13 NCAC 13 .0411 VALVES, DRAINS, AND BOTTOM BLOWOFFS

(a) High pressure boilers operating in excess of 100 psig must be provided with two stop valves for boiler blowoff and drain outlets. Any boiler having a common steam connection with another boiler, and having a manhole opening, shall be provided with two steam outlet stop valves with an ample free-blow drain or vent between the two stop valves. The discharge of this drain shall be visible to the operator while operating the valve.

(b) All boilers, except for coil-type water tube boilers, shall be provided with a drain outlet and stop valve of not less than 3/4 inch NPS at the lowest water containing space, except that if the boiler is provided with a blowoff outlet at the lowest water containing space, an additional drain outlet is not required.

(c) High pressure boilers shall be provided with a bottom blowoff outlet and valve of not less than 1 inch NPS nor more than 2 1/2 inches NPS, except as modified below:

(1) Miniature high pressure boilers shall have a blowoff outlet of not less than 3/4 inch NPS;

(2) Electric high pressure boilers not greater than 200kW shall have a blowoff outlet of not less than 3/4 inch NPS;

(3) High pressure boilers having a heating surface not greater than 100 square feet shall have a blowoff outlet of not less than 3/4 inch NPS; and

(4) All other high pressure boilers shall have a blowoff outlet of not less than 1 inch NPS.

(d) Steam heating boilers shall be provided with a bottom blowoff outlet and valve of not less than 1 inch NPS nor more than 2 1/2 inches NPS, except as modified below:

(1) Steam heating boilers having a minimum safety valve relieving capacity not exceeding 500 pounds of steam per hour shall have a blowoff outlet of not less than 3/4 inch NPS;

(2) Steam heating boilers having a minimum safety valve relieving capacity greater than 1205 pounds of steam per hour but not greater than 2500 pounds of steam per hour shall have a blowoff outlet of not less than 1 1/4 inches NPS;

(3) Steam heating boilers having a minimum safety valve relieving capacity greater than 2500 pounds of steam per hour but not greater than 6000 pounds of steam per hour shall have a blowoff outlet of not less than 1 1/2 inches NPS;

(4) Steam heating boilers having a minimum safety valve relieving capacity greater than 6000 pounds of steam per hour shall have a blowoff outlet of not less than 2 inches NPS; and

(5) All other steam heating boilers shall have a blowoff outlet of not less than 1 inch NPS.

(e) All blowoff from boilers shall discharge into a blowdown tank suitable for separating steam and water or shall be piped to prevent injury. Discharge directly to a sewer is prohibited.

(f) Valves for high pressure boilers shall be designed and constructed in accordance with the requirements of ASME Section I, and shall be stamped or embossed with the pressure/temperature rating of the valve.

(g) Valves for heating boilers shall be suitable for the operating pressure and temperature of the boiler.

(h) Pressure reducing valves shall be installed in the makeup water line where inlet supply water pressure is more than 75 percent of the maximum allowable working pressure of the boiler or pressure vessel.

(i) A shutoff valve shall be provided in the makeup water line next to each boiler and shall meet the following specifications:

(1) Each steam heating boiler and hot water heating boiler shall be provided with a shutoff valve and a check valve. The shutoff valve shall be installed either upstream or downstream of the check valve;

(2) Each high pressure boiler, except for high temperature water boilers, shall be provided with a shutoff valve and a check valve. The shutoff valve shall be installed between the check valve and the boiler; and

(3) When two or more high pressure boilers are fed from a common source, there shall also be a globe or regulating valve in the branch to each boiler located between the check valve and the source of the supply.

(j) Pressure vessels subject to corrosion shall be equipped with a drain valve installed at the lowest point of the pressure vessel or by installation of an internal drain pipe installed not more than 1/4 inch above the lowest internal surface.

History Note: *Authority G.S. 95-69.11; 95-69.14;*
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