Washington State Department of Labor & Industries

Pre-Inspection Checklist for Potable Water Heaters – ASME "HWL" Stamped Water Heaters

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Notice: This checklist reflects the most common violations our field inspectors encounter when performing an inspection on a hot water heating or hot water supply boiler installation. We recommend boiler industry personnel have access to a current set of applicable codebooks/jurisdictional laws, such as ASME Boiler Code Section IV, National Board Inspection Code (NBIC), Chapter 296-104 WAC and Chapter 70.79 RCW of the State of Washington Boiler and Unfired Pressure Vessel Laws.

Reference	Administration and General Requirements	Compliance Yes	Compliance No
WAC 296-104-020	A Boiler/Pressure Vessel Installation or Reinstallation Permit form must be submitted to the Boiler Section prior to making the installation/reinstallation of any boiler, pressure vessel or hot water heater.	☐	☐
RCW 18.27 & RCW 18.106	Every contractor shall be registered with the Department of Labor and Industries before installing/reinstalling, making repairs, or modifications to any boiler, pressure vessel or hot water heater.	☐	☐
RCW 70.79.320	The owner or user of any boiler required to be inspected upon installation/reinstallation shall not operate the boiler, pressure vessel or hot water heater until a certificate-inspection has been made.	☐	☐
WAC 296-104-200	All "HLW" water heaters shall be constructed, stamped, and installed in accordance with ASME Section IV of the ASME code.	☐	☐
WAC 296-104-255 & WAC 296-104-271	A minimum clear space of eighteen inches (18") shall be provided all sides of the boiler, pressure vessel or hot water heater. As a minimum all other sides shall comply with the manufacturer's installation instructions for clearances to combustible materials. A clearance variance acceptable to the manufacturer and owner may be submitted to the inspector for approval.	☐	☐
RCW 79.79.350 & WAC 296-104-700	The owner/user is responsible for fees. All inspection, permit and certificate fees must be submitted to the Dept. before a "Certificate of Inspection" is issued and the boiler, pressure vessel or hot water heater is lawful to operate.	☐	☐

Reference	Controls	Compliance Yes	No
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 of the high temperature limit control shall not allow a setting over 210°F.	☐	☐

Reference	Installation Requirements	Compliance Yes	No
ASME Section IV HG-701.1	Safety valves and safety relief valves shall be located in the top or side of the boiler.	☐	☐
ASME Section IV HG-701.1	Coil or header type boilers shall have the safety valve or safety relief valve located on hot water outlet end.	☐	☐
ASME Section IV HG-701.1	Safety valves and safety relief valves shall be installed with their spindles vertical.	☐	☐

Reference	Installation Requirements	Compliance Yes	No
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 ¾ 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 a nominal pipe size less than that of the valve inlet.	☐	☐

Reference	Installation Requirements (Continued)	Compliance Yes	Compliance No
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.	☐	☐
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.	☐	☐
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.	☐	☐
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.	☐	☐
ASME Section IV HLW-805.1	Water supply shall be introduced into a water heater through an independent water supply connection.	☐	☐
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.	☐	☐
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.	☐	☐
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.	☐	☐
ASME Section IV HLW-810 (b)	Any discharge piping connected to the bottom drain connection shall be full size to the point of discharge.	☐	☐
ASME Section IV HLW-820	Each installed water heater shall have a thermometer so located and connected that it shall be easily readable.	☐	☐
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.	☐	☐

Note: Make certain that all items listed above are in compliance prior to requesting an inspection on a new or reinstalled boiler.

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