CITY OF MILPITAS
Building & Safety Department
455 E. Calaveras Blvd.
Milpitas, CA 95035
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WATER SERVICE LINE COMMERCIAL

1. PERMIT INFORMATION:

- ❑ This permit is for the replacement of the existing water service between the meter and the building that does NOT serve a fire suppression system. Replacement of piping serving fire suppression systems requires a C16 Licensed Contractor and a permit from the Fire Department obtained in person at City Hall, 455 E. Calaveras Blvd.
- ❑ This permit does not include adding a new water service if a new City water meter is being installed.
- ❑ A Permit may be issued only to a State of California Licensed Contractor or the Building Owner.
- ❑ If the work is performed by the Building Owner 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 Building Owner hires workers, State Law requires the Owner to obtain Worker's Compensation Insurance. Proof of this insurance is required prior to inspection.

2. INSTALLATION REQUIREMENTS

- ❑ All work must comply with the 2013 California Building Code (CBC), 2013 California Plumbing Code (CPC), 2013 California Electrical Code (CEC) and 2014 Milpitas Municipal Code (MMC).
- ❑ 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.
  - The building supply pipe shall not be less than ¾ inch in diameter (CPC 610.8).
- ❑ Materials:
  - Pipe may be brass, copper, CPVC, ductile-iron, galvanized steel, malleable iron, PE, PE-AL-PE (polyethylene-aluminum-polyethylene), PEX (cross-linked polyethylene), PVC 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 301.1).
  - 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 301.1.1)
  - Pipe, tube, and fittings carrying water used in potable water systems intended to supply drinking water shall meet the requirements of NSF 61, Standard for Drinking Water System Components, as found in CPC Table 14-1. 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 604.2).

- 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 14-1. The colors shall be: Type K, green; Type L, blue; Type M, red. (CPC 604.3)

- Fittings used with PEX and PE-AL-PE tubing shall be manufactured to and marked in accordance with the standards for the fittings referenced in Table 604.1 (CPC 605.10.1 and 605.8).

- When PEX tubing is placed in soil, the tubing or piping shall be sleeved with a material approved for potable water use in soil or other material that is impermeable to solvents or petroleum products (CPC Table 604.1(2)

- 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 605.3.4 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).

❑ 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 Table 1401.1. (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)

- In multidwelling 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 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:

- Plastic pipe used for water service piping outside underground shall have a blue insulated copper tracer wire installed adjacent to the piping. Access shall be provided to the tracer wire or the tracer wire shall terminate above ground at each end of the nonmetallic piping. The tracer wire size shall be not less than 18 AWG and the insulation type shall be suitable for direct burial. (CPC 604.9 exc)

- Water pipes shall not be run or laid in the same trench as building sewer or drainage piping constructed of clay or materials that are not approved for use within a building unless both of the following conditions are met: 1) the bottom of the water pipe, at all points, shall be not less than 12 inches above the top of the sewer or drain line; 2) The water pipe shall be placed on a solid shelf excavated at one side of the common trench with a clear horizontal distance of not less than 12 inches from the sewer or drain line. Water pipes crossing sewer or drainage piping constructed of clay or materials that are not approved for use within a building shall be laid not less than 12 inches above the sewer or drain pipe. (CPC 609.2)

- Water service yard piping shall be not less than 12 inches below finish grade (CPC 609.1).

- Piping in the ground shall be laid on a firm bed for its entire length (CPC 313.3).

- CPVC piping must be installed in accordance with CPC Section 604.1.1. 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 in Section 1.2 of Appendix I of the California Plumbing Code, Installation Standard for CPVC Solvent Cemented Hot and Cold Water Distribution Systems, IAPMO IS 20-2006.

- 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.

- Dielectric unions shall be used at all points of connection where there is a dissimilarity of materials (CPC 605.16).

- 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. (CPC 312.2)

- Exterior wall openings shall be made water-tight (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 318.0).

❑ Trenching and backfill:

- Excavations shall be completely backfilled as soon after inspection and approval as practicable. Adequate precaution shall be taken to ensure proper compactness of backfill around piping without damage to such piping. Trenches shall be backfilled in thin layers to 12 inches above the top of the piping with clean earth, which shall not contain stones, boulders, cinder fill, frozen earth, construction debris, or other materials that would damage or break the piping or cause corrosive action. Mechanical devices such as bulldozers, graders, etc. shall be permitted to then be used to complete backfill to grade. Fill shall be properly compacted. Suitable precautions shall be taken to ensure permanent stability for pipe laid in filled or made ground. (CPC 314.4)

- Trenches deeper than the footing of any building or structure and paralleling the same shall be not less than 45 degrees there from. (CPC 314.1).

- When pipes are driven, the drive pipe shall be not less than one size larger than the pipe to be laid (CPC 314.2).

❑ 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-bibs shall be protected by a non-removable hose-bib type backflow preventer, a non-removable hose bib-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). The protection must be installed if there is a hose-bib fed directly from the new service pipe.

  - 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 603.5.21).

  - 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. The device must be installed between the potable water supply and the irrigation system (CPC 603.5.6). If an atmospheric vacuum breaker device 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).

❑ Grounding and bonding:

- Grounding and bonding of the electrical service is required to be in accordance with the 2013 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 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).

- 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.

3. 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.

4. QUESTIONS:

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