Sec. 29-232-58. Safety valves

The use of weighted-lever safety valves is prohibited. Safety valves having either the seat or disc of cast iron, shall not be used. Each boiler shall have at least one safety valve and if it has more than five hundred sq. ft. of water heating surface, or if an electric boiler has a power input more than 500kw, it shall have two or more safety valves. The valve or valves shall be connected to the boiler, independent of any other steam connection, and attached as close as possible to the boiler, without unnecessary intervening pipe or fittings. No valve of any description shall be placed between the safety valve and the boiler nor on the escape pipe, (if used) between the safety valve and the atmosphere. When an escape pipe is used, it shall be full size and fitted with an open drain to prevent water lodging in the upper part of the safety valve or escape pipe. When an elbow is placed on a safety valve escape pipe, it shall be located close to the safety valve outlet or the escape pipe shall be securely anchored and supported. All safety valve discharges shall be so located or piped as to be carried clear from walkways or platforms used to control the main stop valves of boilers or steam headers. The safety valve capacity of each boiler shall be such that the safety valve or valves will discharge all the steam that can be generated by the boiler without allowing the pressure to rise more than six percent above the highest pressure to which any valve is set and in no case to more than six percent above the maximum allowable working pressure. One or more safety valves on every boiler shall be set at or below the maximum allowable working pressure. The remaining valves may be set within a range of three percent above the maximum allowable working pressure, but the range of setting of all the safety valves on a boiler shall not exceed ten percent of the highest pressure to which any valve is set.

When two or more boilers, operating at different pressures and safety valve settings, are interconnected, the lower pressure boilers or interconnected piping shall be equipped with safety valves of sufficient capacity to prevent over pressure, considering the generating capacity of all boilers. In those cases where the boiler is supplied with feed water directly from pressure mains without the use of feeding apparatus, not to include return traps, no safety valve shall be set at a pressure greater than ninety-four percent of the lowest pressure obtained in the supply main feeding the boiler. The relieving capacity of the safety valves on any boiler may be checked by one of the three following methods and, if found to be insufficient, additional valves shall be provided.

(a) By making the accumulation test, which consists of shutting off all other steam-discharge outlets from the boiler and forcing the fires to the maximum. The safety valve capacity shall be sufficient to prevent a pressure in excess of six percent above the maximum allowable working pressure.

(b) By measuring the maximum amount of fuel that can be burned and computing the corresponding evaporative capacity (steam generating capacity) upon the basis of the heating value of this fuel. These computations shall be made as outlined in the appendix of the A.S.M.E. Boiler Construction Code for Power Boilers, section I.

(c) By determining the maximum evaporative capacity by measuring the feed water.

When either of the methods outlined in (b) or (c) is employed, the sum of the safety valve capacities shall be equal to or greater than the maximum evaporative capacity (maximum steam generating capacity) of the boiler.

(Effective August 25, 1987)