

CITY OF MILPITAS

Office of Building Safety
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Milpitas, CA 95035
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www.milpitas.gov



WATER HEATER (COMMERCIAL)

1. PERMIT INFORMATION:

- A new installation, or relocation or replacement of an existing water heater requires a plumbing permit.
- If the water heater is new or a relocation, permits must be obtained in person at the Permit Center.
- This handout only covers the new installation, relocation, or replacement of water heaters in a commercial location.
- A Building Permit may be issued only to the Building Owner or their Authorized Agent [CBC 105.1].
 - See also [Authorized Agent Sample Letter](#).
 - Where the Contractor is acting as the Owner's Authorized Agent, they must be a State of California Licensed Contractor with the proper license classification.
- 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 Building Owner to obtain Worker's Compensation Insurance. Proof of this insurance is required prior to inspection.

2. INSTALLATION REQUIREMENTS

- All work shall comply with the manufacturer's installation instructions, California Plumbing Code (CPC), California Energy Code (CEnC), Milpitas Municipal Code (MMC), and other adopted codes as applicable.
- All pipe, pipe fittings, traps, fixtures, material, and devices used in a plumbing system shall be listed or labeled by an approved listing agency. [CPC 301.2]
- Listed water heaters shall be installed in accordance with their listings and the manufacturer's instructions.
- Water Heaters shall be installed per CPC Chapter 5 – *Water Heaters*.
 - Water heaters shall be anchored or strapped to resist horizontal displacement due to earthquake motion [CPC 507.2]. Straps shall be installed per strap manufacturer installation instructions. Larger water heaters may require additional straps per manufacturer based upon capacity.
 - Combustion air shall be provided per manufacturer's installation instructions or, when required, per CPC 506.0 – *Air for Combustion and Ventilation*, except for direct-vent type appliances.
 - Water heater appliances shall be structurally supported. [CPC 507.3]
 - Water heaters supported from the ground shall rest on level concrete or other approved base extending not less than three (3) inches above the adjoining ground level. [CPC 507.4]
 - Venting of water heater appliance shall be per manufacturer's installation instructions or, when required, per CPC 509 – *Venting of Appliances*.

- A 1 ½" deep watertight drainage pan may be required beneath the water heater. The pan must have not less than a ¾" diameter drain to an approved location. [CPC 507.5]
- Water Pressure Regulator – Where the water pressure is in excess of 80 psi, provide an approved-type water pressure regulator preceded by an adequate strainer after the building system shut off valve to reduce the static pressure to 80 psi. 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. [CPC 608.2]
- When a water pressure regulator is required or the water system is provided with a non-bypass type of water meter, check valve, backflow preventer, or other normally closed device that prevents water system pressure dissipation back into the water main, an approved, adequately sized expansion tank shall be installed near the water heater per manufacturer's installation instructions to control thermal expansion. [CPC 608.2, 608.3]
- A combination Temperature & Pressure relief valve or approved device shall be installed on water heaters per CPC Chapters 5 and 6.
- Some water heaters will require an electrical connection. An electrical permit will be required for new circuits or electrical outlets.
- Bonding and Grounding - Water heaters shall comply with CPC 1211.0 – *Electrical Bonding and Grounding* and California Electrical Code 250.104(B), as applicable.
- A gas type water heater shall be provided with a gas pipe sediment trap per CPC 1212.9 – *Sediment Trap* or the manufacturer's installation instructions, as applicable.
- Gas connection from building piping to appliance shall comply with a method as outlined per CPC 1212.0 – *Appliance and Equipment Connections to Building Piping*. Listed flexible gas connectors in compliance with CSA Z21.24, may be used if sized for the btu's and installed in accordance with their listing. Flexible gas connectors must be located completely in the same room as the appliance and not pass through a wall or partition (including appliance housing).
- Domestic hot water piping shall be insulated [CPC 609.12.1]. Insulation shall have a minimum thickness equal to the diameter of the pipe but need not be thicker than 2 inches [CPC 609.12.2]. Comply with clearance requirements for combustible insulation from a draft hood or single wall vent/vent connector.
- Water heaters located in commercial garages shall comply with NFPA 88A for enclosed, basement, or underground parking structures and NFPA 30A for repair garages. [CPC 507.14]
- Installer shall leave the manufacturer's installation, operating, and maintenance instructions in a location on the premises where they are readily available for reference and guidance to the inspector, service personnel, and the owner or operator. [CPC 507.24]
- Water heaters installed outdoors shall be listed for outdoor installation or be provided with protection to the degree the environment requires. [CPC 507.25]
- Water heaters installed on roofs, in attics, or under floors shall comply with CPC 508.0, as applicable.

- Tankless water heaters shall be installed in accordance with its listing and the manufacturer's installation instructions. If replacing an existing gas storage tank type water heater with a gas fueled tankless, existing or new gas piping will have to be sized to meet or exceed the appliance required minimum input btu's from the tankless water heater gas piping supply outlet to the gas meter. Piping shall be sized and installed in accordance with CPC Chapter 12 or the gas piping manufacturer's sizing and installation instructions.
- 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 (after PG&E service tee), but upstream of any appliances, when altering or adding to the existing gas system per MMC Chapter 170. These devices shall be sized and installed per the manufacturer's installation instructions.



“California Valve”

3. ENERGY REQUIREMENTS:

- Water heater installations shall comply with all applicable mandatory measures of the California Energy Code.
- Water heater shall be certified by the California Energy Commission. For a listing of approved appliances, go to <http://www.appliances.energy.ca.gov/>.
- Service water heating systems and equipment may be installed only if the manufacturer has certified that the system or equipment complies with all the requirements of the California Energy Code. For a listing of approved appliances, go to <http://www.energy.ca.gov/appliances>.
- Circulating service water-heating systems shall have a control capable of automatically turning off the circulating pump when hot water is not required/in demand. [CEnC 110.3(c)2]

4. INSPECTION PROCEDURES:

- A rough plumbing/mechanical/electrical inspection is required for any item that is to be covered above ceilings or in walls such as piping and venting, or an electrical circuit installation.
- A wall or ceiling drywall or other finish system is required (as applicable) when reinstalling or repairing to cover new work.
- If all items are exposed for inspection, then only a final inspection is required, see below.
- A final inspection is required after the water heater has been installed and all work completed. The permit card and the approved job copy of the plans (if any) shall be presented to the inspector.

5. QUESTIONS:

If you have any questions regarding your project, please contact the Office of Building Safety at (408) 586-3240.