ALABAMA DEPARTMENT OF WORKFORCE
ADMINISTRATIVE CODE

CHAPTER 480-7-6
REQUIREMENTS
ED. NOTE: FORMER CHAPTER 490-X-6 HAS BEEN RENUMBERED CHAPTER 480-7-6. DUE TO THE MERGER OF THE DEPARTMENT OF INDUSTRIAL RELATIONS AND THE DEPARTMENT OF LABOR, THE DEPARTMENT OF INDUSTRIAL RELATIONS HAS BEEN DISSOLVED AND ALL THE RULES WILL BE LISTED UNDER THE DEPARTMENT OF LABOR AS PER CERTIFICATION FILED JANUARY 9, 2013; EFFECTIVE FEBRUARY 13, 2013.

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480-7-6-.01 General Requirements.

(1) **Automatic Low-Water Fuel Cutoff and/or Water Feeding Device**

(a) Each automatically fired steam or vapor system boiler shall be equipped with an automatic low-water fuel cutoff so located as to automatically cut off the fuel supply when the surface of the water falls to the lowest safe waterline. If a water-feeding device is installed, it shall be so constructed that the water inlet valve cannot feed water into the boiler through the float chamber and so located as to supply requisite feedwater. The lowest safe waterline should not be lower than the lowest visible part of the water glass.

(b) Such fuel or feedwater control devices may be attached directly to a boiler or for low pressure boilers, to the tapped openings provided for attaching a water glass directly to a boiler, provided that such connections from the boiler are nonferrous tees or Ys not less than 1/2 in. pipe size between the boiler and the water glass, so that the water glass is attached directly and as close as possible to the boiler; the straightway tapping of the Y or tee to take the water glass fittings, the side outlet of the Y or tee to take the fuel cutoff or water-feeding device. The ends of all nipples shall be reamed to full size diameter.

(c) Designs embodying a float and float bowl shall have a vertical straightaway valve drain pipe at the lowest point in the water equalizing pipe connections by which the bowl and the equalizing pipe can be flushed and the device tested.

(2) **Pressure Reducing Valves**

(a) Where pressure reducing valves are used, one or more safety or safety relief valves shall be provided on the low-pressure side of the reducing valve when the piping or equipment on the low-pressure side does not meet the requirements for the full initial pressure. The safety or safety relief valves shall be located adjoining or as close as possible to the reducing valve. Proper protection shall be provided to prevent injury or damage caused by the escaping fluid from the discharge of safety or safety relief valves if vented to the atmosphere. The combined discharge capacity of the safety or safety relief valves shall be such that the pressure rating of the lower pressure piping or equipment shall not be exceeded in case the reducing valve fails in the open position.

(b) The use of hand-controlled bypasses around reducing valves is permissible. If a bypass is used around the reduction valve, the safety valve required on the low- pressure side shall be of sufficient capacity to relieve all the fluid that can pass through the bypass without over-pressuring the low-pressure side.

(c) A pressure gage shall be installed on the low-pressure side of a reducing valve.

(3) **Boiler Blowoff Equipment**

(a) The blowdown from a boiler or boilers that enters a sanitary sewer system or blowdown that is considered a hazard to life or property shall pass through some form of blowoff equipment that will reduce pressure and temperature as required hereinafter.

(b) The temperature of the water leaving the blowoff equipment shall not exceed 140°F.

(c) The pressure of the blowdown leaving any type of blowoff equipment shall not exceed 5 psig.

(d) All blowoff equipment shall be fitted with openings to facilitate cleaning and inspection.

(e) Blowoff equipment shall conform to the provisions set forth in the recommended rules for National Board Boiler Blowoff Equipment.

(4) **Location of Discharge Piping Outlets.** The discharge of safety valves, blowoff pipes, and other outlets shall be located and supported as to prevent injury to personnel.

(5) **Supports.** Each boiler and pressure vessel shall be supported by masonry or structural supports of sufficient strength and rigidity to safely support the boiler or pressure vessel and its

contents. There shall be no excessive vibration in either the boiler, pressure vessel, or its connecting piping.

(6) **Boiler Door Latches**

(a) A watertube boiler shall have the firing doors of the inward opening type, unless such doors are provided with substantial and effective latching or fastening devices or otherwise so constructed as to prevent them, when closed, from being blown open by pressure on the furnace side.

(b) These latches or fastenings shall be of the positive self-1ocking type. Friction contacts, latches, or bolts actuated by springs shall not be used. The foregoing requirements for latches or fastenings shall not apply to coal openings of downdraft or similar furnaces.

(c) All other doors, except explosion doors, not used in the firing of the boiler may be provided with bolts or fastenings in lieu of self-1ocking latching devices.

(d) Explosion doors, if used and if located in the setting walls within 7 ft. of the firing floor or operating platform, shall be provided with substantial deflectors to divert the blast.

(7) **Clearance**

(a) All boilers and pressure vessels shall be so located that adequate space will be provided for the proper operation of the boilers and pressure vessels and their appurtenances, for the inspection of all surfaces, tubes, waterwalls, economizers, piping, valves, and other equipment, and for their necessary maintenance and repair and replacement of tubes.

(b) When boilers are replaced or new boilers are installed in either existing or new buildings, a recommended minimum height of 3 ft. should be provided between the top of the boiler proper and the ceiling and between all sides of the boiler and adjacent walls or other structures. Boilers and pressure vessels having manholes should have a recommended 5 ft. clearance from the manhole opening and any wall, ceiling, or piping that will prevent a person from entering the boiler or vessel.

(8) **Ladders and Runways.** When necessary for safety, there shall be a steel runway or platform of standard construction installed across the tops of adjacent boilers or pressure vessels or at some other convenient level for the purpose of affording safe access. All walkways shall have at least two means of exit, each to be remotely located from the other.

(9) **Exit from Boiler Room.** All boiler rooms exceeding a 500 square foot floor area and containing one or more boilers having a fuel-burning capacity of 1 million BTU or equivalent electrical heat input shall have at least two means of exit. Each exit shall be remotely located from the other. Each elevation in such boiler room shall have two means of exit, each remotely located from the other.

(10) **Suggestions for Operation.** It is suggested that the Recommended Rules for Care of Power Boilers, Section VII, and the Recommended Rules for Care and Operation of Heating Boilers, Section VI, of the ASME Code be used as a guide for proper and safe operating practices.

(11) **Air and Ventilation Requirements - Combustion Air Supply and Ventilation of Boiler Room**

(a) A permanent source of outside air shall be provided for each boiler room to permit satisfactory combustion of the fuel as well as proper ventilation of the boiler room under normal operating conditions.

1. The total requirements of the burners for all fired pressure vessels in the boiler room must be used to determine the net louvered area in square feet:

INPUT BTU/HOUR	REQUIRED AIR CU/FT/MIN	MIN. NET LOUVERED AREA, SQ. FT____
500,000	125	1.0
1,000,000	250	1.0
2,000,000	500	1.6
3,000,000	750	2.5
4,000,000	1,000	3.3
5,000,000	1,250	4.1
6,000,000	1,500	5.0
7,000,000	1,750	5.8
8,000,000	2,000	6.6
9,000,000	2,250	7.5
10,000,000	2,500	8.3

(BTU/10,000) X 2.5= CFM - 300 CFM per sq. ft. of net req. area

2. When mechanical ventilation is in lieu of paragraph 1, the supply of combustion and ventilation air to the boiler room and the firing device will not operate with the fan off. The velocity of the air through the ventilating fan shall not exceed 500 feet per minute, and the total air delivered shall be equal to or greater than shown in paragraph 1 above.

(12) **Carbon Monoxide (CO) Monitors in Boiler/Equipment Rooms.**

(a) For new construction/installation, Carbon Monoxide (CO) monitors are mandatory in Boiler/Equipment Rooms where fired boilers and/or water heaters are located per NBIC Part I, 1.6.9 2021 Edition.

The following parameters for CO monitors in new Boiler/ Equipment Rooms are being established in accordance with the State of Alabama Boiler and Pressure Vessel Administrative Code.

1. CO monitor shall be hard wired with battery backup in new construction.

2. CO monitor shall be installed on the wall 5 feet or above from the floor of the Boiler/Equipment Room.

3. CO monitor shall have an audible alarm which can be heard outside of the Boiler/Equipment Room.

4. CO monitor shall alarm at 200 PPM.

5. Inspectors shall verify the installation and operational status of the CO monitor during routine inspections.

(b) For existing fired boilers and/or water heaters, the following parameters for CO monitors are highly recommended:

1. Existing Boiler/Equipment Rooms: the monitor should be hard wired, plug-in type with battery backup or battery powered with 10-year battery.

2. CO monitor shall be installed on the wall 5 feet or above from the floor of the Boiler/Equipment Room.

3. CO monitor shall have an audible alarm which can be heard outside of the Boiler Equipment Room.

4. CO monitor shall alarm at 200 PPM.

5. Inspectors shall verify the installation and operational status of the CO monitor during routine inspections.

Author: Board of Boilers & Pressure Vessels, Dr. David Dyer, Chairman
Statutory Authority: Code of Ala. 1975, §§25-12-4, -6, -14.
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