

Kansas Administrative Regulations

Department of Labor

Article 52.—Low Pressure Heating Boilers

49-52-6. Safety relief valve requirements for hot water boilers and hot water supply boilers.

(a)(1) Each hot water heating boiler shall have at least one ASME-certified or national board-certified safety relief valve set to relieve at or below the maximum allowable working pressure of the boiler. Each hot water supply boiler of the water tube or coil type shall have at least one safety relief valve that is approved and certified by ASME or the national board. The safety relief valve shall be of the automatic reseating type and shall be set to relieve at or below the maximum allowable working pressure of the boiler. If the capacity of the safety relief valve is certified by the ASME or the national board, the safety relief valve shall have pop action when tested by steam.

(2) If more than one safety relief valve is used on either a hot water heating boiler or a hot water supply boiler, the additional valve or valves shall be ASME-rated. The additional valves shall be set to relieve at or below the maximum allowable working pressure of the vessel or any component in the system.

(3) Each safety relief valve shall be spring-loaded. A safety relief valve shall not be capable of being reset at a higher pressure than the maximum allowable working pressure of the boiler or pressure vessel.

(b) Materials that can fail due to deterioration or vulcanization when subjected to saturated steam temperatures corresponding to the maximum capacity test pressure shall not be used for safety relief valves.

(c) A safety relief valve shall not be smaller than $\frac{3}{4}$ inch or larger than 4½ inches standard pipe size, except that boilers having a heat input not greater than 15,000 BTUH may be equipped with a safety relief valve of ½-inch standard pipe size. The inlet opening shall have an inside diameter that is approximately equal to or greater than the seat diameter. The minimum opening through any part of the valve shall not be less than ½ inch in diameter or its equivalent area.

(d) The steam-relieving capacity, in pounds per hour, of each pressure-relieving device on a boiler shall be the greater of the steam-relieving capacity determined by either of the following methods:

(1) Dividing the maximum output in BTUH by 1,000, where the maximum output is the output obtained at the boiler nozzle by the firing of any fuel the unit is capable of using; or

(2) using the number of pounds of steam generated per hour per square foot of boiler heating surface as specified in the table in K.A.R. 49-52-5 (d)(1).

(e) If operating conditions are changed or additional boiler heating surface is installed, the valve capacity shall be increased, if necessary, to meet the new conditions in accordance with subsection (f). The additional valves required because of the changed conditions or additional heating surfaces may be installed on the outlet piping if there is no intervening valve.

(f) The safety relief valve capacity for each boiler shall be sufficient to prevent the pressure from rising more than 5 psig above the boiler's maximum allowable working pressure with the fuel-burning equipment installed. Each storage water heater and each hot water supply boiler shall have T & P relief valves with a relieving capacity and an American gas association rating that is equal to or exceeds the burner BTUH input or the electrical power kilowatt input. Each hot water supply boiler that is of the coil or water tube type shall be equipped with a safety relief valve. The connecting hot water storage tank shall have a pressure and temperature safety relief valve with a temperature-relieving capacity equivalent to the total burner BTUH input.

(g)(1) Each safety relief valve shall be installed in a vertical position, except for T & P relief valves that are installed on storage water heaters equipped with side tapplings to accommodate the insertion of the T & P valve thermostat. The T & P valve thermostat shall be immersed in the water and located in the top six inches of the vessel. No valve of any type shall be placed between the safety relief valve and the boiler or on the discharge pipe between the safety relief valve and the atmosphere.

(2) The diameter of the discharge pipe shall not be less than the diameter of the safety discharge opening and shall be fitted with an open drain to prevent water from lodging in the upper part of the safety relief valve or in the discharge pipe. Horizontal

discharge piping that provides adequate gravity drainage shall not require the fitting of an open drain, except as specified in this paragraph. If an elbow is placed on the safety relief valve discharge pipe, the elbow shall be located close to the safety relief valve outlet, or the discharge pipe shall be securely anchored and supported.

(3) All safety relief valve discharges shall be located or piped in a manner that does not endanger persons working in the area. If discharge piping is directed downward, the pipe shall terminate no more than six inches above floor level. Plastic discharge piping shall not be used on any safety relief valve discharge line, including discharge lines for domestic hot water heaters of any size.

(4) If two or more safety relief valve discharge lines are connected together, the cross-sectional area of the common discharge line shall equal or exceed the combined cross-sectional areas of all of the connected safety relief valve outlets.

(Authorized by and implementing K.S.A. 44-916; effective May 1, 1987; amended April 28, 2000; amended Nov. 3, 2006.)

***** Authenticated Kansas Administrative Regulation *****