



# Tankless (Instantaneous) Water Heaters for Residential Applications

**CITY OF NEWARK, CALIFORNIA**

**BUILDING INSPECTION DIVISION**

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## **GENERAL**

This brochure covers the code requirements for the installation and/or replacement of tankless water heaters for residential applications. Tankless water heaters are also referred to as “instantaneous” water heaters. For information regarding storage-type water heaters, please refer to another City brochure titled “Water Heater Replacement (Residential Storage Type).”

## **CODE COMPLIANT**

The California Energy Code requires that all water heaters, including instantaneous tankless water heaters, meet minimum efficiency standards. Not all instantaneous tankless water heaters meet those minimum standards.

Existing gas-fired storage tank water heaters can be replaced by a gas fired instantaneous tankless water heater provided the Energy Factor of the tankless water heater is 0.80 or higher. Existing electrical storage water heaters can be replaced by either a gas fired instantaneous tankless water heater with a 0.80 or higher energy factor or an electric instantaneous tankless water heater with a 0.93 or higher energy factor.

For new or remodeled dwelling units which will have only one water heater, a gas-fired instantaneous tankless water heater may be installed without providing energy documentation provided the energy factor of the tankless water heater is 0.80 or higher. For new or remodeled dwelling units which will have two water heaters, energy documentation is required for the installation of either gas or electric instantaneous tankless water heaters.

## **PERMITS**

A permit is required for the installation or replacement of a residential instantaneous tankless water heater and can be obtained at the Building Inspection Division, City Administration Building, 37101 Newark Boulevard. Contractors, who participate in the City’s “Permits by Fax” program, can obtain a permit by using faxed requests. Call 510-578-4261 for information. The permit fee for the replacement of a storage water heater with an instantaneous tankless water heater is \$89.

## **PLAN REVIEW**

Because instantaneous tankless gas-fired water heaters require larger gas supply piping than standard storage tank water heaters, new gas piping will typically be required. As such, a gas piping diagram shall be submitted for review prior to the issuance of a plumbing permit. The piping diagram needs to include the make, model, and BTUH rating of the proposed tankless water heater. For information and instructions on sizing gas pipe, please refer to City brochure titled “Fuel Gas Pipe Sizing and Installation.”

## **INSPECTIONS**

A single inspection is needed and occurs after the water heater has been installed and all associated work is complete. If new gas piping is installed such piping shall be isolated from the gas meter, a 15 pound pressure gauge installed (gauge must read in 1/10 lb. increments) at one end of the pipe, and the pipe pressurized with ten pounds of air (10 psi). The typical features the inspector will look for are:

- Mounting of the unit
- Flue venting
- Temperature and pressure relief valves and piping
- Combustion air intakes
- Gas piping
- Electrical bonding between hot water, cold water, and gas piping
- Electrical supply connections

## **TEMPERATURE AND PRESSURE RELIEF VALVES**

Tankless water heaters shall be equipped with a temperature and pressure relief valve connected to a drain line which extends to the exterior of the building and discharges between 6 and 24 inches above grade. Drain lines shall be copper or galvanized iron and shall be installed so that all water will drain completely out of the pipe. Plastic pipe is prohibited.

## **COMBUSTION AIR**

Gas-fired tankless water heaters shall be supplied with combustion air. Water heaters located in closets shall have two 6"x14" vents that open to the outside air. One vent shall be located within 12 inches of the bottom of the closet and the other within 12 inches of the ceiling. For direct vent units, combustion air shall be provided in accordance with the manufacturer's printed instructions. Those instructions must be at the job site and available to the inspector during the inspection.

## **GAS SUPPLY**

Gas-fired tankless water heaters that are large enough to serve a small dwelling will have a heating capacity in excess of 170,000 BTUH. This capacity is around four times the capacity of a standard gas-fired storage water heater. For replacement projects, gas piping systems that served a standard storage water heater will be grossly undersized for a new tankless water heater. To make sure an existing gas piping system can adequately serve all existing gas appliances in a dwelling plus the new tankless water heater, a schematic piping plan showing all gas appliances, the BTUH rating of each appliance, the sizes of all piping, and the length of all piping, shall be provided to the City for code compliance review. For information and instructions on sizing gas pipe, please refer to another City brochure titled "Fuel Gas Pipe Sizing and Installation."

## **FLUES**

Gas-fired instantaneous tankless water heaters shall have their exhaust gases vented to the exterior in accordance with the manufacturer's printed instructions. Those instructions must be at the job site and available to the inspector during the inspection. For water heater replacement projects, the Type B flues used with standard storage-type gas water heaters cannot be used for gas-fired instantaneous tankless water heaters.

## **ELECTRICAL CONNECTION**

Gas-fired instantaneous tankless water heaters that are approved for residential installation will require a 120 volt electrical connection to operate the fan-assisted fan system and ignite the burner. The power cords are plugged into a standard three pin electrical outlet which must be within six feet of the water heater.

## **INSULATION**

The first 5' of the hot and cold water pipes connected to the water heater **do not** need to be insulated as is required for standard storage-type water heaters.

## **BONDING**

Metallic water and gas pipes within a residence are connected together with electrical bonding wires and then grounded to prevent shock hazards should an energized electrical wire come in contact with the pipe. Generally the replacement of a water heater does not affect the bonding of the pipes. However, if existing bonds are present, they need to be reinstalled. It is recommended that a #8 copper wire be connected to the gas, hot water, and cold water pipes using clamps that can be obtained at a hardware store.

## **RECYCLE OLD WATER HEATERS**

State law requires all cities in California to reduce the amount of waste they send to landfills. You can help by taking old water heaters to a recycler rather than a landfill. In addition to helping your community's recycling effort, you can save both money and time. Generally, taking a water heater to a recycler is cheaper and more convenient than using a landfill. Area recyclers for water heaters are:

Simsmetal  
30104 Industrial Parkway, S.W.  
Hayward, CA  
(510) 471-6600

Jaco Environmental  
1-800-741-0172

Davis Street Transfer Station  
Recycling Park  
2615 Davis Street  
San Leandro, CA  
(510) 638-2303