons per flush. Tank-type water closets shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Tank-type toilets. The effective flush volume of dual flush toilets is defined as the composite, average flush volume of two reduced flushes and one full flush. (CGBC 4.303.1.1)
- Single shower heads shall have a maximum flow rate of not more than 2.0 gallons per minute at 80 psi. Shower heads shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Showerheads. (CGBC 4.303.1.3.1).
- When a shower is served by more than one showerhead, the combined flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 2.0 gallons per minute at 80 psi, or the shower shall be designed to allow only one shower outlet to be in operation at a time. A hand-held shower shall be considered a showerhead. (CGBC 4.303.1.3.2)
- Lavatory faucets shall have a maximum flow rate not to exceed 1.2 gallons per minute at 60 psi. The minimum flow rate shall not be less than 0.8 gallons per minute at 20 psi. (CGBC 4.303.1.4.1).
- Kitchen faucets shall have a maximum flow rate not to exceed 1.8 gallons per minute at 60 psi. Kitchen faucets may temporarily increase the flow above the maximum rate, but not to exceed 2.2 gallons per minute at 60 psi, and must default to a maximum flow rate of 1.8 gallons per minute at 60 psi. (CGBC 4.303.1.4.4). Note: Where complying faucets are unavailable, aerators or other means may be used to achieve reduction.
- Where two separate handles control the hot and cold water, the left-hand control of the faucet where facing the fixture fitting outlet shall control the hot water. Single-handle mixing valves shall have the flow of hot water correspond to the markings on the fitting. (CPC 417.5)
- The maximum hot water temperature discharging from the bathtub and whirlpool bathtub filler shall be limited to 120°F by a device that conforms to ASSE 1070 or CSA B125.3. The water heater thermostat shall not be considered a control for meeting this provision. (CPC 409.4)
- Showers and tub-shower combinations shall be provided with individual control valves of the pressure balance, thermostatic, or combination pressure balance/thermostatic mixing valve type that provide scald and thermal shock protection. These valves shall conform to ASSE 1016 or ASME A112.18.1/CSA B125.1. Handle position stops shall be provided on such valves and shall be adjusted per the manufacturer's instructions to deliver a maximum mixed water setting of 120°F. The water heater thermostat shall not be considered a suitable control for meeting this provision. (CPC 408.3)
- Drinking water treatment units shall be installed in accordance with CPC 611.0.

Valves:

- Valves shall be brass or other approved material. Each gate or ball valve shall be a fullway type with working parts of non-corrosive material. Valves shall meet the requirements of NSF 61, Standard for Drinking Water System Components, as referenced in CPC 606.1.
- A fullway valve shall be installed on the discharge side of each water meter to shut-off each building. The valve shall be accessible at all times. (CPC 606.2)
- A fullway valve shall be installed on the cold water supply pipe to each water heater at or near the water heater (CPC 606.2).

- In multi-dwelling units, one or more shutoff valves shall be provided in each dwelling unit so that the water supply to any plumbing fixtures in that dwelling unit can be shut off without stopping water supply to fixtures in other units. These valves shall be accessible in the dwelling unit that they control. (CPC 606.3)
- A control valve shall be installed immediately ahead of each water-supplied appliance and immediately ahead of each slip joint or appliance supply (CPC 606.5). Valves shall be accessible (CPC 606.6).
- A union shall be installed in the water supply piping not more than 12 inches of regulating equipment, water heating, conditioning tanks, and similar equipment that requires service by removal or replacement (CPC 609.5).

General requirements:

- CPVC piping must be installed in accordance with CPC Section 604.1.1 and 605.2 through 605.3.1. Prior to issuance of any plumbing permit to install CPVC a Certificate of Compliance for Installation of CPVC Materials must be filled out and signed as required. This certificate acknowledges the health & safety hazards associated with CPVC installations and the requirements for an injury prevention plan and worker safety training. The certificate also indicates the person signing will comply with the flushing requirements and worker safety measures as set forth Installation Standard for CPVC Solvent Cemented Hot and Cold Water Distribution Systems, IAPMO IS 20-2010.
- PEX and PE-AL-PE piping shall be installed in accordance with manufacturer's installation standards. A copy of the standards shall be onsite for review by the Building Inspector. (CPC 605.9& 605.10)
- PEX and PE-AL-PE tubing shall not be installed within the first 18 inches of piping connected to a water heater (CPC 604.13).
- PEX tubing shall meet or exceed the requirements of ASTM F876-2013 or an equivalent or more stringent standard when used in continuously recirculating hot water systems and the PEX tubing is exposed to the hot water 100% of the time (CPC Table 604.1 FN 3)
- Listed flexible copper water connectors shall be installed in readily accessible locations, unless otherwise listed (CPC 604.5), and where under continues pressure shall be in accordance with ASME A112.18.6/CSA B125.6.6.
- Dielectric unions shall be used at all points of connection where there is a dissimilarity of materials (CPC 605.15).
- Piping in connection with a plumbing system shall be so installed that piping or connections will not be subject to undue strains or stresses, and provisions shall be made for expansion, contraction, and structural settlement. No plumbing piping shall be directly embedded in concrete or masonry. No structural member shall be seriously weakened or impaired by cutting, notching, or otherwise, as defined in the California Building Code. (CPC 312.2)
- Suspended piping shall be supported at intervals not to exceed those shown in CPC Table 313.3 or as required by the manufacturer, whichever is more restrictive. Piping shall be supported in such a manner as to maintain its alignment and prevent sagging. Hangers and anchors shall be of sufficient strength to support the weight of the pipe and its contents. Piping shall be isolated from incompatible materials. Hanger rod sizes shall be no smaller than 3/8 inch for pipe up to 4 inches. (CPC Table 313.6).

- Any structural member weakened or impaired by cutting, notching, or otherwise shall be reinforced, repaired, or replaced so as to be left in a safe structural condition in accordance with the requirements of the Building Code (CPC 312.11).
- Plastic and copper piping penetrating a framing member to within 1 inch of the exposed framing shall be protected by steel nail plates not less than No. 18 gauge in thickness. The steel nail plate shall extend along the framing member not less than 1 ½ inches beyond the outside diameter of the pipe or tubing. (CPC 312.9)
- Penetrations through roof shall be made watertight by the use of lead, copper, galvanized iron, or other approved flashings or flashing material. Exterior wall openings shall be made watertight (CPC 312.8).
- Upon completion of a section or of the entire hot and cold water supply system, it shall be tested and proved tight by connecting to the water supply or, except for plastic piping, using a 50 psi air pressure test. In either method, the piping shall withstand the test without leaking for a period of not less than 15 minutes. (CPC 609.4) Test gauge shall have incrementation of 1 psi or less and shall not exceed 100 psi (CPC 318.3).
- Ratproofing: Where openings have been made in walls, floors, or ceilings for the passage of pipes, such openings shall be closed and protected by the installation of approved metal collars securely fastened to the adjoining structure. Tub waste openings in framed construction to crawl spaces at or below the first floor shall be protected by the installation of approved metal collars or metal screen securely fastened to the adjoining structure with no opening exceeding ½ inch in the least dimension. (CPC 312.12 & 312.12.1 & 312.12.2 & 312.12.3)

Pressure regulator:

- Where the water pressure is in excess of 80 psi, an approved type pressure regulator preceded by an adequate strainer. The regulator and strainer shall be accessible, protected from freezing, and shall have the strainer readily accessible for cleaning without removing the regulator or strainer body or disconnecting the supply piping. An approved expansion tank shall be installed in the cold water distribution piping downstream of each such regulator. (CPC 608.2)

Expansion Tank:

- Any water system provided with a check valve, backflow preventer, pressure regulator or any other normally closed device that prevents dissipation of building pressure back into the water main shall be provided with an approved, listed, and adequately sized expansion tank or other approved device having a similar function to control thermal expansion. Such expansion tank or other approved device shall be installed on the building side of the check valve, backflow preventer, or other device and shall be sized and installed in accordance with the manufacturer's recommendation. (CPC 608.3)

Prevention of water contamination:

- All hose-bibbs shall be protected by a non-removable hose-bibb type backflow preventer, a non-removable hose bibb-type vacuum breaker, or by an atmospheric vacuum breaker installed not less than six (6) inches above the highest point of usage located on the discharge side of the last valve (CPC 603.5.7).
- Potable water supply to swimming pools, spas, and hot tubs shall be protected by an air gap or a reduced pressure principle backflow preventer when: 1) the unit is equipped with a submerged fill line; or 2) the potable water supply is directly connected to the unit circulation system (CPC 603.5.20).
- If it would be possible for any used, unclean, polluted, or contaminated water, mixtures, or substances to enter any portion of the water piping system, such as through landscape irrigation piping, an approved back-flow prevention device must be installed (CPC 602.2).

- The potable water supply shall be protected from irrigation systems without pumps or chemical injection systems with an atmospheric vacuum breaker or other device as permitted in CPC 603.5.6. If an atmospheric vacuum breaker is installed, it must be installed a minimum of 6" above the highest sprinkler head or in accordance with it's listing (CPC Table 603.2). Systems with pumps or injection systems require a Reduced-pressure principle (RP) backflow device (CPC 603.5.6.1).

Grounding and bonding:

- Metal water (hot and cold) and gas piping systems installed in or attached to a building or structure shall be bonded to the service equipment enclosure, the grounded conductor at the service, the grounding electrode conductor where of sufficient size, or to the one or more grounding electrodes used in accordance with CEC Section 250.104.
- Grounding and bonding of the electrical service is required to be in accordance with the 2016 California Electrical Code when the water piping is replaced. If the existing metal underground water pipe is the only grounding electrode or if the metal underground water pipe is being replaced with plastic, an additional grounding electrode must be installed as permitted in CEC 250.52. **The metal underground water service pipe shall not be used as the sole grounding system; it must be supplemented with an additional electrode (CEC 250.53(D)(2)).** Grounding of the metal underground water pipe must occur outside or within the first 5 feet of the piping entering the building.
- All grounding electrodes that are present at each building served shall be bonded together (CEC 250.50).

3. ENERGY REQUIREMENTS:

CEnC Section 150.0(j)2 Water System Piping and Insulation.

- A. All domestic hot water system piping conditions listed below, whether buried or unburied, must be insulated and the insulation thickness shall be selected based on the conductivity range in TABLE 120.3-A and the insulation level shall be selected from the fluid temperature range based on the thickness requirements in TABLE 120.3-A:
- The first 5 feet of hot and cold water pipes from the storage tank.
 - All piping with a nominal diameter of 3/4 inch or larger.
 - All piping associated with a domestic hot water recirculation system regardless of the pipe diameter.
 - Piping from the heating source to storage tank or between tanks.
 - Piping buried below grade..
 - All hot water pipes from the heating source to the kitchen fixtures.

TABLE 120.3-A PIPE INSULATION THICKNESS							
FLUID TEMPERATURE RANGE (°F)	CONDUCTIVITY RANGE (in Btu-inch per hour per square foot per °F)	INSULATION MEAN RATING TEMPERATURE (°F)	NOMINAL PIPE DIAMETER (in inches)				
			<1	1 to <1.5	1.5 to <4	4 to <8	8 and larger
			INSULATION THICKNESS REQUIRED (in inches)				
Above 350	0.32-0.34	250	4.5	5.0	5.0	5.0	5.0
251-350	0.29-0.32	200	3.0	4.0	4.5	4.5	4.5
201-250	0.27-0.30	150	2.5	2.5	2.5	3.0	3.0
141-200	0.25-0.29	125	1.5	1.5	2.0	2.0	2.0
105-140	0.22-0.28	100	1.0	1.5	1.5	1.5	1.5

- B. In addition to insulation requirements, all domestic hot water pipes that are buried below grade must be installed in a water proof and non-crushable casing or sleeve that allows for installation, removal, and replacement of the enclosed pipe and insulation.

EXCEPTION 2 to Section 150.0(j)2: Cold domestic water piping.

EXCEPTION 3 to Section 150.0(j)2: Piping that penetrates framing members shall not be required to have pipe insulation for the distance of the framing penetration. Metal piping that penetrates metal framing shall use grommets, plugs, wrapping or other insulating material to assure that no contact is made with the metal framing. Insulation shall butt securely against all framing members.

EXCEPTION 4 to Section 150.0(j)2: Piping installed in interior or exterior walls shall not be required to have pipe insulation if all of the requirements are met for compliance with Quality Insulation Installation (QII) as specified in the Reference Residential Appendix RA3.5.

EXCEPTION 5 to Section 150.0(j)2: Piping installed in attics with a minimum of 4 inches of attic insulation on top of the piping shall not be required to have pipe insulation.

3. **Insulation Protection.** Insulation outside conditioned space shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind. Protection includes but is not limited to the following:
- A. Insulation exposed to weather shall either be rated for outdoor use or installed with a cover suitable for outdoor service; e.g., protected by aluminum, sheet metal, painted canvas, or plastic cover. Cellular foam insulation shall be protected as above or painted with a coating that is water retardant and provides shielding from solar radiation that can cause degradation of the material.

- CEnC Section 150.2(b)1(G).** Existing inaccessible piping shall not require insulation as defined under 150.0(j)2A.iii.

4. SMOKE ALARMS, CARBON MONOXIDE ALARMS & SPARK ARRESTERS:

- In single family and multi-family residences (including townhomes, condominiums and apartments), installation of smoke alarms, carbon monoxide alarms and spark arresters is required prior to the final inspection as follows: (CRC R314 & R315 and CBC 907.2.11)

Smoke Alarms listed in accordance with UL 217, listed and approved by the California State Fire Marshal and tested & maintained in accordance with the manufacturer's instructions shall be installed in existing or new dwellings as follows: **in each sleeping room, outside each separate sleeping area in the immediate vicinity of the bedrooms and on each story of the dwelling.** In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level. Alarms that no longer function shall be replaced. New smoke alarms that are solely battery powered must have a non-replaceable and non-removable battery capable of powering the smoke alarm for at least 10 years. Fire alarm systems shall be permitted in lieu of smoke alarms if they comply with the provisions of NFPA 72. The installation of smoke alarms and smoke detectors shall also comply with the following requirements:

1. Smoke alarms shall not be located where ambient conditions, including humidity and temperature, are outside the limits specified by the manufacturer's published instructions.
2. Smoke alarms shall not be located within unfinished attics or garages or in other spaces where temperatures can fall below 40°F or exceed 100°F.

3. Where the mounting surface could become considerably warmer or cooler than the room, such as a poorly insulated ceiling below an unfinished attic or an exterior wall, alarms shall be mounted on an inside wall.
4. Smoke alarms shall be installed a minimum of 20 feet horizontal distance from a permanently installed cooking appliance, except Ionization smoke alarms with an alarm-silencing switch or Photoelectric smoke alarms shall be permitted to be installed 10 feet or greater from a permanently installed cooking appliance and Photoelectric smoke alarms shall be permitted to be installed greater than 6 feet from a permanently installed cooking appliance where the kitchen or cooking area and adjacent spaces have no clear interior partitions and the 10 foot distances would prohibit the placement of a required smoke alarm or smoke detector. Smoke alarms listed for use in close proximity to a permanently installed cooking appliance can be installed in accordance with their listing.
5. Smoke alarms shall be installed not less than a 3 foot horizontal distance from the door or opening of a bathroom that contains a bathtub or shower unless this would prevent placement of a smoke alarm required by the code.
6. Smoke alarms shall not be installed within a 36 inch horizontal path from the supply registers of a forced air heating or cooling system and shall be installed outside of the direct airflow from those registers.
7. Smoke alarms shall not be installed within a 36 inch horizontal path from the tip of the blade of a ceiling-suspended (paddle) fan.
8. Where stairs lead to other occupied levels, alarm shall be located so that smoke rising in the stairway cannot be prevented from reaching the alarm by an intervening door or obstruction.
9. For stairways leading up from a basement, alarms shall be located on the basement ceiling near the entry to the stairs.
10. For tray-shaped ceilings (coffered ceilings), alarms shall be installed on the highest portion of the ceiling or on the sloped portion of the ceiling within 12 inch vertically down from the highest point.
11. Smoke alarms installed in rooms with joists or beams shall comply with the requirements of NFPA 72.
12. Heat alarms and detectors installed in rooms with joists or beams shall comply with NFPA 72.

Carbon Monoxide Alarms listed in accordance with UL 2034, or combination carbon and smoke alarm listed in accordance with UL2034 and UL217, listed and approved by the California State Fire Marshal and installed and maintained in accordance with the manufacturer's instructions shall be installed in existing or new dwellings having a fuel-fired appliance, fireplace or an attached garage with an opening communicating with the dwelling as follows: **outside each separate sleeping area in the immediate vicinity of bedroom(s) and on every occupiable level of a dwelling unit.** If there is a fuel-burning appliance located with a bedroom or its attached bathroom, an alarm shall be located within the bedroom.

Power supply: Smoke and carbon monoxide alarms shall receive their primary power from the building wiring and shall be equipped with a battery back-up. Wiring shall be permanent and without a disconnecting switch other than as required for overcurrent protection. Smoke and carbon monoxide alarms are permitted to be solely battery operated (carbon monoxide alarms can also be plug-in with battery back-up) in existing buildings where no construction is taking place; in existing areas of buildings undergoing alterations or repairs that do not result in the removal of interior walls or ceiling finishes exposing the structure unless there is an attic or crawl space available which could provide access for building wiring without the removal of interior finishes; where repairs or alterations are limited to the exterior surfaces of dwellings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of a porch or deck; or when work is limited to the installation, alteration or repairs of plumbing or mechanical systems or the installation, alteration or repair of electrical systems which do not result in the removal of interior wall or ceiling finishes exposing the structure.

Interconnection: Where more than one smoke or carbon monoxide alarm is required to be installed within an individual dwelling or sleeping unit, the alarms shall be interconnected in such a manner that the activation of one alarm will activate all of the alarms in the individual unit, except interconnection is not required in buildings that are not undergoing alterations, repairs or construction of any kind; where alterations or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure unless there is an attic or crawl space available which could provide access for interconnection without the removal of interior finishes; where repairs or alterations are limited to the exterior surfaces of dwellings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of a porch or deck; or when work is limited to the installation, alteration or repairs of plumbing, mechanical or electrical systems which do not result in the removal of interior wall or ceiling finishes exposing the structure.

Spark arresters: When a permit has been issued and the value of the work exceeds \$1,000, a spark arrester must be installed on all fireplace chimneys if one does not already exist, per MMC Section II-3-2.06. Spark arresters shall be constructed in conformance with CRC Section 1003.9.2.

5. WATER CONSERVING FIXTURES:

- When required, all non-compliant plumbing fixtures must be replaced. Refer to the attached "Water Conserving Certificate of Compliance" handout for details on when this is required.

6. INSPECTION PROCEDURES

- Two inspections are required, a rough and a final. The rough inspection should be scheduled when the new water line is installed and before it is covered up. A final inspection should be scheduled after all work is complete. For each inspection, the Permit Card and the Approved Job Copy of the Drawings (if any) must be presented to the inspector. Permits expire 180 days after issuance or last inspection passed, whichever is the latest.

7. QUESTIONS:

- If you have any questions regarding your project contact the Building & Safety Department at (408) 586-3240.

**TABLE 313.3
HANGERS AND SUPPORTS**

MATERIALS	TYPES OF JOINTS	HORIZONTAL	VERTICAL
Cast	Lead and Oakum	5 feet, except 10 feet where 10 foot lengths are installed ^{1, 2, 3}	Base and each floor, not to exceed 15 feet
	Compression Gasket	Every other joint, unless over 4 feet then support each joint ^{1, 2, 3}	Base and each floor, not to exceed 15 feet
Cast-Iron Hubless	Shielded Coupling	Every other joint, unless over 4 feet then support each joint ^{1, 2, 3, 4}	Base and each floor, not to exceed 15 feet
Copper & Copper Alloys	Soldered, Brazed, Threaded, or Mechanical	1½ inches and smaller, 6 feet; 2 inches and larger, 10 feet	Each floor, not to exceed 10 feet ⁵
Steel Pipe for Water or DWV	Threaded or Welded	¾ inch and smaller, 10 feet; 1 inch and larger, 12 feet	Every other floor, not to exceed 25 feet ⁵
Steel Pipe for Gas	Threaded or Welded	½ inch, 6 feet; ¾ inch and 1 inch, 8 feet; 1¼ inches and larger, 10 feet	½ inch, 6 feet; ¾ inch and 1 inch, 8 feet; 1¼ inches every floor level
Schedule 40 PVC and ABS DWV	Solvent Cemented	All sizes, 4 feet; allow for expansion every 30 feet ³	Base and each floor; provide mid-story guides; provide for expansion every 30 feet
CPVC	Solvent Cemented	1 inch and smaller, 3 feet; 1¼ inches and larger, 4 feet	Base and each floor; provide mid-story guides
Lead	Wiped or Burned	Continuous Support	Not to exceed 4 feet
Steel	Mechanical	In accordance with standards acceptable to the Authority Having Jurisdiction	
PEX	Cold Expansion, Insert and Compression	1 inch and smaller, 32 inches; 1¼ inches and larger, 4 feet	Base and each floor; provide mid-story guides
PEX-AL-PEX	Metal Insert and Metal Compression	½ inch } ¾ inch } All sizes 98 inches 1 inch }	Base and each floor; provide mid-story guides
PE-AL-PE	Metal Insert and Metal Compression	½ inch } ¾ inch } All sizes 98 inches 1 inch }	Base and each floor; provide mid-story guides
PE-RT	Insert and Compression	1 inch and smaller, 32 inches; 1¼ inches and larger, 4 feet	Base and each floor; provide mid-story guides
Polypropylene (PP)	Fusion weld (socket, butt, saddle, electrofusion), threaded (metal threads only), or mechanical	1 inch and smaller, 32 inches; 1¼ inches and larger, 4 feet	Base and each floor; provide mid-story guides

For SI units: 1 inch = 25.4 mm, 1 foot = 304.8 mm

Notes:

- ¹ Support adjacent to joint, not to exceed 18 inches (457 mm).
- ² Brace not to exceed 40 foot (12 192 mm) intervals to prevent horizontal movement.
- ³ Support at each horizontal branch connection.
- ⁴ Hangers shall not be placed on the coupling.
- ⁵ Vertical water lines shall be permitted to be supported in accordance with recognized engineering principles with regard to expansion and contraction, where first approved by the Authority Having Jurisdiction.



EPA Renovation, Repair and Painting Rule

Does the RRP Rule apply to you?

The rule applies to all jobs in pre-1978 housing (i.e. "Target Housing") and child occupied facilities where more than 6 square feet per room or 20 square feet outside will be "disturbed" by worker(s) being compensated for the job. This includes landlords.

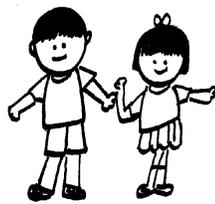
Where does the RRP Rule Apply?

The rule applies in Target Housing and Child-Occupied Facilities*



Target Housing - A house or apartment (including mobile homes) built before January 1, 1978 except for:

- 1) 0-bedroom units (like dorm rooms or studio apartments)
- 2) housing that is officially designated for the elderly or the handicapped
- 3) housing that has been tested by a State Certified Lead Inspector and found to be free of lead based paint.



Child Occupied Facility - A building, or portion of a building, constructed prior to 1978, visited by the same child, 6 years of age or under, on at least 2 different days within any week, provided that each day's visit lasts at least 3 hours, the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Such facilities may include, but are not limited to, day-care centers, preschools and kindergarten classrooms.

What does the RRP Rule Require? *California Law requires lead-safe work practices for all pre-1978 buildings.

1. **Pamphlet Distribution**—Contractors must give clients a pamphlet called "Renovate Right" and get a signed receipt before beginning a job.
2. **Individual Certification**—At least one RRP Certified Renovator is required at each job site. Certification involves taking a 1-day class from an EPA Accredited Training Provider.
3. **Firm Certification**—In addition to individual certification, each firm, agency or non-profit must also become RRP certified.
4. **On-the-Job-Training**—RRP Certified Renovators are required to train all non-certified people at the job site. Note: Contractors who work on buildings receiving Federal assistance, including Section 8, must have everyone trained in the classroom, or have a state-certified lead in construction supervisor present.
5. **Paint Testing**—The rule requires contractors to either test paint they will disturb BEFORE beginning a job, or assume that it is lead-based. In California contractors may not test paint. Instead, current law requires that they must assume that all surfaces in all structures built before 1978 contain lead based paint. The only people who can test for lead-based paint in California are State Certified Lead Inspectors/Risk Assessors.
6. **Use Lead Safe Work Practices**—The RRP Rule requires that "Lead Safe Work Practices" be used when disturbing more than six (6) square feet per room inside or more than twenty (20) square feet of painted surfaces outside.
7. **Cleaning Verification**—At the end of each job, contractors are required to do a "cleaning verification" to make sure they cleaned up properly.

FOR ADDITIONAL INFORMATION, VISIT
The Environmental Protection Agency www.epa.gov/getleadsafe
Get the Lead Out Coalition www.getleadout.org



CITY OF MILPITAS

455 East Calaveras Boulevard, Milpitas, California 95035-5479 – www.ci.milpitas.ca.gov

Building & Safety Department
(408) 586-3240

Certificate of Compliance For Installation of CPVC Plumbing Materials (Pursuant to California Plumbing Code Section 604.1.1)

To: Chief Building Official:

I am the Owner-Builder or a Plumbing Contractor licensed by the State of California and seek a permit for residential construction that involves the installation of CPVC plumbing materials as provided for under California Plumbing Code (CPC) Section 604.1.1. In accordance with CPC Sections 604.1.1(d), I hereby Certify that:

I, as an Owner-Builder, my employees and any workers, or

As a Licensed Contractor, my employees, and any subcontractors, that:

- I/We are aware of the health and safety hazards associated with CPVC plumbing installations, and the solvents used for such installations. Our Illness and Injury Prevention Plan and its worker safety training elements include the hazards associated with CPVC plumbing pipe installations, and our Illness and Injury Prevention Plan meets the Department of Industrial Relation’s guidelines; and
- I/We will comply with the flushing procedures, worker safety measures (for gloving and ventilation) and the manufacturer’s installation instructions per CPC 604.1.1h.

I also certify that:

- Only CPVC piping material listed as an approved material and installed in accordance with the California Plumbing Code will be used.
- CPVC pipe and solvent manufacturer’s Installation Instructions will be posted at the jobsite during installation and will be available for inspection.
- I/We will maintain the required grounding and bonding required by the 2016 California Electrical Code Sections 250.52, 250.104 (A) and (B) and 250.130.

Job Name: _____ Permit #: _____

Job Street Address: _____ Suite/Unit# _____

Printed Name: _____ Title: _____

Company: _____ License #: _____

Address: _____

Signature: _____ Date: _____



WATER CONSERVING CERTIFICATE OF COMPLIANCE

Project Address: _____ Permit Number: _____

If the Building Inspector cannot physically inspect all plumbing fixtures in the building or cannot verify compliance due to lack of product markings or data, this Certificate of Compliance may be signed by the property owner(s) and given to the Building Inspector. The Building Inspector must inspect and verify all plumbing fixtures or receive this Certificate prior to final inspection.

California Civil Code Section 1101 requires the following. **Note this law applies only to properties built and available for use or occupancy on or before January 1, 1994.**

On or before January 1, 2017, for any **one and two family** residential building, all non-compliant plumbing fixtures shall be replaced with water-conserving plumbing fixtures (regardless of whether property undergoes alterations or improvement).

As of January 1, 2014, for any **multi-family** (more than two units) residential building and any **commercial** building, all non-compliant plumbing fixtures shall be replaced with water-conserving plumbing fixtures in the following circumstances:

1. Additions, if the sum of concurrent building permits by the same permit applicant would increase the floor area of the building by more than 10%, all non-compliant fixtures must be upgraded throughout the building. This includes all common area plumbing fixtures as well as fixtures in private individual units or tenant unit owned by the same owner.
2. Alterations or improvements, if total construction cost in the building permit exceeds \$150,000, all non-compliant fixtures that service the specific area of the alteration or improvement will be required to be upgraded.
3. Any alteration to a room that contains non-compliant plumbing fixtures will require all fixtures in that room to be upgraded.

On or before January 1, 2019, for any **multi-family** (more than two units) residential building and any **commercial** building, all non-compliant plumbing fixtures shall be replaced with water-conserving plumbing fixtures (regardless of whether property undergoes alterations or improvement).

The requirements of this law shall not apply to any of the following:

1. The requirements of this law shall be postponed one year from the date of issuance of a demolition permit for the building. If the building is not demolished after one year, the provision of this law shall apply even though the demolition permit is still in effect or a new demolition permit has been issued.
2. Registered historical sites.
3. Real property for which a licensed plumber certifies in writing that, due to the age or configuration of the property or its plumbing, installation of water-conserving plumbing fixtures is not technically feasible.
4. A building for which water service is permanently disconnected.
5. The property was built and available for use or occupancy after January 1, 1994.

I/We, the owner(s) of this property, certify under penalty of perjury:

- All existing plumbing fixtures meet the minimum requirements of water-conserving as noted below.
- All non-compliant plumbing fixtures have been replaced with water-conserving plumbing fixtures in accordance with Civil Code Sections 1101.1 through 1101.8, the current California Plumbing Code and California Green Building Standards Code, and manufacturer's installation requirements, and that the water-conserving plumbing fixtures comply with the requirements as noted below.
- I/We are exempt for reason #____ listed above. If for reason #3, attached is a letter from a licensed plumber.

Signature of Property Owner(s)

Print Name(s)

Date: _____

The following non-compliant fixtures shall be replaced with water-conserving fixtures as noted: (CGBC 4.303 & 5.303)

- Existing water closets that exceed 1.6 gallons per flush shall be replaced with one that has an effective flush volume not to exceed **1.28 gallons per flush**. Tank-type water closets shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Tank-type toilets. The effective flush volume of dual flush toilets is defined as the composite, average flush volume of two reduced flushes and one full flush.
- Existing urinals that exceed 1.0 gallons per flush shall be replaced with one that uses not more than an average of **0.125 gallons per flush** (0.47 L) for wall mounted and **0.5 gallons** (1.89 L) for other types of urinals.
- Existing single shower heads that exceed 2.5 gallons per minute shall be replaced with one that has a maximum flow rate of not more than **2.0 gallons per minute** at 80 psi. Shower heads shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Showerheads.
- When a shower is served by more than one showerhead, the combined flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed **2.0 gallons per minute** at 80 psi, or the shower shall be designed to allow only one shower outlet to be in operation at a time. A hand-held shower shall be considered a showerhead.
- Existing residential lavatory faucets that exceed 2.2 gallons per minute shall be replaced with one that has a maximum flow rate not to exceed **1.2 gallons** (4.54 L) per minute at 60 psi. The minimum flow rate shall not be less than 0.8 gallons (3.03 L) per minute at 20 psi.
- Existing lavatory faucets in residential common and public use areas (outside of dwellings or sleeping units) and in commercial areas that exceed 2.2 gallons per minute shall be replaced with one that has a maximum flow rate not to exceed **0.5 gallons per minute** at 60 psi.
 - Metering faucets shall have a maximum flow rate of **0.20 gallons per cycle commercial** or **0.25 residential**.
- Existing kitchen faucets that exceed 2.2 gallons per minute shall be replaced with one that has a maximum flow rate not to exceed **1.8 gallons per minute** at 60 psi. Residential kitchen faucets may temporarily increase the flow above the maximum rate, but not to exceed 2.2 gallons per minute at 60 psi, and must default to a maximum flow rate of 1.8 gallons per minute at 60 psi.
 - Note: Where complying faucets are unavailable, aerators or other means may be used to achieve reduction.