

TUSTIN...



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USER GUIDE FOR THE INSTALLATION OF WATER HEATERS, FURNACES & AIR CONDITIONERS

PURPOSE

This guide describes the City of Tustin's requirements for installation of gas water heaters, furnaces, air conditioners and miscellaneous appliances. The guide is also designed to help you anticipate the procedures you will follow when you decide to add a new or replace the old water heater, furnace, air conditioner or other appliance.

GENERAL REQUIREMENTS

The following is a summary of the requirements for water heaters, furnaces, air conditioners and miscellaneous appliances. Additional requirements are found in the Uniform Building Code, Uniform Mechanical Code, Uniform Plumbing Code, (1997 editions), National Electrical Code (1996 edition), and amendments contained in the City of Tustin Code. All roof mounted equipment must be entirely screened from the right-of-way view by architectural elements (i.e. roof parapet) or architecturally compatible equipment screens. All ground mounted equipment must be located within a utility closet or screened from the right-of-way view by architectural elements (i.e. screen walls, fences) or landscaping.

PERMITS REQUIREMENTS

A permit is required to install or replace a water heater, furnace, or air conditioner. The required permit may be obtained at the Community Development Department counter. Permits for water heaters, air conditioners or furnaces may be issued on an over the counter basis. When applying for a permit, you will need to provide your name, street address, and assessor's parcel number.

GAS-FIRED WATER HEATERS

Gas-fired water heaters shall conform to approved recognized standards acceptable to the administrative authority. Water heater shall bear a label of an approved testing agency.

WATER SUPPLY: Each water heater shall have a minimum $\frac{3}{4}$ inch cold water supply line with a gate valve installed ahead of the union connection thereof.

PRESSURE RELIEF: Gas storage-type water heaters shall provide, in addition to the primary temperature controls, an over temperature and pressure relief valve. Relief valves inside a building shall be provided with a drain, not smaller than the relief outlet and shall extend to the outside of the building or other approved locations with the end of the pipe not more than 24 inches nor less than 6 inches above the ground and pointing downward.

LOCATION: Gas water heaters can not be located in bathrooms, clothes closets, in rooms used for sleeping purposes or in closets opening into a bath or a bedroom.

When a water heater is located in a garage, it shall be elevated so that the burner will be at least 18 inches above the floor. Water heaters shall be suitably guarded against mechanical damage by being installed behind adequate barriers or by being elevated or located out of the normal part of a vehicle using the garage. When a water heater is located in an attic or a second story closet, a water-tight pan of corrosion resistant materials shall be installed beneath the water heater with a minimum $\frac{3}{4}$ inch diameter drain discharging to an approved location.

GAS LINE CONNECTORS: Water heater gas line connections shall not have a diameter less than that of the inlet connection provided by the manufacturer. Each appliance shall be rigidly connected to the gas piping except for a listed flexible metal appliance connector with an overall length not to exceed 3 feet. A gas shut-off valve shall be provided at the gas piping immediately ahead of the flex connector.

ANCHORS AND SUPPORTS: Water heaters shall be anchored to the floor and the storage tanks shall be strapped, per attached detail, to resist horizontal displacement due to earthquake motion.

COMBUSTION AIR: Gas-fired water heaters shall be provided with sufficient supply of air for proper combustion and ventilation. Openings shall be so located that one combustion air opening is located within the upper 12 inches of the appliance enclosure and one combustion air opening extends within the lower 12 inches of the

enclosure. For the required size of combustion air openings or ducts refer to Uniform Plumbing Code, Table 5-1, and consult your building inspector or plan checker.

ENERGY EFFICIENCY STANDARDS: Water heating equipments shall carry a label or the manufacturer certification that the equipment complies with all of the applicable requirements of the California Energy Commission (C.E.C.) energy efficiency standards. Water heater storage tanks shall have external insulation with R-12 value, or internal and/or external insulation with a combined value of R-16 insulation. The first five feet of hot and cold water pipes from storage tank shall be insulated with a minimum of R-4 insulation. Continuous burning pilots are prohibited.

CLEARANCES: Insulated water heaters shall not be installed closer than 2 inches to unprotected combustible construction not closer than 1 inch to unprotected combustible construction nor closer than 3 inches to protected combustible construction.

ACCESS: The appliance space shall be provided with an opening or doorway of sufficient size to remove the water heater. In no case shall the access opening be less than 24 inches in width.

An unobstructed solid floored working space not less than 30 inches in depth and 36 inches in width shall be provided in front of the fire box access opening.

VENTING: Gas water heaters shall be vented to a listed, type B vent, which shall be installed with not less than the minimum clearances specified on its label. All venting systems shall be adequately supported for the weight and design of the material used.

VENT CONNECTOR: A water heater having a draft hood may be connected to a type B vent by the use of a single-wall metal vent connector or type B vent material. Single wall metal vent connectors shall not pass through any concealed space, shall be exposed to view through its entire length and shall be located in the same room as the water heater. Single wall metal vent connectors shall be a minimum of 6 inches away from combustible materials. Every vent connector which is part of a gravity-type venting system shall have a continuous rise of not less than ¼ inch per foot of length measured from the appliance vent collar to the vent.

VENT PITCH: Gravity vents shall extend in a vertical direction with offsets not exceeding 45 degrees. A vent may have one offset of not more than 60 degrees, which shall not be longer than 75% of the vertical height of vent.

VENT AREA: Every venting system shall have an internal cross-sectional area of not less than the area of the vent collar on the water heater. In no case shall such an area be less than 7 square inches.

VENT TERMINATION: No gravity vent shall terminate less than 5 feet above the vent collar on the water heater. No type B vent shall terminate less than 1 foot above the roof, nor less than 4 feet from any portion of the building which extends at more than 45 degrees angle from horizontal. For minimum required height of vent termination from sloped roofs, refer to Uniform Plumbing Code, Section 906.

HEATING FURNACES

Every dwelling units shall be provided with heating facilities capable of maintaining a room temperature of 70 degrees F. at a point 3 feet above the floor in all habitable rooms.

WARM-AIR FURNACES: Gas fired furnaces shall not be installed in a bedroom, bathroom, closet or any enclosed space with access only through such room or space. No furnace shall be installed in a closet or alcove less than 12 inches wider than the furnace or furnaces to be installed therein. Every furnace shall have a clear space of not less than 3 inches along the sides and back of the furnace and not less than 6 inches in front of the furnace when the door of the furnace closet is fully closed.

A working space of not less than 30 inches in depth shall be provided along the entire front of firebox side of every furnace when the door of the furnace enclosure is fully open.

VENTING: Gas-fired warm air furnaces shall be vented to an approved type B gas vent, which shall be installed with not less than the minimum clearances specified on its label.

VENT CONNECTOR: Warm air furnaces may be connected to type B vents by use of an approved single wall metal vent connector. Connector shall be a minimum of 6 inches from combustibles. Any such connector shall be exposed to view through its entire length.

COMBUSTION AIR: A minimum of 200 square inches of combustion air for up to 100,000 BTU input, plus 2 square inches for each 1,000 BTU in excess of 100,000 BTU shall be supplied to the appliance enclosure. This amount may be halved if the floor area of the enclosure is more than twice the floor area of the appliances installed therein. Combustion air ducts and openings shall consist of two or more openings of approximately equal area, one located within 12 inches of the floor of the enclosure and one opening within 12 inches of the ceiling. Combustion air ducts from the building exterior shall be constructed of galvanized steel.

CIRCULATING AIR: Circulating air may be taken from outside the building, from rooms used for living quarters or from both. The minimum unobstructed total area of the

circulating air openings or ducts to a warm air furnace shall not be less than 2 square inches for every 1,000 BTU output rating of the furnace. Such air shall be conducted into the blower housing from outside the furnace space by continuous airtight ducts or spaces. Circulating air ducts and fittings shall be insulated as required. No circulating air inlet shall be located in the following positions:

1. Closer than 10 feet from any appliance firebox or draft diverter which is located in the same enclosed space as the air supply inlet.
2. Closer than 10 feet from any appliance vent or plumbing vent outlet.
3. Where it will pick up objectionable odors, fumes or flammable vapors.
4. Where it is located in the same enclosed space as the combustion air inlet.

CONDITIONED AIR DUCTS: The minimum total area of the conditioned air ducts from a warm air furnace shall not be less than 2 square inches for every 1,000 BTU output rating of the furnace. Ducts used for conveying conditioned air shall be of approved material.

Conditioned air pipes, ducts, boxes and fittings shall be insulated as required. Ducts and pipes shall be supported by metal straps.

HORIZONTAL AND ATTIC FURNACES: Furnaces shall be accessible by an opening and passageway as large as the largest piece of furnace but not less than 30 x 30 inches. Passageways to attic furnaces shall have a continuous flooring not less than 24 inches wide, from opening to furnace. Openings shall not be further than 20 feet from furnace. An electric light, controlled by a switch at the passageway opening shall be installed near the furnace.

FLOOR FURNACES: Floor furnaces shall be accessible by an opening in the foundation not less than 24 x 18 inches, or access door not less than 24 x 18 inches. Openings or access doors shall be not more than 20 feet from the furnace. Floor furnaces shall not be installed where concrete floors are used. 12 inches clearance shall be maintained on all sides of furnace, 6 inches clearance shall be maintained from ground unless furnace is sealed, then the clearance may be reduced to 2 inches. Floor furnaces shall not be placed closer than 6 inches from the nearest wall, except wall register models, which shall be placed not closer than 6 inches from inside corner. The furnace shall be so placed that a door can not be closer than 12 inches from any portion of the register.

RECESSED WALL HEATERS: Recessed wall heaters shall be installed only in nominal 2 x 4 wall, between studs spaced 16 inches o.c. and must be vented to an approved type BW vent assembly. Location is specified for wall register model floor furnaces.

ROOM HEATERS: Room heaters shall be placed so as not to cause a hazard to walls, floors or doors. Room heaters designed and marked for use in noncombustible fire-resistive fireplace only, shall not be installed elsewhere. Free standing room heaters shall be safely and securely installed to prevent accidental displacement.

AIR CONDITIONING AND COOLING EQUIPMENT

Air intake openings of any air conditioning or cooling equipment shall be not less than 10 feet from any plumbing fixture vent outlet nor less than 10 feet from any combustion vent outlet, unless such outlet is 3 feet above air intake opening. All air conditioning or cooling equipment, by which heat is removed from the air by the use of water, shall be equipped with evaporative condensers or other approved water conservation equipment. All structural framing around the opening in an exterior wall or roof to accommodate any air conditioning or equipment and duct opening therefrom shall be flashed with sheet metal. Such flashing shall be not less than No. 26 gauge galvanized sheet metal or other approved noncorrosive, nonflammable material. The base of such flashing shall be not less than 6 inches in width and extend not less than 4 inches under the adjoining roof or wall covering.

Every joint flashing shall be double seamed or soldered watertight. All flashing around the equipment or ducts shall be watertight when completed.

Location:

The condenser may be located in the side yard, provided it is at least one (1') foot away from the dwelling exterior wall and at least ten (10') feet away from an existing dwelling window and/or enclosed patio located on the neighboring property. This provision is to attenuate noise to a reasonable level.

MISCELLANEOUS APPLIANCES/RANGES

Gas piping to a free standing kitchen range shall be a minimum of 3/4 inch.

DOMESTIC CLOTHES DRYER: Domestic clothes dryers shall be exhausted to the outside of the building. Exhaust ducts shall not terminate beneath the building.

APPLIANCES IN GARAGES: Appliances generating a glow, spark or flame capable of igniting flammable vapors may be installed in a garage, provided the pilots and burners, or heating elements and switches are at least 18 inches above the floor level.

PREFABRICATED FIREPLACES AND FIREPLACE STOVES: Prefabricated fireplaces, fireplace stoves and their chimneys must be listed types and installed in accordance with the conditions of the listing.

OPEN TOP BROILER UNITS: Listed open top broiler units and hoods shall be installed in accordance with their listing and the manufacturer's instructions. An exhaust duct and fan having a minimum capacity of 100 cu. Ft. per minute per each sq. ft. of hood intake area shall be installed for a barbecue unit and if such duct penetrates a ceiling or a floor, it shall be enclosed in a fire-resistive shaft covered on one side as required for one-hour fire-resistive construction with no combustible material used inside the shaft. Shafts shall be separated from the duct by a minimum 1-inch air space vented to the outside air and the duct shall terminate not less than 18 inches above the roof surface. A minimum vertical clearance of 24 inches shall be maintained between the cooking top and the combustible material, and the hood shall be as wide as the open top broiler unit and be centered over the unit.

ENERGY EFFICIENCY STANDARDS: All heating, air conditioning and water heater appliances shall carry a label or manufacturer certification that the equipment complies with all of the applicable requirements of the California Energy Commission energy efficiency standards.

LISTED DUCTS: Listed metallic or nonmetallic ducts may be installed in accordance with the conditions of listing. The manufacturer's installation instructions must be available to the inspector at the time of inspection.

APPROVALS

Heating and air conditioning appliances shall be of an approved type and shall be designed for use with the type fuel to which they will be connected.

A gas-fired appliance may be connected only to the type of fuel specified on its label. An appliance may be converted to use another fuel provided it is relabeled to indicate that such a conversion has been made.

INSPECTION

For final approval of on the gas piping system, an air pressure test of 10 lbs. for 15 minutes, with no perceptible drop in pressure is required. (This test shall not be made with shut-off valves installed.) All gas appliances shall be properly installed and vented. Call for inspection when gauge is installed on gas line and holding the required 10 lb. pressure.

For additional information or staff assistance, we invite you to contact:

City of Tustin
Community Development Department
300 Centennial Way
Tustin, California 92780
(714) 573-3131 or 573-3132

In compliance with Federal regulations, the City of Tustin does not discriminate on the basis of race, color, national origin, age or disability.

Staff are available to answer your questions during office hours between 7:30 a.m. and 5:30 p.m. Monday through Thursday and 8:00 a.m. to 5:00 p.m. on alternate Fridays. (City Hall is closed every other Friday)

OTHER USER GUIDES AVAILABLE

Signs
Pools and Spas
Residential Room Additions
Temporary Use Permits
Gazebos and Patio Covers
Reroofing
Furnaces
Water Heaters
Wood & Metal Fences
Masonry Fences & Walls
Patio Slabs & Walkways
Built-in Outdoor Barbecues
Suspended Ceilings
Drywall Installation
Commercial Tenant Improvements

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