



HOT WATER SUPPLY HEATERS MINIMUM INSPECTION CRITERIA

380:25-11-1. General Criteria

- (a) Hot water supply heaters located in facilities or installations owned or operated by the State of Oklahoma or its agencies, counties, municipalities, or school districts will be externally inspected annually, regardless of size or heat input. All hot water supply heaters shall meet the requirements of the code adopted by the facility being inspected.
- (b) Scope of inspection
 1. Gas Supply Line - From the vessel through any controls upstream to the required stop cock.
 2. Electrical Connections – From the vessel to the required electrical cutoff, not to include any permanent wiring installed within the walls of the building containing the unit.
 3. Cold Water Inlet Line – From the vessel upstream to the required stop valve.
 4. Hot Water Outlet Line – From the vessel up to and including the second fitting.
 5. Exhaust Vents – All venting or flue piping visible from the hot water supply heater.
 6. Combustion Air Supply – Any venting necessary to support combustion for flame heated units.
 7. General Hazards – Any recognized safety hazard involving the hot water supply heater within the immediate area.

Inspection Checklist for Hot Water Heaters

REFERENCE

COMPLIANCE YES NO

Controls

ASME Section IV
HLW-701.1

Each individual automatically fired water heater, in addition to the operating control used for normal water heater operation shall have a separate high temperature limit actuated combustion control that will automatically cut off the fuel supply. The temperature range of the high temperature limit control shall not allow a setting over 210 degrees F.

REFERENCE

COMPLIANCE YES NO

Installation Requirements

ASME Section IV
HLW-800.1

Each water heater shall have at least one officially rated temperature and pressure safety relief valve or at least one officially rated safety relief valve.

ASME Section IV
HLW-800.1

No safety relief valve shall be smaller than NPS 3/4 inch.

ASME Section IV
HLW-800.1

The safety relief valve pressure setting shall be less than or equal to the maximum allowable working pressure of the water heater.

ASME Section IV
HLW-800.1

The required relieving capacity in Btu/hr of the safety relief valve shall not be less than the maximum allowable input.

ASME Section IV
HLW-801.2

Safety relief valves shall be connected to the top of water heaters or directly to a tapped or flanged opening in the water heater.

ASME Section IV
HLW-801.2

Safety relief valves shall be installed with their spindles upright and vertical with no horizontal connecting pipe, except that, when the safety relief valve is mounted directly on the water heater vessel with no more than 4 inch maximum interconnecting piping, the valve may be installed in the horizontal position with the outlet pointed down.

ASME Section IV
HLW-801.2

No piping or fitting used to mount the safety relief valve shall be of nominal pipe size less than that of the valve inlet.

ASME Section IV
HLW-801.5

Safety relief valves shall not be connected to an internal pipe in the water heater or a cold water feed line connected to the water heater.

ASME Section IV HLW-801.6	No shutoff of any description shall be placed between the safety relief valve and the water heater, or on the discharge pipes between such valves and the atmosphere.	<input type="checkbox"/>	<input type="checkbox"/>
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Installation Requirements (continued)

<u>REFERENCE</u>		<u>COMPLIANCE</u>	
		YES	NO
ASME Section IV HLW-801.7	When a discharge pipe is used, its internal cross-sectional area shall be not less than the full area of the valve outlet.	<input type="checkbox"/>	<input type="checkbox"/>
ASME Section IV HLW-801.7	The discharge from safety relief valves shall be so arranged that there will be no danger of scalding attendants.	<input type="checkbox"/>	<input type="checkbox"/>
ASME Section IV HLW-801.7	The safety relief valve discharge shall be as short and straight as possible and so arranged as to avoid undue stress on the valve.	<input type="checkbox"/>	<input type="checkbox"/>
ASME Section IV HLW-805.1	Water supply shall be introduced into a water heater through an independent water supply connection.	<input type="checkbox"/>	<input type="checkbox"/>
ASME Section IV HLW-805.1	Feed water shall not be introduced through openings or connections provided for cleaning, safety relief valves, drain, or temperature gage.	<input type="checkbox"/>	<input type="checkbox"/>
ASME Section IV HLW-809.2	Provisions shall be made for the expansion and contraction of hot water mains connected to water heaters by providing substantial anchorage at suitable points and by providing swing joints when water heaters are installed in batteries.	<input type="checkbox"/>	<input type="checkbox"/>
ASME Section IV HLW-810 (a)	Each water heater shall have a bottom drain pipe connection fitted with a valve or cock connected to the lowest water space practicable. The minimum size bottom drain valve shall be ¾ inch.	<input type="checkbox"/>	<input type="checkbox"/>
ASME Section IV HLW-810 (b)	Any discharge piping connected to the bottom drain connection shall be full size to the point of discharge.	<input type="checkbox"/>	<input type="checkbox"/>
ASME Section IV HLW-820	Each installed water heater shall have a thermometer so located connected that it shall be easily readable.	<input type="checkbox"/>	<input type="checkbox"/>
ASME Section IV HLW-820	The thermometer shall be so located that it shall at all times indicate the temperature of the water in the water heater at or near the outlet.	<input type="checkbox"/>	<input type="checkbox"/>
IFGC 408.4	Where a sediment trap is not incorporated as part of the appliance, a sediment trap shall be installed downstream of the appliance shutoff valve.	<input type="checkbox"/>	<input type="checkbox"/>

IPC 501.3	Drain valves for emptying shall be installed at the bottom of each tank-type water heater and hot water storage tank.	<input type="checkbox"/>	<input type="checkbox"/>
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Installation Requirements (continued)

<u>REFERENCE</u>		<u>COMPLIANCE</u>	
		<u>YES</u>	<u>NO</u>
IPC 501.8	All hot water supply systems shall be equipped with automatic temperature controls capable of adjustments from the lowest to the highest acceptable temperature settings for the intended temperature operating range.	<input type="checkbox"/>	<input type="checkbox"/>
IPC 503.1	The cold water branch line from the main water supply line to each hot water storage tank or water heater shall be provided with a valve, located near the equipment and serving only the hot water storage tank or water heater. The valve shall be provided with access on the same floor level as the water heater served.	<input type="checkbox"/>	<input type="checkbox"/>
IPC 504.4	All storage water heaters shall be provided with an approved, self-closing (levered) pressure relief valve and temperature relief valve or combination thereof, located within 6 inches of the top of the tank.	<input type="checkbox"/>	<input type="checkbox"/>
IPC 504.6	The discharge pipe long serving a pressure relief valve, temperature relief valve or combination thereof shall:		
	1. Not be directly connected to the drainage system.	<input type="checkbox"/>	<input type="checkbox"/>
	2. Discharge through an air gap located in the same room as the water heater.	<input type="checkbox"/>	<input type="checkbox"/>
	3. Not be smaller than the diameter of the outlet of the valve served and shall discharge full size to the air gap.	<input type="checkbox"/>	<input type="checkbox"/>
	4. Serve a single relief valve and shall not connect to piping serving any other relief device or equipment.	<input type="checkbox"/>	<input type="checkbox"/>
	5. Be installed so as to flow by gravity.	<input type="checkbox"/>	<input type="checkbox"/>
	6. Not terminate more than 6 inches (152 mm) above the floor or waste receptor.	<input type="checkbox"/>	<input type="checkbox"/>
	7. Not have a threaded connection at the end of such piping.	<input type="checkbox"/>	<input type="checkbox"/>
	8. Not have valve or tee fittings.	<input type="checkbox"/>	<input type="checkbox"/>

Installation Requirements (continued)

REFERENCE

COMPLIANCE YES NO

IPC 605.4

9. Be constructed of approved materials in accordance with ASME A112.4.1 and rated for a minimum pressure rating of 100 psi at 180 degrees F (82 degrees C):

Installation Requirements (continued)

- Chlorinated polyvinyl chloride (CPVC) plastic pipe/tubing
- Copper pipe
- Cross-linked polyethylene (PEX) plastic tubing
- Ductile Iron
- Cross-linked polyethylene/aluminum/high-density polyethylene (PEX-AL-HDPE) pipe
- Cross-linked polyethylene/aluminum/cross-linked polyethylene (PEX-AL-PEX) pipe
- Galvanized steel pipe
- Polyethylene/aluminum/ polyethylene (PE-AL-PE) pipe
- Polypropylene (PP) plastic pipe or tubing
- Stainless steel pipe (type 304 or 316)