



CITY OF PASADENA

BUILDING AND SAFETY DIVISION

175 North Garfield Avenue, Pasadena, CA 91101-1704
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TANKLESS WATER HEATERS

This handout is intended to clarify the issue of using **Tankless Water Heaters** (TWHs) as a source of domestic hot water, both as replacements for storage tank water heaters in existing construction and original installations in new construction. Tankless Water Heater installations shall comply with all of the provisions as required by the current California Plumbing Code (CPC) and the California Mechanical Code (CMC) as well as any applicable adopted Ordinances of the City of Pasadena policies.

The Manufacturer's Installation Instructions for the TWH and the Listed Venting System must be available at the jobsite for all inspections. Provide gas line sizing calculations at the initial inspection.

Tankless Water Heater Selection:

Each TWH (or multiple TWHs) shall meet or exceed the requirements of the California Plumbing Code, Sections 301, 501, and First-Hour ratings of CPC Table 5-1 (below). The delivery capacity of each TWH shall be determined by the manufacture's recommendations.

TABLE 5-1

Number of Bathrooms	1 to 1.5			2 to 2.5				3 to 3.5			
Number of Bedrooms	1	2	3	2	3	4	5	3	4	5	6
First Hour Rating, Gallons	42	54	54	54	67	67	80	67	80	80	80

Tankless Water Heater Location:

- No gas appliance may be located in a room used for sleeping, a bathroom, a clothes closet or in a closet of other confined space opening into, or having access from a bedroom or bathroom unless it is Listed for direct-venting and approved for such use. (CPC 509)
- A TWH may be located in an attic when all requirements for a Code compliant installation are met including required access, clearances to combustibles, switched lighting and adjacent receptacle. Attic access shall not be located in a bedroom or bathroom, except access may be through a walk-in closet.
- Tankless Water Heaters may be located on the exterior side or back wall if Listed for exterior use and if not otherwise restricted by any Planned Development requirements or CC&R's.
- TWHs shall not be installed in locations where damage to the supporting structure would occur from an undetected leak unless a watertight pan with a minimum 3/4 inch drain line to an approved location is installed below the water heater. (CPC 507.5)

Tankless Water Heater Venting and Installation:

- Most manufacturers' TWHs use positive pressure (forced) vents. Such vents shall comply with the vent manufacturer's installation instructions for Category III and IV appliances. Most are Stainless Steel due to the slightly acidic content of the condensate. Type B venting material is not acceptable for positive pressure vents.
- Type B vents shall be installed per applicable chapters in the CPC and MCM when allowed by the manufacturer. Type B vents shall be sized for the new TWH, plus any other gas-fired appliances which share the same system as allowed by TWH manufacturer.



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- Listed Pressure Only relief valves shall be installed as required. The discharge capacity must meet or exceed the BTU input rating of the TWH.
- CPVC piping used with any TWH shall be installed with restrictions as required by TWH or CPVC manufacturer, whichever is most restrictive.
- Condensate drains shall terminate as required per the CPC or other approved manner when drainage is required by the TWH manufacturer.

Tankless Water Heater Electrical:

- Gas-fired TWHB units may require a 110/120V receptacle for operation of the thermostatic controls.
- When installed in a garage, the power for these gas-fired units may be provided by an adjacent non-GFCI single receptacle from a general lighting circuit.
- When installed outdoors, the receptacle must be GFCI protected with a weatherproof “bubble cover” or be hard wired.
- Attic or basement installations will require a 110/120V receptacle and switched luminaire at or near the TWH. The switch for the luminaire must be located adjacent to the attic or basement access.
- All new electrical work requires an Electrical Permit.

Gas Piping:

- TWHs generally require a significantly greater quantity of gas than a storage tank heater. Care must be taken to verify that existing house gas piping is adequately (re)sized for the increased load.
- Typically, a dedicated gas line capable of providing at least 200,000 BTU/hr must be installed from the gas meter to the TWH and a larger gas meter may be required. See Table 12-3 of the CPC.
- All new and altered gas piping systems must be pressure tested as prescribed by Code.

Combustion Air:

- All TWH installations shall comply with current CPC and CMC requirements for combustion air.
- Properly sized combustion air vents are to be located within the upper and lower 12” of an enclosure.
- A 200,000 BTU input TWH requires an opening or vertical duct at the upper and lower locations with the equivalent area of an eight (8) inch round duct (50 sq. in.) Double the area for horizontal ducts. \
- Openings to the exterior are typically required for garage installations.

Permits

- Simple Plumbing, Mechanical and Electrical permits may be obtained over the counter. The following information will be necessary for issuance:
 - Manufacturer, Model Number and total BTUs
 - Whether it is a New or Retrofit installation
 - The location of the tankless water Heater (indoor or outdoor)
 - If installing indoors, provide combustion air sizing calculations, unless separately piped with outdoor air
 - Provide gas supply piping sizing calculations
 - For new gas supply, provide sizing calculations containing: type, length, and routing location (Note: CSST Piping like TracPipe or GasTite can only be installed by Manufacturer’s Certified installers) Must provide installer’s certification.
- Electrical source must be provided – If source is not available, an electrical permit will be required.