Proposed Rulemaking

Title

Promulgated by:
Department of Labor and Licensing

Title 20. Public Health and Welfare

Chapter XXX. Generally, Department of Labor and Licensing

Subchapter A. Generally

Part 880. Boiler Inspection ~~Division~~ Section Rules

Subpart 1. Generally

20 CAR § 880-101. Information for public guidance.

(a) The mailing address and telephone number for the Boiler Inspection ~~Division~~ Section is:

Boiler Inspection ~~Division~~Section
~~Division of Labor~~Department of Labor and Licensing
900 West Capitol Ave, Suite 400
Little Rock, AR 72201
(501) 682-4500
Email: adll.boiler@arkansas.gov

(b)(1) The ~~Division of Labor~~Department of Labor and Licensing makes available a list of persons holding certain responsibilities for handling Freedom of Information Act of 1967, Arkansas Code § 25-19-101 et seq., requests, licensing questions, complaints against licensees, and compliance requests or assistance so that the public may obtain

information about the Boiler Inspection ~~Division~~ Section or make submissions or requests.

(2) The names, mailing addresses, telephone numbers, and electronic addresses can be obtained from the Boiler Inspection ~~Division's~~ Section's office or website.

(3) The ~~Division of Labor's~~Department of Labor and Licensing's website is: http://www.labor.arkansas.gov/~~Pages/default.aspx~~.

(4) The Boiler Inspection ~~Division's~~ Section's website is: http://www.labor.arkansas.gov/labor/code-enforcement/boiler-inspection-licensing-and-permits/.~~divisions/Pages/boilerInspectionDivision.aspx.~~

(c) The Boiler Inspection ~~Division~~ Section has a list of official forms used by the Boiler Inspection ~~Division~~ Section and a list of all formal, written statements of policy and written interpretative memoranda, and orders, decisions, and opinions resulting from adjudications, which may be obtained from the Boiler Inspection ~~Division's~~ Section's office or website.

(d) Copies of all forms used by the Boiler Inspection ~~Division~~Section, written statements of policy and written interpretive memoranda, and all orders issued by the Boiler Inspection ~~Division~~ Section may be obtained from the Boiler Inspection ~~Division's~~ Section's office.

20 CAR § 880-102. General definitions.

As used in this part, unless the context otherwise requires:

(1)(A) "ASME Boiler and Pressure Vessel Construction Code" means the title of the accepted reference for construction, operation, and inspection of boilers and pressure vessels, compiled and written by the American Society of Mechanical Engineers.

(B) This code is the basis of this part;

(2) "Authorized inspector" or "inspector" means a deputy inspector duly appointed by the Chief Inspector of the Boiler Inspection ~~Division~~Section, or an

insurance inspector, or an authorized third-party inspector holding a National Board of Boiler and Pressure Vessel Inspectors commission and an Arkansas commission;

(3) "Boiler" means a closed vessel or container in which water is heated and/or steam is generated, steam is superheated, or any combination thereof, under pressure or vacuum by the direct application of heat, and shall be classified as defined by the ~~several~~ applicable sections of the ASME Boiler Construction Code as follows:

(A) Power Boilers, Section No. 1;

(B) Low-pressure heating boiler, boiler used exclusively for low-pressure steam heating, hot water heating, and hot water supply;

(C) Section No. 4; and

(D) Miniature boilers, as defined in Section I;

(4) "Boiler, automatically fired" means a boiler which cycles automatically in response to a control system;

(5) "Boiler, high-pressure, steam, or vapor" means a boiler in which steam or vapor is generated at a pressure exceeding fifteen pounds per square inch gauge (15 psig);

(6) "Boiler horsepower or HP" means the evaporation of thirty-four and one-half pounds (34.5 lbs.) of water per hour from and at a feedwater temperature of two hundred twelve degrees Fahrenheit (212° F);

(~~6~~7) "Boiler, hot water heating" means a boiler in which no steam is generated and from which hot water is circulated for heating purposes, and then returned to the boiler;

(~~7~~8) "Boiler, hot water supply" means a boiler that furnishes hot water to be used externally to itself at pressure not exceeding one hundred sixty pounds per square inch gauge (160 psig) or a temperature not exceeding two hundred fifty degrees Fahrenheit (250° F) (one hundred twenty degrees Celsius (120° C)) at or near the boiler outlet;

(~~8~~9) "Boiler, low-pressure, steam or vapor" means a boiler in which steam or vapor is generated at a pressure not exceeding fifteen pounds per square inch gauge (15 psig);

(~~9~~10) "Boiler, miniature" means a boiler that does not exceed any of the following limits:

(A) Sixteen-inch inside diameter of shell;

(B) Twenty square feet (20 ft^2) heating surface;

(C) Five cubic feet (5 ft^3) gross volume, exclusive of casing and insulation; and

(D) One hundred pounds per square inch gauge (100 psig) maximum allowable working pressure;

(11) "Boiler operator" means a person who has successfully completed the boiler operator's examination and been issued a boiler operator license from the Boiler Inspection Section;

(12) "Boiler room" means any building, enclosed room, or space within a building other than a residential dwelling, intended by design or by usage to contain a boiler which is connected and available for use;

(13) "Boiler room log" means a data sheet used to record pressures, temperatures, and other operating conditions of a boiler on a continuous basis;

(14) "Boiler shutdown" means a sequence of operations completed when taking a boiler off-line;

(15) "Boiler start up" means a sequence of operations completed when preparing a steam boiler for service;

(16) "British thermal unit or Btu" means a measurement of the quantity of heat necessary to heat one pound (1 lb.) of water to one degree Fahrenheit (1° F);

(17) "Chief Inspector" means the supervising inspector for the Boiler Inspection Section of the Department;

(18) "CSD-1" means the ASME Controls and Safety Devices standard, which sets minimum requirements for the installation, testing, testing frequency, and maintenance of safety controls on automatically fired boilers and gas-fired process equipment.

(~~10~~19) "Department" means the Arkansas Department of Labor and Licensing;

(~~11~~20) "Director" means the Director of ~~the Division of Labor~~Code Enforcement;

~~(12) "Division" means the Boiler Inspection Division of the Division of Labor;~~

(~~13~~21) "Existing installation" means any power boiler or miniature boiler which was in service on or before January 1, 1938, and any low-pressure heating boiler or unfired pressure vessel which was in service on or before June 10, 1959, and which was at that time recognized by the ~~Division of Labor~~Department as an existing installation;

~~(14) "Factor of safety" means the ratio of the ultimate strength of materials to the allowable stress;~~

~~(15) "Fittings" and "appliances" means such necessary safety devices as are attached to a boiler and/or an unfired pressure vessel for safety purposes;~~

(~~16~~22)(A) "National board" or "NBBI" means the National Board of Boiler and Pressure Vessel Inspectors.

(B) When a boiler or pressure vessel bears an ASME symbol stamp and is stamped "National Board" or "N.B.", it shall mean that the boiler or vessel is constructed to comply with the recognized standard of construction and has been inspected by an inspector holding a National Board of Boiler and Pressure Vessel Inspectors commission;

(~~17~~23) "Owner" or "user" means any person, firm, partnership, or corporation, or other entity owning or operating, or in charge or in control of any boiler and/or any unfired pressure vessel;

(24) "Periodic attendance" means a licensed boiler operator who has inspected and recorded the boiler operation a minimum of once every four (4) hours unless otherwise required in any applicable code set for in the ASME or NBBI as adopted in 20 CAR §880-701;

(~~18~~25) "Second-hand boiler" or "second-hand pressure vessel" means any boiler or pressure vessel which has undergone both a change of ownership and location;

(26) "Secretary" means the Secretary of the Arkansas Department of Labor and Licensing or his or her designee;

(27) "Section" means the Boiler Inspection Section;

(~~19~~28) "State Special" means a boiler or fired/unfired pressure vessel of any type or size, which carries neither the ASME symbol nor National Board of Boiler and Pressure Vessel Inspectors stamping, which may be acceptable for use provided the manufacturer, installer, or owner obtains a variance pursuant to 20 CAR § 880-702; ~~and~~

(~~20~~29) "Unfired pressure vessel or pressure vessels" means any unfired pressure vessel constructed for the accumulation, storage, or transportation of air, liquids, or gases that are under induced pressure, and as defined by Section VIII, Division 1, of the ASME Boiler Construction Code, except containers used for liquefied petroleum gases; and~~.~~

(30) "Variance" means a petition presented in writing to the Chief Inspector of the Boiler Inspection Section for consideration of a non-code boiler or pressure vessel to be installed and used within the State of Arkansas.

~~**20 CAR § 880-103. Technical definitions.**~~

~~As used in this part:~~

~~(1) "Absolute pressure" means the sum of gauge pressure and atmospheric pressure;~~

~~(2) "Accessory" means the piece of equipment not directly attached to the boiler but necessary for its operation;~~

~~(3) "Accumulation test" means the test used to establish the relieving capacity of boiler safety valves;~~

~~(4) "Air cock". See "boiler vent", subdivision (34) of this section;~~

~~(5) "Air ejector" means the steam-driven device that removes air and other noncondensable gases from the condenser, thus maintaining a higher vacuum;~~

~~(6) "Air flow switch" means the switch that proves that primary air is supplied to the burner;~~

~~(7)(A) "Air heater" means the heater that supplies heated air for combustion.~~

~~(B) The "air heater" is located in the breeching between the boiler and chimney;~~

~~(8) "Air to fuel ratio" means the amount of air and fuel supplied to the burner over high and low fire;~~

~~(9)(A) "Alkalinity" is determined by boiler water analysis.~~

~~(B) Boiler water with a pH over seven (7) is considered alkaline;~~

~~(10) "Ambient temperature" means the temperature of the surrounding air;~~

~~(11) "Anthracite coal" means coal that has a high fixed carbon content;~~

~~(12) "Ash hopper" means the large receptacle used to store ashes until they can be disposed of;~~

~~(13) "ASME code" means the code written by the American Society of Mechanical Engineers that controls the construction, repairs, and operation of boilers, unfired pressure vessels, and their related equipment;~~

~~(14) "Atmospheric pressure" means the pressure at sea level, fourteen and seven tenths pounds per square inch (14.7 psi);~~

~~(15) "Atomize" means to break up liquid into a fine mist;~~

~~(16)(A) "Automatic nonreturn valve" means the valve located on the steam line closest to the shell of the boiler that cuts the boiler in on the line and off-line automatically.~~

~~(B) The "automatic nonreturn valve" also protects the system in the event of a large steam leak on any boiler;~~

~~(17) "Auxiliaries" means the equipment necessary for the operation of a boiler;~~

~~(18) "Baffles" direct the path of the gases of combustion so that the maximum heat will be absorbed by the water before the gases of combustion enter the breeching and chimney;~~

~~(19)(A) "Balanced draft" means when the intake damper is automatically controlled by the pressure in the furnace.~~

~~(B) Furnace pressure is maintained slightly below atmospheric pressure;~~

~~(20) "Bent tube boiler" means a water tube boiler with more than one (1) drum in which the tubes connect the drums;~~

~~(21) "Bituminous coal" means soft coal that has a high volatile content;~~

~~(22) "Blowdown tank" means a coded tank vented to the atmosphere that protects sewer lines from boiler pressure and high temperature when blowing down;~~

~~(23) "Blowdown valves" means valves found on the boiler blowdown line at the lowest part of the water side of the boiler;~~

~~(24) "Boiler capacity" means the pounds of steam per hour that a steam boiler is capable of producing;~~

~~(25) "Boiler explosion" means an explosion caused by a sudden drop in pressure (failure on the steam side) without a corresponding drop in temperature;~~

~~(26) "Boiler horsepower" means the evaporation of thirty four and one half pounds (34.5 lbs.) of water per hour from and at a feedwater temperature of two hundred twelve degrees Fahrenheit (212° F);~~

~~(27)(A) "Boiler lay-up" means removing a boiler from service for an extended period of time.~~

~~(B) A boiler can be laid up wet or dry;~~

~~(28) "Boiler operator" means a person who has successfully completed the boiler operator's examination and been issued a boiler operator license from the Boiler Inspection Division;~~

~~(29) "Boiler room" means any building, enclosed room, or space within a building other than a residential dwelling, intended by design or by usage to contain a boiler which is connected and available for use;~~

~~(30) "Boiler room log" means a data sheet used to record pressures, temperatures, and other operating conditions of a boiler on a continuous basis;~~

~~(31) "Boiler shutdown" means a sequence of operations completed when taking a boiler off line;~~

~~(32) "Boiler start up" means a sequence of operations completed when preparing a steam boiler for service;~~

~~(33)(A) "Boiler tubes" means tubes used to carry water or heat and gases of combustion.~~

~~(B) "Boiler tubes" may be straight or bent tubes;~~

~~(34)(A) "Boiler vent" means the line coming off the highest part of the steam side of the boiler that is used to vent air from the boiler when filling with water and when warming the boiler.~~

~~(B) A "boiler vent" is also used to prevent a vacuum from forming when taking the boiler off-line.~~

~~(C) A "boiler vent" is also known as an air cock;~~

~~(35) "Boiler external piping" includes all piping from the boiler proper up to and including the second stop valve and the free-blow drain valve;~~

~~(36) "Boilers in battery" means two (2) or more boilers connected to a common steam header;~~

~~(37) "Bourdon tube" means the tube connected by linkage to a pointer that registers pressure inside pressure gauges;~~

~~(38)(A) "Box header" means a header that requires staybolts to prevent the headers from bulging.~~

~~(B) "Box headers" are found on older water tube boilers;~~

~~(39) "Breeching" means the duct connecting boiler to chimney;~~

~~(40)(A) "British thermal unit (Btu)" means a measurement of the quantity of heat.~~

~~(B) "Btu" is the quantity of heat necessary to heat one pound (1 lb.) of water to one degree Fahrenheit (1° F);~~

~~(41) "Burning in suspension" means combustion of a fuel when burned in air without support;~~

~~(42) "Butterfly valve" means a balanced valve used to control gas flow to gas-fired boilers;~~

~~(43) "Bypass damper" means the damper that controls the air temperature in air heaters to prevent corrosion;~~

~~(44)(A) "Bypass line" means a pipeline that passes around a control, heater, or steam trap.~~

~~(B) A "bypass line" is used so that a plant can operate while equipment is serviced or repaired;~~

~~(45) "Calibrate" means adjusting a pressure gauge to conform to a test gauge;~~

~~(46) "Carryover" means particles of water that flow with the steam into the main steam line;~~

~~(47) "Caustic embrittlement" means the collection of high alkaline material that leads to breakdown and weakening of boiler metal;~~

~~(48) "Centrifugal force" means force caused by a rotating impeller that builds up in a centrifugal pump;~~

~~(49) "Centrifugal pump" means a pump that works on the principle of centrifugal force that is converted into pressure;~~

~~(50) "Chain (traveling) grate stoker" means a cross-feed stoker that is used with larger capacity boilers because of its ability to feed coal at a faster rate than other stokers;~~

~~(51) "Check valve" means an automatic valve that controls the flow of a liquid in one (1) direction;~~

~~(52) "Chemical compound" means the compound formed when two (2) or more chemical elements combine into a new substance;~~

~~(53) "Chemical concentration" means the amount of a specific chemical in the boiler water;~~

~~(54) "Chemical energy" means the energy in the fuel that converts to heat energy during the combustion process;~~

~~(55)(A) "Chimney" is used to create draft.~~

~~(B) A "chimney" is also an outlet to the atmosphere for the gases of combustion;~~

~~(56) "Coal bunker" means an overhead bin where large quantities of coal are stored;~~

~~(57) "Coal conveyer" means the mechanism on a stoker that moves coal to the coal scale;~~

~~(58) "Coal feeder" means the feeder that controls the flow of coal entering the pulverizer;~~

~~(59) "Coal gate" means the gate used to control the depth of coal entering the boiler furnace on chain grate stokers;~~

~~(60) "Coal ram" distributes coal evenly into the center retort on underfeed stokers and forces the coal up to the top where it is burned;~~

~~(61) "Coal scale" is the scale that measures and records the amount of coal fed to stoker-fired or pulverized coal-fired boilers;~~

~~(62) "Combustible materials" means any material that burns when it is exposed to oxygen and heat;~~

~~(63) "Combustion" means the rapid union of oxygen with an element or compound that results in the release of heat;~~

~~(64) "Combustion control" means the control that regulates the air to fuel ratio supplied to the burner;~~

~~(65) "Complete combustion" means the burning of all supplied fuel using the minimum amount of excess air;~~

~~(66)(A) "Compressive stress" means stress which occurs when two (2) forces of equal intensity act from opposite directions, pushing toward the center of an object.~~

~~(B) Fire tubes in a fire tube boiler are subjected to "compressive stress";~~

~~(67) "Condensate" means steam that has lost its heat and has returned to water;~~

~~(68) "Condensate pump" means the pump used to return condensed steam to the open feedwater heater;~~

~~(69) "Condensate tank" means the tank where condensed steam (water) is stored before it is delivered back to the open feedwater heater by the condensate pump;~~

~~(70) "Condense" means the process whereby steam turns back to water after the removal of heat;~~

~~(71) "Conduction" means a method of heat transfer in which heat moves from molecule to molecule;~~

~~(72) "Conductivity" means a measure of the ability of electrons to flow through a solution;~~

~~(73) "Constant attendance" means a boiler operator must be stationed at the boiler with no other significant job duties;~~

~~(74) "Continuous blowdown" is used to control chemical concentrations and total dissolved solids in the boiler water;~~

~~(75) "Convection" means a method of heat transfer that occurs as heat moves through a fluid;~~

~~(76) "Convection superheater" means a heater that is located in a boiler and receives heat from convection currents;~~

~~(77) "Counterflow" means the principle used in heat exchangers where the medium being heated flows in one (1) direction and the medium supplying the heat flows in the opposite direction;~~

~~(78) "Cracking open" means slowly opening a steam valve to allow pressure to equalize;~~

~~(79) "Cross 'T'" is used on connections on a water column for inspection of steam and water lines to ensure they are clean and clear;~~

~~(80) "Cyclone separator" means a device that separates water droplets from steam using centrifugal force and by changing direction;~~

~~(81) "Damper" is used to control the flow of air or gases;~~

~~(82) "Data plate" means a plate that must be attached to a safety valve containing data required by the ASME code;~~

~~(83) "Deadweight tester" means a tester used to test a pressure gauge so that it can be recalibrated;~~

~~(84) "Deaerating feedwater heater" means a type of open feedwater heater equipped with a vent condenser;~~

~~(85) "Desuperheating" means removing heat from superheated steam to make it suitable for process;~~

~~(86) "Discharge piping" means piping attached to the outlet side of a safety valve that conveys steam to the atmosphere;~~

~~(87) "Draft" means the difference in pressure between two (2) points that causes air or gases to flow;~~

~~(88) "Dry pipe separator" means a closed pipe perforated at the top with drain holes on the bottom that remove moisture from the steam;~~

~~(89) "Duplex strainers" means strainers that remove solid particles from the fuel oil in fuel oil systems;~~

~~(90) "Economizer" uses the gases of combustion to heat the feedwater;~~

~~(91) "Element" means a basic substance consisting of atoms;~~

~~(92) "Enthalpy" means the total heat in the steam;~~

~~(93) "Erosion" means the wearing away of metal caused by wet steam;~~

~~(94) "Equalizing line" means the line used to warm up the main steam line and equalize the pressure around the main steam stop valve;~~

~~(95) "Evaporation test" means the test that checks the operation of the low-water fuel cutoff;~~

~~(96) "Excess air" means air more than the theoretical amount of air needed for combustion;~~

~~(97) "Exhauster" discharges a mixture of coal and warm air to the burner;~~

~~(98) "Expansion bends" are bends installed on boiler main steam lines to allow for expansion and contraction of the lines;~~

~~(99) "External treatment" means boiler water treated before it enters the boiler to remove scale-forming salts, oxygen, and noncondensable gases;~~

~~(100) "Extraction steam" means steam that is extracted from a steam turbine at a controlled pressure for process;~~

~~(101) "Factor of evaporation" means a correction factor used to determine boiler horsepower;~~

~~(102) "Feathering" means that point when a safety valve is about to lift;~~

~~(103) "Feedwater" means water that is supplied to the steam boiler;~~

~~(104) "Feedwater heater" means a heater used to heat feedwater before it enters the steam and water drum;~~

~~(105) "Feedwater lines" means lines leaving the open feedwater pump and going to the boiler;~~

~~(106) "Feedwater pump" means the pump that takes water from the open feedwater heater and delivers it to the boiler at the proper pressure;~~

~~(107) "Feedwater regulator" means the control used to maintain an NOWL that cuts down the danger of high or low water;~~

~~(108)(A) "Feedwater treatment" is treatment that can be internal, using chemicals, or external, using water softeners.~~

~~(B) "Feedwater treatment" protects boiler from scale and corrosion;~~

~~(109) "Field erected boiler" means a boiler that must be erected in the field because of its size and complexity;~~

~~(110) "Fire point" means the temperature at which fuel oil burns continuously when exposed to an open flame;~~

~~(111) "Firebox" means the part of the boiler where combustion of fuel takes place;~~

~~(112) "Fire tube boiler" is the boiler that has heat and gases of combustion passing through tubes surrounded by water;~~

~~(113) "Firing rate" means the amount of fuel the burner is capable of burning in a given unit of time;~~

~~(114) "Fittings" means trim found on the boiler that is used for safety and/or efficiency;~~

~~(115) "Flame failure" means when the flame in the furnace goes out;~~

~~(116) "Flame scanner" means the device found on a boiler that proves pilot and main flame;~~

~~(117) "Flareback" means flames discharging from the boiler through access doors or ports caused by delayed ignition or furnace pressure buildup;~~

~~(118) "Flash economizer" means a heat recovery system used to reclaim the heat from the boiler blowdown water and used in conjunction with the continuous blowdown system;~~

~~(119) "Flash point" means the temperature at which fuel oil, when heated, produces a vapor that flashes when exposed to an open flame;~~

~~(120) "Flash steam" means steam created when water at a high temperature has a sudden drop in pressure;~~

~~(121) "Flash tank" means a tank used with a continuous blowdown system to recover the flash steam from the water being removed from the steam and water drum;~~

~~(122) "Flat gauge glass" means a type of gauge glass used for pressure over two hundred fifty pounds per square inch (250 psi);~~

~~(123) "Flexible joint" means a joint to allow for expansion and contraction of steam or water lines;~~

~~(124) "Flow meter" means a meter used to measure the flow of steam or water in the system;~~

~~(125) "Fly ash" means small particles of noncombustible material found in gases of combustion;~~

~~(126) "Fly ash precipitator" means an electric device that traps and holds fly ash until it is properly disposed of;~~

~~(127)(A) "Foaming" means rapid fluctuations of the boiler water level that can lead to priming or carryover.~~

~~(B) "Foaming" is caused by impurities on the surface of the boiler water;~~

~~(128) "Forced draft" means a mechanical draft produced by a fan supplying air to the furnace;~~

~~(129) "Free-flowing drain" means the drain used to remove condensate from the main steam line;~~

~~(130) "Front header" means the header connected to the steam and water drum by downcomer nipples;~~

~~(131)(A) "Fuel oil heater" means the heater used to heat fuel oil so it can be pumped and is at the correct temperature for burning.~~

~~(B) A "fuel oil heater" can be electric or steam;~~

~~(132) "Fuel oil pump" means the pump that takes fuel oil from the fuel oil tank and delivers it to the burner at the proper pressure;~~

~~(133) "Furnace explosion" is an explosion that occurs when fuel or combustible gas build up in the fire side of the boiler;~~

~~(134) "Furnace volume" means the amount of space available in a furnace to complete combustion;~~

~~(135) "Fyrite analyzer®" means the instrument used to measure the percentage of carbon dioxide in the gases of combustion;~~

~~(136) "Galvanometer" means the meter used to measure small electric currents;~~

~~(137) "Gas analyzer" means the analyzer used to analyze the gases of combustion to determine combustion efficiency;~~

~~(138) "Gas calorimeter" means the device used to determine the Btu content of natural gas;~~

~~(139) "Gas cock" means a manual quick-closing shutoff valve;~~

~~(140) "Gas leak detector" means the device used to locate gas leaks in a boiler room;~~

~~(141) "Gas mixing chamber" means the chamber where air and gas mix before they enter the furnace in low-pressure gas burners;~~

~~(142) "Gas pressure regulator" means the device used to supply gas to the burner at the required pressure needed for combustion of the gas;~~

~~(143) "Gases of combustion" means gases produced by the combustion process;~~

~~(144)(A) "Gate valve" means the valve used on boilers as the main steam stop valve that when open offers no restriction to flow.~~

~~(B) The "gate valve" must be wide open or fully closed;~~

~~(145) "Gauge glass blowdown valve" means the valve used to remove any sludge and sediment from gauge glass lines;~~

~~(146) "Gauge pressure" means the pressure above atmospheric pressure that is read on a pressure gauge and is recorded as psi or psig;~~

~~(147)(A) "Globe valve" means the valve used to take a piece of equipment out of service for maintenance.~~

~~(B) The "globe valve" is used in conjunction with a bypass line and bypass valve;~~

~~(148) "Grade" refers to the size, heating value, and ash content of coal;~~

~~(149) "Grates" means where the combustion process starts in a coal-fired furnace;~~

~~(150) "Handhole" means a part found on both fire tube and water tube boilers that is removed when cleaning the water side of the boiler;~~

~~(151) "Heat energy" means kinetic energy caused by molecular motion within a substance;~~

~~(152) "Heat exchanger" means any piece of equipment where heat is transferred from one (1) substance to another;~~

~~(153) "Heat recovery system" means equipment that is installed to reclaim heat that is normally lost during the blowdown process;~~

~~(154) "Heat transfer" means movement of heat from one (1) substance to another that can be accomplished by radiant conduction or convection;~~

~~(155) "Heating boilers" means boilers used exclusively for low-pressure steam heating, hot water heating, and hot water supply;~~

~~(156) "Heating surface" means that part of the boiler that has heat and gases of combustion on one (1) side and water on the other;~~

~~(157)(A) "Heating value" means the value expressed in Btus per gallon or per pound.~~

~~(B) "Heating value" varies with the type of fuel used;~~

~~(158)(A) "High and low water alarm" means the alarm that warns the operator of high or low water.~~

~~(B) The "high and low water alarm" is found inside the water column;~~

~~(159) "High fire" means the point of the firing cycle when the burner is burning the maximum amount of fuel per unit of time;~~

~~(160) "High-pressure steam boiler" means a boiler that operates at a steam pressure over fifteen pounds per square inch (15 psi) and over six (6) boiler horsepower;~~

~~(161) "Horizontal return tubular boiler" means the type of fire tube boiler that consists of a drum suspended over the firebox;~~

~~(162) "Hot well" means a reservoir located at the bottom of a condenser where condensate collects;~~

~~(163) "Huddling chamber" means the part on a safety valve that increases the area of the safety valve disc, thus increasing the total upward force, causing the valve to pop open;~~

~~(164) "Hydraulic coupling" means the coupling between the drive element and fan or pump;~~

~~(165) "Hydrogen" means the basic element present in gas, coal, and fuel oil;~~

~~(166) "Hydrostatic pressure" means pressure per vertical foot, four hundred thirty-three thousandths (.433), exerted at the base of a column of water;~~

~~(167) "Hydrostatic test" means the water test made on a PRI after repair work on the steam or water side or overheating of boiler metal;~~

~~(168) "Ignition" means the lightoff point of a combustible material;~~

~~(169) "Ignition arch" means the arch made of refractory material that absorbs the heat from the fire and radiates it back to the green coal;~~

~~(170) "Impeller" means the rotating element found in a centrifugal pump that converts centrifugal force into pressure;~~

~~(171) "Impingement (fuel oil)" means fuel oil striking brickwork or the boiler heating surface that results in formation of carbon deposits and smoke;~~

~~(172) "Impingement (steam)" means steam that strikes the boiler heating surface, causing erosion of boiler metal;~~

~~(173) "Incomplete combustion" means combustion that occurs when all the fuel is not burned, resulting in the formation of smoke and soot;~~

~~(174) "Induced draft" means draft that is produced mechanically using a fan located between the boiler and the chimney;~~

~~(175) "Infrared" means invisible light rays produced by the combustion process and detected by a flame scanner;~~

~~(176) "Installer" means a person, firm, or corporation which sets up or adjusts for service any mechanical device, apparatus, or pressure vessel;~~

~~(177) "Instrument (boiler)" means the device that measures, indicates, records, and controls boiler room systems;~~

~~(178) "Insulation" means material used to cover steam, water, and fuel oil lines to cut down on radiant heat losses;~~

~~(179) "Integrator" means a calculating device used on differential pressure flow meters to determine hourly or daily flow rates;~~

~~(180) "Interlock" means a device used with burner controls to ensure proper operating sequence;~~

~~(181) "Internal feedwater line" means the perforated line located at the NOWL in the boiler that distributes the relatively cool feedwater over a large area to prevent thermal shock to the boiler metal;~~

~~(182) "Internal furnace" means the furnace that is located within the boiler and is surrounded by water in the scotch marine boiler;~~

~~(183) "Internal overflow" means a pipeline located in an open feedwater heater that prevents the water level from exceeding a fixed level and flooding the system;~~

~~(184) "Internal treatment" means the addition of chemicals directly into the boiler water to control pitting, scale, and caustic embrittlement;~~

~~(185) "Ion (zeolite) exchanger" means the water softener that uses zeolite to soften water for use in the boiler;~~

~~(186) "Jobber" means one who deals as a wholesaler or one who does work by the job;~~

~~(187) "Lighting off" means the ignition of the fuel;~~

~~(188) "Lignite" means coal with a low heating value (Btu content) and a high moisture content;~~

~~(189) "Lime-soda process" means a process that uses lime and soda ash to soften water;~~

~~(190) "Live steam" means steam that leaves the boiler directly without having its pressure reduced in process operations;~~

~~(191) "Low fire" means the point of firing cycle where burner is burning the minimum amount of fuel per unit of time;~~

~~(192) "Low-pressure steam boiler" means boilers that operate at a steam pressure of no more than fifteen pounds per square inch (15 psi);~~

~~(193) "Low water" means whenever the water level in the gauge glass is below the NOWL;~~

~~(194) "Low water fuel cutoff" means a device located a little below the NOWL that shuts off the boiler burner in the event of low water, preventing burning out of tubes and possible boiler explosion;~~

~~(195) "Main header" means that part of the system which connects boilers in battery and then distributes the steam to wherever it is needed;~~

~~(196) "Main steam stop valve" means the valve or valves found on the main steam line leaving the boiler;~~

~~(197) "Makeup water" means water that must be added to the boiler to make up for:~~

~~(A) Leaks in the system;~~

~~(B) Water that is lost through boiler blowdowns; or~~

~~(C) Condensate that is dumped because of contamination;~~

~~(198) "Malleable iron" means iron used for construction of water columns in boilers carrying a pressure between two hundred fifty pounds per square inch (250 psi) and three hundred fifty pounds per square inch (350 psi);~~

~~(199) "Manhole" means the opening found on the steam and water side of a boiler that is used for cleaning and inspection of the boiler;~~

~~(200) "Manometer" means the instrument used to measure boiler draft;~~

~~(201) "Manual reset valve" means the valve used to secure the gas in the event of a low water condition or a pilot flame failure on a low-pressure gas system;~~

~~(202) "Master control" means the unit that receives the primary signal and relays signals to individual control units;~~

~~(203) "MAWP (maximum allowable working pressure)" means the maximum allowable working pressure as determined by the design and construction of the boiler in conformance with the code of construction;~~

~~(204) "Mercury switch" means the switch in which the movement of mercury in a capsule controls the flow of electricity in a circuit;~~

~~(205) "Mica" means the material used to protect the flat gauge glass from the etching action of steam and water;~~

~~(206) "Microprocessor" means the computer acting as a flame monitoring device that programs the burner, blower motor, ignition, and fuel valves to provide for safe burner operation;~~

~~(207) "Modulating motor" means the motor that receives signals from the modulating pressure control and repositions the air to fuel ratio linkage;~~

~~(208) "Modulating pressure control" means the control located at the highest part of the steam side of the boiler that sends a signal to the modulating motor that controls firing rate;~~

~~(209) "Mud drum" means the drum at the lowest part of the water side of a water tube boiler;~~

~~(210) "Multiple-pass boiler" means boilers that are equipped with baffles to direct the flow of the gases of combustion so that the gases make more than one (1) pass over the heating surfaces;~~

~~(211) "Natural draft" means the draft caused by the difference in weight between a column of hot gases of combustion inside the chimney and a column of cold air of the same height outside the chimney;~~

~~(212) "Natural gas" means a combustible gas found in pockets trapped underground that consists mainly of methane;~~

~~(213) "Nonadhering sludge" means residue formed in a boiler when scale-forming salts are created by adding feedwater chemicals;~~

~~(214) "Noncondensable gases" means gases found in boiler makeup water (oxygen) and in condensate returns;~~

~~(215) "Nonvolatile" means any substance not easily vaporized under average temperature;~~

~~(216) "NOWL (normal operating water level)"means water level carried in the boiler gauge glass during normal operation (approximately one-third (1/3) to one-half (1/2) glass);~~

~~(217) "Oil separator" means a device that removes oil from the exhaust steam before it enters the open feedwater heater;~~

~~(218) "Operating range" means a range that must be set when using an ON/OFF combustion control in order to prevent extremes in firing rate;~~

~~(219) "Operator". See "boiler operator", subdivision (28) of this section;~~

~~(220) "Orifice plate" means the plate with a fixed opening that is installed in a pipeline to give a certain pressure drop across the opening where liquid or steam is flowing;~~

~~(221) "Orsat analyzer" means a flue gas analyzer that measures the percentage of carbon dioxide, oxygen, and carbon monoxide in the gases of combustion;~~

~~(222)(A) "Outside stem and yoke valve (OS&Y)" means the valve that shows by the position of the stem whether it is open or closed.~~

~~(B) The "outside stem and yoke valve" is used as boiler main steam stop valves;~~

~~(223)(A) "Overfeed stoker" means air introduced over the fire to aid in complete combustion.~~

~~(B) "Overfeed stoker" is used mostly when burning soft coal that has a high volatile content;~~

~~(224) "Package boiler" means a boiler that comes completely assembled with its own feedwater pumps, fuel system, and draft fans;~~

~~(225) "Packing gland" means a device that holds packing or seals in place on valves and pumps to minimize leakage;~~

~~(226)(A) "Perfect combustion" means the burning of all the fuel with the theoretical amount of air.~~

~~(B) "Perfect combustion" can only be achieved in a laboratory;~~

~~(227)(A) "Periodic attendance" means that a boiler operator must inspect the boiler for proper operation every four (4) hours to take and record any required readings.~~

~~(B) The boiler is equipped with the usual local operating and safety devices which include alarm lights and buzzers.~~

~~(C) In addition, there must be remotely actuated alarm devices to detect:~~

~~(i) Low water condition;~~

~~(ii) Over pressure condition (set to operate before the safety valve operates); and~~

~~(iii) Loss of operating boiler;~~

~~(228) "Pilot" means the device used to ignite fuel at the proper time in a firing cycle;~~

~~(229) "Pipeline heater" means the electric heater attached to the fuel oil line in order to maintain proper fuel oil temperature (viscosity) for moving fuel oil;~~

~~(230) "Pneumatic system" means a system of control that uses air as the operating medium;~~

~~(231) "Pneumercator" means a fuel oil level indicating device that gives a direct reading in gallons;~~

~~(232) "Popping pressure" means the predetermined pressure at which a safety valve opens and remains open until the pressure drops;~~

~~(233)(A) "Pop type safety valve" means a valve with a predetermined popping pressure.~~

~~(B) A "pop type safety valve" is commonly found on steam boilers;~~

~~(234) "Positioning controller" means a control that regulates air and fuel going to a boiler furnace;~~

~~(235) "Postpurge" means the passing of air through a furnace after normal burner shutdown;~~

~~(236) "Pour point" means the lowest temperature at which fuel oil flows as a liquid;~~

(237) "Prepurge" means the passing of air through a furnace prior to lightoff;

(238) "Pressure control" is the control attached to the highest part of the steam side of a boiler to control its operating range;

(239)(A) "Pressure gauge" means a gauge calibrated in pounds per square inch.

(B) A "pressure gauge" is used to indicate various pressures in the system;

(240) "Pressure reducing governor" is a device used on low pressure gas burner systems to reduce the gas pressure to zero pounds per square inch (0 psi);

(241) "Pressure reducing station" means the station where higher pressure steam is reduced in pressure for plant process;

(242) "PRI" means pressure retaining item;

(243) "Primary air" means air supplied to the burner that regulates the rate of combustion;

(244) "Process steam" means steam used in the plant for manufacturing purposes;

(245) "Products of combustion" means gases that are formed as a fuel is burned in the furnace;

(246) "Programmer" means the control that puts the burner through a firing cycle;

(247) "Proportioning chemical feed pump" means a pump that can be adjusted to feed chemicals to a boiler over a twenty four hour period;

(248) "Proving pilot" means sighting the pilot through the scanner to verify that the pilot is lit;

(249) "Proximate analysis" means an analysis that provides information regarding moisture content, volatile matter, fixed carbon, and ash content of coal;

(250) "psi (pounds per square inch)" means the unit of measurement used to express the amount of pressure present in a given structure or system;

(251) "Pulverizing mill" means a mill that grinds coal to the consistency of talcum powder before it is delivered to the furnace, where it burns in suspension;

~~(252) "Pump controller" means the pump that starts and stops a feedwater pump, depending on the water level in the boiler;~~

~~(253) "Purge period" means the period before ignition and after burner shutdown when explosive combustibles are removed;~~

~~(254) "Pyrometer" means the high-pressure thermocouple used to measure furnace temperatures;~~

~~(255)(A) "Quality of steam" means the term used to express the moisture content present in saturated steam.~~

~~(B) "Quality of steam" effects the Btu content of the steam;~~

~~(256) "Quick-closing valve" means a valve that requires a one-quarter (1/4) turn to be fully open or closed;~~

~~(257) "Radiant superheater" means a nest of tubes that the saturated steam passes through to acquire heat;~~

~~(258) "Rank" means a term that refers to how hard the coal is;~~

~~(259) "Rate of combustion" means the amount of fuel that is being burned in the furnace per unit of time;~~

~~(260) "Raw water" means untreated water from wells or city water lines;~~

~~(261)(A) "Rear header" means the header found on straight tube water tube boilers.~~

~~(B) The "rear header" is connected to the front header by water tubes;~~

~~(262) "Reciprocating pump" means the positive-displacement pump used to pump liquids;~~

~~(263) "Recorder" means an instrument that records data such as pressures and temperatures over a period of time;~~

~~(264) "Refractory" means brickwork used in boiler furnaces and for boiler baffles;~~

~~(265)(A) "Regular attendance" means that an operator must inspect the boiler for proper operation and take any required readings once each hour.~~

~~(B) The boiler must be equipped with local operating and safety devices and should have local alarm lights and buzzers;~~

(266) "Relief valve" means the valve used to protect liquid systems from excessive pressure;

(267) "Reset" means the switch that must be reset manually after tripping;

(268) "Retort" means the space below the grates of an underfeed stoker;

(269) "Ringelmann" means the chart used as a means of determining smoke density;

(270) "Rivets" means fasteners used to connect steel plates;

(271) "Rotometer" means the variable-area flow meter that measures the flow of a fluid;

(272) "Safety valve blowdown" means the drop in pressure between popping pressure and reseating pressure (usually two to eight pounds per square inch (2 psi – 8 psi) below popping pressure;

(273) "Safety valve capacity" means the capacity measured in pounds of steam per hour safety valves can discharge;

(274) "Saturated steam" means the steam at a temperature that corresponds with its pressure;

(275) "Scale" means the deposits caused by improper boiler water treatment;

(276) "Scale-forming salts" means salts such as calcium carbonate and magnesium carbonate that when in solution tend to form a hard, brittle scale on hot surfaces;

(277)(A) "Scanner" means the device that monitors the pilot and main flame of the furnace.

(B) The "scanner" is used to prove the pilot flame and the main flame;

(278) "School" includes all public and private school systems, as well as public and private colleges, universities, and technical schools;

(279) "Scotch marine boiler" means a fire tube boiler with an internal furnace;

(280) "Secondary air" means air needed to complete the combustion process;

(281) "Sediment" means particles of foreign matter present in boiler water;

(282) "Shear stress" means stress that occurs when two (2) forces of equal intensity act parallel to each other but in opposite directions;

~~(283)(A) "Sinuous header" means a header found on water tube boilers.~~

~~(B) Tubes are expanded, rolled, and beaded into front and rear headers;~~

~~(284) "Siphon" means a protective device used between the steam and Bourdon tube in a steam pressure gauge;~~

~~(285) "Slow-opening valve" means a valve that requires five (5) full turns of its hand wheel to be fully open or closed;~~

~~(286) "Sludge" means accumulation residue produced from impurities in water;~~

~~(287)(A) "Smoke density" varies from clear to dark.~~

~~(B) "Smoke density" is determined by the amount of light that passes through the smoke as it leaves the boiler;~~

~~(288) "Smoke indicator" means an indicating or recording device that shows the density of the smoke leaving the chimney;~~

~~(289) "Solenoid valve" means an electromagnetic valve positioned open or closed;~~

~~(290) "Solid state" means an electronic system using transistors in place of electronic tubes;~~

~~(291) "Soot" means carbon deposits resulting from incomplete combustion;~~

~~(292)(A) "Soot blowers" are blowers used to remove soot from around tubes to increase boiler efficiency.~~

~~(B) "Soot blowers" are mostly found on water tube boilers;~~

~~(293) "Spalling" means hairline cracks in boiler brickwork (refractory) due to changes in furnace temperature;~~

~~(294) "Spontaneous combustion" occurs when combustible materials self-ignite;~~

~~(295) "State Special" means a boiler or fired/unfired pressure vessel of any type or size, which carries neither the ASME symbol nor the National Board of Boiler and Pressure Vessel Inspectors stamping, and which has been accepted by the Boiler Inspection Division and assigned an Arkansas state number;~~

~~(296) "Staybolts" means the bolts used in boilers to reinforce flat surfaces to prevent bulging;~~

~~(297) "Steam and water drum" means the pressure vessel in a steam boiler that contains both steam and water;~~

~~(298) "Steam boiler" means a closed pressure vessel in which water is converted to steam by the application of heat;~~

~~(299) "Steambound" means the condition that occurs when the temperature in the open feedwater heater gets too high and the feedwater pump cannot deliver water to the boiler;~~

~~(300)(A) "Steam separator" means the device used to increase the quality of steam.~~

~~(B) The "steam separator" is found in the steam and water drum;~~

~~(301) "Steam space" means the space above the water line in the steam and water drum;~~

~~(302) "Steam strainer" means the strainer used before steam traps and turbine throttle valves to remove solid impurities;~~

~~(303) "Steam trap" means an automatic device that removes gases and condensate from steam lines and heat exchangers without the loss of steam;~~

~~(304) "Steam turbine" means the turbine used to drive boiler auxiliaries or generators in large plants;~~

~~(305) "Stopcock" means a quick-opening or closing valve usually found on gas lines;~~

~~(306) "Strip chart" means the recording chart that records temperatures and pressures in the system;~~

~~(307) "Suction pressure" means the pressure on the liquid at the suction side of a pump;~~

~~(308) "Sulfur" means a combustible element found in coal and fuel oil;~~

~~(309) "Superheated steam" means steam at a temperature above its corresponding pressure;~~

~~(310) "Superheater" means a heater used to increase the amount of heat in the steam;~~

~~(311)(A) "Superheater drain" means the valve found on the superheater header outlet.~~

~~(B) The "superheater drain" is used to maintain flow throughout the superheater during start-up and shutdown;~~

~~(312) "Super-jet safety valve" means the valve set to open at a predetermined pressure;~~

~~(313) "Surface blowdown valve" means the valve used to remove impurities from the surface of the water in a steam and water drum;~~

~~(314) "Surface condenser" means a shell-and-tube vessel used to reduce the exhaust pressure on the outlet end of turbines or engines;~~

~~(315) "Surface tension" means the tension caused by impurities on the top of the water in the steam and water drum;~~

~~(316) "Suspension sling" means the sling used to support the drum of the HRT boiler;~~

~~(317) "Synchronize" means to balance out combustion controls before switching to automatic;~~

~~(318)(A) "Tensile stress" means stress which occurs when two (2) forces of equal intensity act on an object, pulling in opposite directions.~~

~~(B) "Tensile stress" affects boiler plates and staybolts;~~

~~(319)(A) "Therm" means a unit used to measure Btu content of natural gas.~~

~~(B) A "therm" has one hundred thousand British thermal units (100,000 Btus);~~

~~(320) "Thermal efficiency" means the ratio of the heat absorbed by the boiler to the heat available in the fuel per unit of time;~~

~~(321) "Thermocouple" means a device used to measure temperatures in the system and send them back to a recording chart;~~

~~(322)(A) "Thermometer" means an instrument used to measure temperature (degree of heat).~~

~~(B) A "thermometer" is calibrated in degrees Celsius or degrees Fahrenheit;~~

~~(323) "Through stays" means stays found on fire tube boilers (HRT and scotch marine) to keep front and rear tube sheets from bulging;~~

~~(324) "Total force" means the total pressure that is acting on an area, determined by diameter and pressure;~~

~~(325) "Totalizer" means the dial that determines hourly or daily flow rates;~~

~~(326) "Try cocks" means a secondary way of determining the water level;~~

~~(327) "Tube brushes" means brushes used in fire tube boilers to remove soot from inside of tubes;~~

~~(328) "Tube sheet" means tubes that are rolled, expanded, and beaded into front and rear tube sheets of HRT and scotch marine boilers and upper and lower tube sheets of vertical fire tube boilers;~~

~~(329) "Tubular gauge glass" means a round gauge glass used for pressures up to and including two hundred fifty pounds per square inch (250 psi);~~

~~(330)(A) "Turbine stages" means that part of the turbine where steam gives up its energy to the turbine blades.~~

~~(B) As the steam pressure drops, the stages (blades) become larger;~~

~~(331) "Turbulence" means movement of water in the steam and water drum;~~

~~(332) "Ultimate analysis" means the analysis to determine the elements present in a coal sample;~~

~~(333) "Ultraviolet" means a form of light that is produced during combustion;~~

~~(334) "Underfeed stoker" means a coal firing system that introduces the coal under the fire;~~

~~(335)(A) "U-tube manometer" means a manometer filled with mercury and used to measure vacuum.~~

~~(B) "U-tube manometers" are calibrated in inches;~~

~~(336) "Vacuum" means a pressure below atmospheric pressure;~~

~~(337) "Vacuum gauge" means a pressure gauge used to measure pressure below the atmosphere that is calibrated in inches of mercury;~~

~~(338) "Valve flow meter" means a meter that measures flow of a substance by the movement of a piston in a valve caused by resistance to flow of the substance;~~

~~(339) "Vaporstat" means a control with a large diaphragm that makes it highly sensitive to low pressure;~~

~~(340) "Variable area flow meter" means a meter that measures the flow of a substance by how much resistance is created by a float or piston which changes the area (size) of the flow path;~~

~~(341) "Variance" means a petition presented in writing to the Chief Inspector of the Boiler Inspection Division for consideration of a noncode boiler or pressure vessel to be installed and used within the State of Arkansas;~~

~~(342) "Vent condenser" means a device that removes oxygen and other noncondensable gases in a deaerating feedwater heater;~~

~~(343) "Venturi" means a constricting device used in pipelines to measure flow;~~

~~(344)(A) "Vertical fire tube boiler" means a one-pass boiler that has fire tubes in a vertical position.~~

~~(B) "Vertical fire tube boilers" are classified as wet-top or dry-top;~~

~~(345) "Warping" means the bending or distortion of boiler or superheater tubes, usually caused by overheating;~~

~~(346)(A) "Water column" means the column which reduces fluctuations of boiler water to obtain a better reading of the water level in the boiler gauge glass.~~

~~(B) The "water column" is located at the NOWL;~~

~~(347) "Water column blowdown valve" means the valve on the bottom of the water column used to remove sludge and sediment that might collect at the bottom of the water column;~~

~~(348) "Water hammer" means a banging condition that is caused by steam and water mixing in a steam line;~~

~~(349) "Water softening" means the removal of scale-forming salts from water;~~

~~(350) "Water tube boiler" means the boiler that has water in the tubes with heat and gases of combustion around the tubes;~~

(351) "Waterwall" means the vertical or horizontal tubes found in the furnace area of water tube boilers that lengthen the life of the refractory;

(352) "Waterwall blowdown valve" means the approved valve used to remove sludge and sediment from waterwalls and waterwall headers;

(353) "Weight type alarm whistle" means the alarm whistle which signals high or low water by the gain or loss of buoyancy of weights in water within the water column;

(354) "Windbox (plenum chamber)" means the pressurized air chamber that supplies air to a furnace; and

(355) "Zeolite" means a resin material that is used in the process of softening water.

20 CAR § 880-104. General organization.

(a)(1) The Boiler Inspection Division is generally divided into an office staff and a field staff.

(2) The field staff is composed of boiler inspectors.

(b)(1) The Boiler Advisory Board was created by the General Assembly, Arkansas Code § 20-23-201 [repealed], to assist the division regarding the adoption and amendment of rules, as well as to provide advice and counsel to the division on other matters.

(2) The board consists of four (4) members, with the Director of the Division of Labor serving as ex officio chair.

(c)(1) All public meetings, including meetings of the board, will be conducted pursuant to Robert's Rules of Order and in conformity with the Freedom of Information Act of 1967, Arkansas Code § 25-19-101 et seq.

(2) Regular meetings will be held quarterly.

(3) Special meetings may be held on the call of the chair, but in no event shall the board meet more than four (4) times a year.

(d) A quorum for the transaction of business by the board is three (3) members.

(e)(1) The division or the board may create standing and ad hoc committees.

~~(2) The director/chair will select members of committees.~~

~~(3) A quorum for the transaction of committee business is a majority of the number of voting members of the committee.~~

~~(f)(1) The Chief Inspector of the Boiler Inspection Division will prepare the agenda for regular and special meetings of the board.~~

~~(2) The agenda will be distributed to board members and division staff and made available to the public in advance of the meeting.~~

~~(3) The agenda should state specifically the items that will be considered at the meeting.~~

~~(4) The agenda should include the following topics as applicable:~~

~~(A) Call to order;~~

~~(B) Review of minutes;~~

~~(C) Old business;~~

~~(D) New business;~~

~~(E) Other business;~~

~~(F) Adjudicatory hearings;~~

~~(G) Rulemaking hearings; and~~

~~(H) Public comment.~~

~~(5)(A) The order of the agenda items is intended to be flexible and may be adjusted to meet the needs of the division.~~

~~(B) Additionally, the agenda may be amended by appropriate motion.~~

Subpart 2. Rulemaking

20 CAR § 880-201. ~~Initiation of rulemaking~~Rulemaking.

All rules and any subsequent amendments will be promulgated according to the Arkansas Administrative Procedure Act, Arkansas Code §25-15-201 et seq.

~~(a) The process of adopting a new rule or amending or repealing an existing rule (hereinafter referred to as rulemaking) may be initiated by request of the Boiler~~

~~Advisory Board or the Director of the Division of Labor that the Division of Labor staff submit proposed drafts.~~

~~(b) Additionally, staff of the division may request permission to initiate rulemaking.~~

~~(c) Thirdly, persons outside the agency may petition for the issuance, amendment, or repeal of any rule.~~

~~20 CAR § 880-202. Petition to initiate rulemaking.~~

~~(a) Third parties may initiate rulemaking to adopt, amend, or repeal a rule by filing a petition with the Boiler Inspection Division to initiate rulemaking.~~

~~(b) The petition must contain the:~~

~~(1) Name, address, and telephone number of the petitioner;~~

~~(2) Specific rule or action requested;~~

~~(3) Reasons for the rule or action requested; and~~

~~(4) Facts showing that the petitioner is regulated by the division or has a substantial interest in the rule or action requested.~~

~~(c) The petition to initiate rulemaking shall be filed with the Director of the Division of Labor.~~

~~(d) Within thirty (30) days after submission of the petition, the division will either deny the petition, stating its reasons in writing, or will initiate rulemaking.~~

~~(e) A special meeting of the Boiler Advisory Board may be called.~~

~~20 CAR § 880-203. Prefiling with the Legislative Council.~~

~~Thirty (30) days before the public comment period ends, the Boiler Inspection Division will file with the Legislative Council the text of the proposed rule or amendment as well as a financial impact statement and any additional information as may be required by the Legislative Council as provided by Arkansas Code § 10-3-309.~~

~~20 CAR § 880-204. Public input.~~

~~(a)(1) Before finalizing language of a proposed new rule or an amendment to, or repeal of, an existing rule, the Boiler Inspection Division will receive public input through written comments and/or oral submissions.~~

~~(2) The Boiler Inspection Division will designate in its public notice the format and timing of public comment.~~

~~(b) Any public hearing will provide affected persons and other members of the public a reasonable opportunity for presentation of evidence, arguments, and oral statements within reasonable conditions and limitations imposed by the Boiler Inspection Division to avoid:~~

~~(1) Duplication;~~

~~(2) Irrelevant comments;~~

~~(3) Unnecessary delay; or~~

~~(4) Disruption of the proceedings.~~

~~(c)(1) The Director of the Division of Labor or his or her designee may preside at the public hearing.~~

~~(2) The Boiler Inspection Division will ensure that the Division of Labor personnel responsible for preparing the proposed rule or amendment are available, and will notify third parties initiating rule changes to be available to explain the proposal and to respond to questions or comments regarding the proposed rule.~~

~~(d) The Boiler Inspection Division will preserve the comments made at the public hearing by a tape recording.~~

~~(e)(1) Any person may submit written statements within the specified period of time.~~

~~(2) All timely, written statements will be considered by the Boiler Inspection Division and be made a part of the rulemaking record.~~

~~20 CAR § 880-205. Notice of rulemaking.~~

~~(a) The Boiler Inspection Division will give notice of proposed rulemaking to be published pursuant to Arkansas Code § 25-15-204.~~

~~(b) The notice will set any written comment period and will specify the time, date, and place of any public hearing.~~

~~**20 CAR § 880-206. The decision to adopt a rule.**~~

~~(a) The Boiler Inspection Division will not finalize language of the rule or decide whether to adopt a rule until the period for public comment has expired and the proposed rule has been reviewed and approved by the Legislative Council or other legislative committee pursuant to Arkansas Code § 10-3-309.~~

~~(b) Before acting on a proposed rule, the division will consider all of the written submissions and/or oral submissions received in the rulemaking proceeding or any memorandum summarizing such oral submissions, and any regulatory analysis or fiscal impact statement issued in the rulemaking proceedings.~~

~~(c) The division may use its own experience, specialized knowledge, and judgment in the adoption of a rule.~~

~~**20 CAR § 880-207. Variance between adopted rule and published notice of proposed rule.**~~

~~(a) The Boiler Inspection Division may not adopt a rule that differs from the rule proposed in the published notice of the intended rulemaking on which the rule is based unless:~~

~~(1) The final rule is in character with the original scheme and was a logical outgrowth of the notice and comments stemming from the proposed rule; or~~

~~(2) The notice fairly apprised interested persons of the subject and the issues that would be considered so that those persons had an opportunity to comment.~~

~~(b) In determining whether the final rule is in character with the original scheme and was a logical outgrowth of the notice and comments, and that the notice of intended rulemaking provided fair warning that the outcome of that rulemaking proceeding could be the rule in question, the division must consider the following factors:~~

(1) The extent to which persons who will be affected by the rule should have understood that the rulemaking proceeding on which it is based could affect their interests;

(2) The extent to which the subject matter of the rule or issues determined by the rule are different from the subject matter or issues contained in the notice of intended rulemaking; and

(3) The extent to which the effects of the rule differ from the effects of the proposed rule contained in the notice of intended rulemaking.

20 CAR § 880-208. Concise statement of reasons.

(a)(1) When requested by an interested person, either prior to the adoption of a rule or within thirty (30) days after its adoption, the Boiler Inspection Division shall issue a concise statement of the principal reasons for and against its adoption of the rule.

(2) Requests for such a statement must be in writing and be delivered to the Director of the Division of Labor.

(3) The request should indicate whether the statement is sought for all or only a specified part of a rule.

(4) A request will be considered to have been submitted on the date on which it is received by the director.

(b) The concise statement of reasons must contain:

(1) The division's reasons for adopting the rule;

(2) An indication of any change between the text of the proposed rule and the text of the rule as finally adopted, with explanations for any such change; and

(3) The principal reasons urged in the rulemaking procedure for and against the rule, and the division's reasons for overruling the arguments made against the rule.

20 CAR § 880-209. Contents.

(a) The Boiler Inspection Division shall cause its rules to be published and made available to interested persons.

~~(b) The publication must include:~~

~~(1) The text of the rule;~~

~~(2) A note containing the following:~~

~~(A) The date the division adopted or amended the rule;~~

~~(B) The effective date of the rule;~~

~~(C) Any findings required by any provisions of law as a prerequisite to adoption for effectiveness of the rule; and~~

~~(D) Citation to the entire specific statutory or other authority authorizing the adoption of the rule; and~~

~~(3) The publication of the rule must state the date of publication.~~

~~**20 CAR § 880-210. Format.**~~

~~The published rules of the Boiler Inspection Division will be organized substantially in the following format:~~

~~(1) Statement of organization and operations;~~

~~(2) Information for public guidance;~~

~~(3) General organization;~~

~~(4) Rulemaking;~~

~~(5) Emergency rulemaking;~~

~~(6) Declaratory orders;~~

~~(7) Adjudicative hearings;~~

~~(8) Licensing; and~~

~~(9) Et seq. Substantive rules and other rules of the division.~~

20 CAR § 880-~~211~~202. Incorporation by reference.

(a) By reference in a rule, the Boiler Inspection ~~Division~~ Section may incorporate all or any part of a code, standard, rule, or other matter if the ~~division~~ section finds that copying the matter in the ~~division's~~ section's rule would be unduly cumbersome, expensive, or otherwise inexpedient.

(b) The reference in the ~~division~~ section rule will:

(1) Fully and precisely identify the incorporated matter by:

(A) Title;

(B) Citation;

(C) Date; and

(D) Edition, if any;

(2) Briefly indicate the precise subject and general contents of the incorporated matter; and

(3) State that the rule does not include any later amendments or editions of the incorporated matter.

(c) The ~~division~~ section may incorporate such a matter by reference in a proposed or adopted rule only if the ~~division~~ section makes copies of the incorporated matter readily available to the public.

(d) The rules must state how and where:

(1) Copies of the incorporated matter may be obtained at cost from the ~~division~~section; and

(2) Copies may be obtained from an agency of the United States, this state, another state, or the organization, association, or persons originally issuing that matter.

(e) The ~~division~~ section will retain permanently a copy of any materials incorporated by reference in a rule of the ~~division~~section.

~~**20 CAR § 880-212. Filing.**~~

~~(a) After the Boiler Inspection Division formally adopts a new rule or amends a current rule or repeals an existing rule, and after the rule change has been reviewed and approved by the Legislative Council, the Division of Labor staff will file final copies of the rule with the Secretary of State, the Arkansas State Library, and the Legislative Council, or as otherwise provided by Arkansas Code § 25-15-204.~~

~~(b) Proof of filing a copy of the rule, amendment, or repeal with the Secretary of State, the Arkansas State Library, and the Legislative Council will be kept in a file maintained by the Legal Division of the Division of Labor.~~

~~(c) Notice of the rule change will be posted on the Division of Labor's website.~~

20 CAR § 880-213. Emergency rulemaking.

(a) **Request for emergency rulemaking.**

(1) The proponent of a rule may request the Boiler Inspection Division to adopt an emergency rule.

(2) In addition to the text of the proposed rule or amendment to an existing rule and any other information required by 20 CAR § 880-202, the proponent will provide a written statement setting out the facts or circumstances that would support a finding of imminent peril to the public health, safety, or welfare.

(b) **Finding of emergency.**

(1) Upon receipt of the written statement requesting an emergency rulemaking and documents or other evidence submitted in support of the assertion that an emergency exists, the division will make an independent judgment as to whether the circumstances and facts constitute an imminent peril to the public health, safety, or welfare requiring adoption of the rule upon fewer than thirty (30) days' notice.

(2) If the division determines that the circumstances warrant emergency rulemaking, it will make a written determination that sets out the reasons for the division's finding that an emergency exists.

(3) Upon making this finding, the division may proceed to adopt the rule without any prior notice or hearing, or it may determine to provide an abbreviated notice and hearing.

(c) **Effective date of emergency rule.**

(1) The division shall not finalize an emergency rule or file an emergency rule with the Secretary of State for adoption until the emergency rule has been approved under Arkansas Code § 10-3-309.

(2)(A) The emergency rule will be effective immediately upon filing, or at a stated time less than ten (10) days thereafter, if the division finds that this effective date is necessary because of imminent peril to the public health, safety, or welfare.

(B) The division will file with the rule its written findings justifying the determination that emergency rulemaking is appropriate and, if applicable, the basis for

~~the effective date of the emergency rule being less than ten (10) days after the filing of the rule pursuant to Arkansas Code § 25-15-204(e).~~

~~(C) The division will take appropriate measures to make emergency rules known to persons who may be affected by them.~~

20 CAR § 880-~~214~~203. Declaratory orders.

(a) **Purpose and use of declaratory orders.**

(1) A declaratory order is a means of resolving a controversy or answering questions or doubts concerning the applicability of statutory provisions, rules, or orders over which the Boiler Inspection ~~Division~~ Section has authority.

(2) A petition for declaratory order may be used only to resolve questions or doubts as to how the statutes, rules, or orders may apply to the petitioner's particular circumstances.

(3) A declaratory order is not the appropriate means for determining the conduct of another person or for obtaining a policy statement of general applicability from the ~~division~~section.

(4) A petition or declaratory order must describe the potential impact of statutes, rules, or orders upon the petitioner's interests.

(b) **The petition.** The process to obtain a declaratory order is begun by filing with the Director of ~~the Division of Labor~~ Code Enforcement a petition that provides the following information:

(1) The caption shall read: "Petition for Declaratory Order Before Boiler Inspection ~~Division~~Section";

(2) The name, address, telephone number, and ~~facsimile number~~email address of the petitioner;

(3) The name, address, telephone number, and ~~facsimile number~~email address of the attorney of the petitioner;

(4) The statutory provision or provisions, ~~division~~ section rule or rules, or ~~division~~ section order or orders on which the declaratory order is sought;

(5) A description of how the statutes, rules, or orders may substantially affect the petitioner and the petitioner's particular set of circumstances, and the question or issue on which petitioner seeks a declaratory order;

(6) The signature of the petitioner or petitioner's attorney;

(7) The date; and

(8) Request for a hearing, if desired.

(c) ~~Division~~ Section **disposition.**

(1)(A) The ~~division~~ section may hold a hearing to consider a petition for declaratory statement.

(B) If a hearing is held, it shall be conducted in accordance with Arkansas Code §§ 25-15-208 and 25-15-213, and the ~~division's~~ section's rules for adjudicatory hearings.

(2)(A) The ~~division~~ section may rely on the statements of fact set out in the petition without taking any position with regard to the validity of the facts.

(B) Within ninety (90) days of the filing of the petition, the ~~division~~ section will render a final order denying the petition or issuing a declaratory order.

Subpart 3. Adjudicative Hearings

20 CAR § 880-301. ~~Scope of this subpart~~Hearings generally.

All adjudicative hearings conducted by the Boiler Inspection Section shall be held according to the Arkansas Administrative Procedure Act, Arkansas Code §25-15-201 et seq.

~~(a) This subpart applies in all administrative adjudications conducted by the Boiler Inspection Division of the Division of Labor.~~

~~(b) This procedure is developed to provide a process by which the Boiler Inspection Division formulates orders, including orders revoking a permit or license or making a final administrative determination regarding the imposition of a civil penalty or fine.~~

~~**20 CAR § 880-302. Presiding officer.**~~

~~The Director of the Division of Labor shall preside at the hearing or may designate a hearing officer, examiner, or referee to preside at a hearing.~~

~~**20 CAR § 880-303. Appearances.**~~

~~(a) Any party appearing in any Boiler Inspection Division proceeding has the right, at his or her own expense, to be represented by counsel.~~

~~(b) The respondent may appear on his or her own behalf.~~

~~(c) Any attorney representing a party to an adjudicatory proceeding must file notice of appearance as soon as possible.~~

~~(d) Service on counsel of record is the equivalent of service on the party represented.~~

~~(e) On written motion served on the party represented and all other parties of record, the presiding officer may grant counsel of record leave to withdraw for good cause shown.~~

~~**20 CAR § 880-304. Consolidation.**~~

~~If there are separate matters that involve similar issues of law or fact, or identical parties, the matters may be consolidated if it appears that consolidation would promote the just, speedy, and inexpensive resolution of the proceedings.~~

~~**20 CAR § 880-305. Notice to interested parties.**~~

~~If it appears that the determination of the rights of parties in a proceeding will necessarily involve a determination of the substantial interests of persons who are not parties, the presiding officer may enter an order requiring that an absent person be notified of the proceeding and be given an opportunity to be joined as a party of record.~~

~~**20 CAR § 880-306. Service of papers.**~~

Unless the presiding officer otherwise orders, every pleading and every other paper filed for the proceeding, except applications for witness subpoenas and the subpoenas, shall be served on each party or the party's representative at the last address of record.

20 CAR § 880-307. Initiation and notice of hearing.

(a) An administrative adjudication is initiated by the issuance by the Boiler Inspection Division of a notice of hearing.

(b)(1) The notice of hearing will be sent to the respondent by United States Postal Service, return receipt requested, delivery restricted to the named recipient or his or her agent.

(2) Notice shall be sufficient when it is so mailed to the respondent's latest address on file with the division.

(c) Notice will be mailed at least thirty (30) days before the scheduled hearing.

(d) The notice will include a:

(1) Statement of the time, place, and nature of the hearing;

(2) Statement of the legal authority and jurisdiction under which the hearing is to be held; and

(3) Short and plain statement of the matters of fact and law asserted.

20 CAR § 880-308. Filings.

(a) **Motions.**

(1) All requests for relief will be by motion.

(2) Motions must be in writing or made on the record during a hearing.

(3) A motion must fully state the action requested and the grounds relied upon.

(4) The original written motion will be filed with the Boiler Inspection Division.

(5) When time allows, the other parties may, within seven (7) days of the service of the written motion, file a response in opposition.

(6) The presiding officer may conduct such proceedings and enter such orders as are deemed necessary to address issues raised by the motion.

(7) However, a presiding officer, other than the Director of the Division of Labor, will not enter a dispositive order unless expressly authorized in writing to do so.

(b) **Answer.** A respondent may file an answer.

20 CAR § 880-309. Discovery.

(a) Upon written request, the Boiler Inspection Division will provide the information designated in Arkansas Code § 25-15-208(a)(3).

(b) Such requests should be received by the division at least ten (10) days before the scheduled hearing.

20 CAR § 880-310. Continuances.

(a)(1) The presiding officer may grant a continuance of hearing for good cause shown.

(2) Requests for continuances will be made in writing.

(3) The request must state the grounds to be considered and be made as soon as practicable and, except in cases of emergencies, no later than five (5) days prior to the date noticed for the hearing.

(4) In determining whether to grant a continuance, the presiding officer may consider:

(A) Prior continuances;

(B) The interests of all parties;

(C) The likelihood of informal settlements;

(D) The existence of an emergency;

(E) Any objection;

(F) Any applicable time requirement;

(G) The existence of a conflict of the schedules of counsel, parties, or witnesses;

(H) The time limits of the request; and

(I) Other relevant factors.

(b) The presiding officer may require documentation of any grounds for continuance.

20 CAR § 880-311. Hearing procedures.

(a) The presiding officer presides at the hearing and may rule on motions, require briefs, and issue such orders as will ensure the orderly conduct of the proceedings, provided, however, any presiding officer other than the Director of the Division of Labor shall not enter a dispositive order or proposed decision unless expressly authorized in writing to do so.

(b) All objections must be made in a timely manner and stated on the record.

(c) Parties have the right to participate or to be represented by counsel in all hearings or prehearing conferences related to their case.

(d) Subject to terms and conditions prescribed by the Arkansas Administrative Procedure Act, Arkansas Code § 25-15-201 et seq., parties have the right to introduce evidence on issues of material fact, cross-examine witnesses as necessary for a full and true disclosure of the facts, present evidence in rebuttal, and, upon request by the Boiler Inspection Division, may submit briefs and engage in oral argument.

(e) The presiding officer is charged with maintaining the decorum of the hearing and may refuse to admit, or may expel, anyone whose conduct is disorderly.

20 CAR § 880-312. Order of proceedings.

The presiding officer will conduct the hearing in the following manner:

(1) The presiding officer will give an opening statement, briefly describing the nature of the proceedings;

(2) The parties are to be given the opportunity to present opening statements;

(3) The parties will be allowed to present their cases in the sequence determined by the presiding officer;

(4)(A) Each witness must be sworn or affirmed by the presiding officer, or the court reporter, or any other person authorized by law to administer oaths and be

subject to examination and cross-examination as well as questioning by the presiding officer or the Boiler Advisory Board as applicable.

(B) The presiding officer may limit questioning in a manner consistent with the law; and

(5) When all parties and witnesses have been heard, parties may be given the opportunity to present final arguments.

20 CAR § 880-313. Evidence.

(a) The presiding officer shall rule on the admissibility of evidence and may, when appropriate, take official notice of facts in accordance with all applicable requirements of law.

(b)(1) Stipulation of facts is encouraged.

(2) The Boiler Inspection Division may make a decision based on stipulated facts.

(c)(1) Evidence in the proceeding must be confined to the issues set forth in the hearing notice, unless the parties waive their right to such notice or the presiding officer determines that good cause justifies expansion of the issues.

(2) If the presiding officer decides to admit evidence outside the scope of the notice, over the objection of a party who did not have actual notice of those issues, that party, upon timely request, will receive a continuance sufficient to prepare for the additional issue and to permit amendment of pleadings.

(d)(1) A party seeking admission of an exhibit must provide three (3) copies of each exhibit at a hearing before a designated hearing officer and seven (7) copies of each exhibit at a hearing before the Boiler Advisory Board.

(2) The presiding officer must provide the opposing parties with an opportunity to examine the exhibit prior to the ruling on its admissibility.

(3) All exhibits admitted into evidence must be appropriately marked and be made part of the record.

(e)(1) Any party may object to specific evidence or may request limits on the scope of the examination or cross-examination.

(2) A brief statement of the grounds upon which it is based shall accompany such an objection.

(3) The objection, the ruling on the objection, and the reasons for the ruling will be noted in the record.

(4) The presiding officer may rule on the objection at the time it is made or may reserve the ruling until the written decision.

(f)(1) Whenever evidence is ruled inadmissible, the party offering that evidence may submit an offer of proof on the record.

(2) The party making the offer of proof for excluded oral testimony will briefly summarize the testimony or, with permission of the presiding officer, present the testimony.

(3) If the excluded evidence consists of a document or exhibit, it shall be marked as part of an offer of proof and inserted in the record.

(g)(1) Irrelevant, immaterial, and unduly repetitive evidence will be excluded.

(2) Any other oral or documentary evidence, not privileged, may be received if it is of a type commonly relied upon by reasonably prudent men and women in the conduct of their affairs.

(h) **Reasonable inferences.** The finder of fact may base its findings of fact upon reasonable inferences derived from other evidence received.

20 CAR § 880-314. Default.

If a party fails to appear or participate in an administrative adjudication after proper service of notice, the Boiler Inspection Division may proceed with the hearing and render a decision in the absence of the party.

20 CAR § 880-315. Subpoenas.

(a)(1) At the request of any party, the Director of the Division of Labor shall issue subpoenas for the attendance of witnesses at the hearing.

(2) The requesting party shall specify whether the witness is also requested to bring documents and reasonably identify said documents.

(b)(1) A subpoena may be served by any person specified by law to serve process or by any person who is not a party and who is eighteen (18) years of age or older.

(2) Delivering a copy to the person named in the subpoena shall make service.

(3) Proof of service may be made by affidavit of the person making service.

(4) The party seeking the subpoena shall have the burden of obtaining service of the process and shall be charged with the responsibility of tendering appropriate mileage fees and witness fees pursuant to Rule 45, Arkansas Rules of Civil Procedure.

(5) The witness must be served at least two (2) days prior to the hearing.

(6) For good cause, the director may authorize the subpoena to be served less than two (2) days before the hearing.

(c) Any motion to quash or limit the subpoena shall be filed with the Boiler Inspection Division and shall state the grounds relied upon.

20 CAR § 880-316. Recording the proceedings.

(a) The responsibility to record the testimony heard at a hearing is borne by the Boiler Inspection Division.

(b) Upon the filing of a petition for judicial review, the agency will provide a transcript of testimony taken before the agency.

20 CAR § 880-317. Factors to be considered in imposing sanctions.

In addition to any other considerations permitted by Arkansas Code § 20-23-101 et seq., if applicable, the Boiler Inspection Division in imposing any sanction may consider the following:

(1) The nature and degree of the misconduct for which the sanction is being imposed;

(2) The seriousness and circumstances surrounding this misconduct;

(3) The loss or damage to clients or others;

(4) The assurance of future compliance;

(5) The profit to the wrongdoer;

(6) The avoidance of repetition;

~~(7) Whether the conduct was:~~

~~(A) Deliberate;~~

~~(B) Intentional; or~~

~~(C) Negligent;~~

~~(8) The deterrent effect on others;~~

~~(9) The conduct of the individual, corporation, or other entity during the course of the disciplinary proceeding;~~

~~(10) Any prior enforcement actions or sanctions, including warnings; and~~

~~(11) Matters offered in mitigation or extenuation, except that a claim of disability or impairment resulting from the use of alcohol or drugs may not be considered unless the individual demonstrates that he or she is successfully pursuing in good faith a program of recovery.~~

~~**20 CAR § 880-318. Final order.**~~

~~(a) The Boiler Inspection Division will serve on the respondent a written order that reflects the action taken by the division.~~

~~(b)(1) The order will include a recitation of facts found based on testimony and other evidence presented and reasonable inferences derived from the evidence pertinent to the issues of the case.~~

~~(2) It will also state conclusions of law and directives or other disposition entered against or in favor of the respondent.~~

~~(c)(1) The order will be served personally or by mail on the respondent.~~

~~(2) If counsel represents respondent, service of the order on respondent's counsel shall be deemed service on the respondent.~~

Subpart 4. Licensing

20 CAR § 880-401. General.

(a) All Boiler Inspection ~~Division~~ Section action regarding licensure shall be governed by Arkansas Code § 20-23-101 et seq., this part, and, when applicable, Arkansas Code §§ 25-15-208 – 25-15-213.

(b) The ~~division~~ section is responsible for licensure of:

(1) Boiler inspectors employed by insurance companies, Arkansas Code § 20-23-402;

(2) Boiler operators, Arkansas Code § 20-23-404; ~~and~~

(3) Sellers, installers, and repairers of boilers, unfired pressure vessels, hot water storage containers, and pressure piping, Arkansas Code § 20-23-405~~.~~; and

(4) Third party inspection providers and inspectors.

20 CAR § 880-402. Requirement to keep current address on file.

(a) All persons holding a license or permit issued by the Boiler Inspection ~~Division~~ Section are required to provide the ~~division~~ section with information so that the ~~division~~ section can remain in contact and provide notice of complaints ~~and/~~or hearings.

(b)(1) The licensee is required to provide written notice ~~to the Boiler Advisory Board~~ to the Boiler Inspection Section of any change in business ~~and/~~or residence address within ten (10) working days of the change.

(2) Service of notices of hearing sent by mail will be addressed to the latest address on file with the ~~division~~section.

20 CAR § 880-403. Review of application.

(a) The application and supporting documentation will be reviewed by Boiler Inspection ~~Division~~ Section staff.

(b) The ~~division~~ section will inform the applicant in writing if it determines that the application is incomplete, and will specify why the application is incomplete.

(c) When a completed application, a supplemental application, or the requested information is returned, the ~~division~~ section will reinitiate action on the application for license.

(d) If all requirements are met, a license will be issued or the applicant will be allowed to take the licensing examination, whichever is applicable.

20 CAR § 880-404. Denial of license.

(a) If a preliminary determination is made that the application should be denied, the Boiler Inspection ~~Division~~ Section will inform the applicant of the opportunity for a hearing on the application.

(b)(1) The grounds or basis for the proposed denial of a license will be set forth in writing by the ~~division~~section.

(2) Any hearing on the denial of a license will be conducted in accordance with Arkansas Code §§ 25-15-208 and 25-15-213, and unless otherwise provided by law, the applicant has the burden of establishing entitlement to the license.

20 CAR § 880-405. Suspension, revocation, annulment, or withdrawal.

(a) Prior to the entry of a final order to suspend, revoke, annul, or withdraw a license, or to impose other sanctions upon a licensee, the Boiler Inspection ~~Division~~ Section will serve the licensee a notice of hearing in the manner set out in Arkansas Code § 25-15-208 and 20 CAR § 880-307.

(b) The ~~division~~ section has the burden of proving the alleged facts and violations of law stated in the notice.

(c)(1) A license will not be renewed if there is an unpaid administrative fine or past due license fee.

(2) Further failure to pay an administrative fine may result in suspension or revocation of a license.

20 CAR § 880-406. Emergency action.

~~(a)(1)~~ If the Boiler Inspection ~~Division~~ Section finds that the public health, safety, or welfare imperatively requires emergency action and incorporates that finding in its order, the ~~division~~ section can summarily suspend, limit, or restrict a license pursuant to the Administrative Procedure Act, Arkansas Code §25-15-201 et seq.

(2) The notice requirement in 20 CAR § 880-307 does not apply and must not be construed to prevent a hearing at the earliest time practicable.

(b) **Emergency order.**

(1)(A) An emergency adjudicative order must contain findings that the public health, safety, and welfare imperatively require emergency action to be taken by the division.

(B) The written order must include notification of the date on which division proceedings are scheduled for completion.

(2) **Written notice.**

(A) The written emergency adjudicative order will be immediately delivered to persons who are required to comply with the order.

(B) One (1) or more of the following procedures will be used:

(i) Personal delivery;

(ii) Certified mail, return receipt requested, to the last address on file with the division;

(iii) First-class mail to the last address on file with the division;

(iv)*(a)* Fax.

(b) Fax may be used as the sole method of delivery if the person required to comply with the order has filed a written request that division orders be sent by fax and has provided a fax number for that purpose; and

(v)*(a)* Oral notice.

(b) Unless the written emergency order is served by personal delivery on the same day that the order issues, the division shall make reasonable immediate efforts to contact by telephone the persons who are required to comply with the order.

(c) Unless otherwise provided by law, within ten (10) days after emergency action taken pursuant to 20 CAR § 880-401(a), the division must initiate a formal suspension or revocation proceeding.

20 CAR § 880-407. Voluntary surrender of license.

The licensee, in lieu of formal disciplinary proceedings, may offer to surrender his or her license, subject to the Boiler Inspection ~~Division's~~ Section's determination to accept the proffered surrender, rather than conducting a formal disciplinary proceeding.

20 CAR § 880-408. Duty of sanctioned licensee.

In every case in which a license is revoked, suspended, or surrendered, the licensee shall, within thirty (30) days of the revocation, suspension, or surrender, do the following:

(1) Return his or her license and any license pocket cards to the Boiler Inspection ~~Division's~~ Section's office;

(2) Notify all of his or her clients or employer in writing that his or her license has been:

(A) Revoked;

(B) Suspended; or

(C) Surrendered;

(3) Notify all clients or his or her employer to make arrangements for other services, calling attention to any urgency in seeking the substitution of another licensee;

(4) Deliver to all clients or employer any papers or property to which they are entitled, or notify the client or employer of a suitable time and place where the papers and other property may be obtained, calling attention to any urgency for obtaining the papers or other property;

(5) Refund any part of the fees paid in advance that have not been earned;

(6) Keep and maintain a record of the steps taken to accomplish the foregoing;

(7)(A) File with the ~~division~~ section a list of all other state, federal, and administrative jurisdictions by which he or she is licensed.

(B) Upon such filing, the ~~division~~ section will notify those entitled of the:

(i) Revocation;

(ii) Suspension; or

(iii) Surrender; and

(8)(A) The sanctioned licensee shall, within thirty (30) days of revocation, suspension, or surrender of the license, file an affidavit with the ~~division~~ section that he or she has fully complied with the provisions of the order and completely performed the foregoing or provide a full explanation of the reasons for his or her noncompliance.

(B) Such affidavit shall also set forth the address where communications may thereafter be directed to the respondent.

20 CAR § 880-409. Reinstatement after suspension.

(a) An order suspending a license may provide that a person desiring reinstatement may file with the Director of Code Enforcement ~~of the Division of Labor~~ a verified petition requesting reinstatement.

(b) The petition for reinstatement must set out the following:

(1) That the individual has fully and promptly complied with the requirements of 20 CAR § 880-408 pertaining to the duty of a sanctioned licensee;

(2) That the individual has refrained from practicing in this occupation or business during the period of suspension;

(3) That the individual's license fee is current or has been tendered to the Boiler Inspection ~~Division~~Section; and

(4) That the individual has fully complied with any requirements imposed as conditions for reinstatement.

(c) Any knowing misstatement of fact may constitute grounds for denial or revocation of reinstatement.

(d) Failure to comply with the provisions of 20 CAR § 880-408(7) and (8) precludes consideration for reinstatement.

(e) No individual will be reinstated unless the director approves reinstatement ~~upon a recommendation from the Boiler Advisory Board by a majority vote~~.

20 CAR § 880-410. Relicensure for revoked or surrendered license and general reinstatement.

(a)(1)(A) No individual who has had his or her license revoked or who has surrendered his or her license for an act of bad faith or a violation of law, rule, or ethics will be licensed, except on petition made to the Boiler Inspection ~~Division~~Section.

(B) The application for relicensure is not allowed until at least two (2) years after the revocation or surrender of license took effect.

(2) The applicant bears the burden of proof that he or she:

(A) Is rehabilitated following the revocation or surrender of his or her license;

(B) Can engage in the conduct authorized by the license without undue risk to the public health, safety, and welfare; and

(C) Is otherwise qualified for the license pursuant to Arkansas Code § 20-23-101 et seq.

(3) The Boiler Inspection ~~Division~~ Section may impose any appropriate conditions or limitations on a license to protect the public health, safety, and welfare.

(4) The Boiler Inspection ~~Division~~ Section may require that the person seeking relicensure take the licensing examination if applicable.

(b) **Reinstatement.**

(1) An individual may seek reinstatement under this subsection provided the applicant for reinstatement demonstrates that he or she:

(A) Was previously licensed by the Boiler Inspection ~~Division~~ Section at any time;

(B) Was licensed in good standing at the time of licensing;

(C) Did not have his or her license revoked for an act of bad faith or a violation of law, rule, or ethics; and

(D) Is not holding a suspended or probationary license in this state or a sister state.

(2) The ~~Division of Labor's~~Director of Code Enforcement ~~Manager~~ shall ensure that any application for reinstatement is handled in an expedited manner.

20 CAR § 880-411. Sellers, installers, and repairers.

(a) All persons, firms, or corporations engaged in the sale or installation of boilers, unfired pressure vessels, hot water storage containers, or pressure piping, or engaged in the repair of boilers or unfired pressure vessels shall be licensed by the Boiler Inspection ~~Division~~Section, Arkansas Code § 20-23-405.

(b) The annual license fee shall be seventy-five dollars ($75.00) per year, payable in advance on or before January 31 of each calendar year.

(c) Applicants for a license who are manufacturers shall have the appropriate ASME stamp as required in the ASME codes any applicable NBBI standards adopted in 20 CAR § 880-701.

(d) Applicants for a license that perform welded repairs shall possess the National Board of Boiler and Pressure Vessel Inspectors "R" stamp or shall certify that they perform welded repairs only on vessels owned and operated by the applicant.

20 CAR § 880-412. Inspectors.

(a) Inspectors of boilers employed by insurance companies insuring boilers or an approved third-party provider in Arkansas must have a certificate of competency and commission issued by the Boiler Inspection ~~Division~~Section, Arkansas Code § 20-23-401.

(b) The initial license fee shall be twenty-five dollars ($25.00), and the renewal fee shall be fifteen dollars ($15.00) annually.

(c) Applicants for a license must be employed by an insurance company or an approved third-party provider and must have passed the written examination for boiler inspectors administered by the National Board of Boiler and Pressure Vessel Inspectors.

(d) This section does not apply to boiler inspectors in the employ of the ~~Division of Labor~~Department.

20 CAR § 880-413. Boiler operators.

(a) Boiler operators shall be licensed by the Boiler Inspection ~~Division~~Section, Arkansas Code § 20-23-404.

(b) An applicant for a boiler operator's license shall:

(1) Have six (6) months of training under the supervision of a licensed boiler operator, or three (3) months of training under the supervision of a licensed boiler operator with the successful completion of a department approved boiler training program, which shall be confirmed by the applicant's employer and submitted to the ~~division~~ section with the application; and

(2)(A) Pass an examination administered by the ~~division~~section.

(B) Such examination may be in writing or may be administered orally.

(C) The applicant must score seventy percent (70%) for a passing grade on the examination.

(c)(1) An applicant shall pay an initial fee of twenty-five dollars ($25.00) for examination and licensure.

(2) The license shall be renewed annually at a fee of seventeen dollars ($17.00).

~~(d)(1) A restricted license may be issued to an applicant who has passed the examination, but does not have the requisite six (6) months of training.~~

~~(2) Such a restricted license shall authorize the license holder to work under the direction and supervision of a regularly licensed boiler operator and is effective for one (1) year from the date of issue.~~

~~(3) The fee for a restricted license shall be twenty-five dollars ($25.00).~~

20 CAR § 880-414. Restricted lifetime licenses, Arkansas Code § 20-23-406.

(a) **Boiler inspectors.** To qualify for a restricted lifetime boiler inspector's certificate of competency and commission, an applicant shall:

(1) Have been commissioned as a boiler inspector for no fewer than twelve (12) years;

(2) Be at least sixty-five (65) years of age; and

(3) Have a current boiler inspector commission issued by the Boiler Inspection ~~Division~~Section.

(b) **Boiler operators.** To qualify for a restricted lifetime boiler operator's certificate of competency and commission, an applicant shall:

(1) Have been commissioned as a boiler operator for no fewer than twelve (12) years;

(2) Be at least sixty-five (65) years of age; and

(3) Have a current boiler operator license issued by the ~~division~~section.

(c) **Installers, sellers, or repairers.** To qualify for a restricted lifetime license as a boiler installer, seller, or repairer, an applicant shall:

(1) Have been licensed for no fewer than twelve (12) years;

(2) Be at least sixty-five (65) years of age; and

(3) Have a current license issued by the ~~division~~section.

(d) **Application.**

(1) An application for a restricted lifetime license shall be on a form approved by the ~~division~~section.

(2) An applicant for any restricted lifetime license listed above must submit satisfactory proof of age which may include one (1) of the following:

(A) A birth certificate;

(B) A passport or certificate of arrival in the United States;

(C) A state-issued driver's license or identification card;

(D) Any document issued by the United States Armed Forces which includes a photograph or information including:

(i) Name;

(ii) Sex;

(iii) Date of birth; and

(iv) Other identifying information; or

(E) Any other document of similar reliability acceptable to the ~~division~~section.

(e) **Restrictions.** A person holding a restricted lifetime license must comply with Arkansas Code § 20-23-101 et seq., and this part in the same manner and to the same extent as any regularly licensed individual.

(f) **Fees.** Each applicant for a restricted lifetime license pursuant to this section shall pay a one-time fee of fifty dollars ($50.00).

20 CAR § 880-415. Automatic licensure for uniformed service members for boiler operator license.

(a) As used in this section, a "uniformed service veteran" means a former member of the uniformed services of the United States discharged under circumstances other than dishonorable.

(b) The Boiler Inspection ~~Division~~ Section of the ~~Division of Labor,~~ Department of Labor and Licensing, shall grant automatic licensure to an individual who is the holder in good standing of a license with a similar scope of practice issued by another state, territory, or district of the United States and is:

(1) A uniformed service member stationed in the State of Arkansas;

(2) A uniformed service veteran who resides in or establishes residency in the State of Arkansas; or

(3) The spouse of:

(A) A person under subdivision (b)(1) or (b)(2) of this section;

(B) A uniformed service member who is assigned a tour of duty that excludes the uniformed service member's spouse from accompanying the uniformed service member and the spouse relocates to this state; or

(C) A uniformed service member who is killed or succumbs to his or her injuries or illness in the line of duty if the spouse establishes residency in the state.

(c) The Boiler Inspection ~~Division~~ Section shall grant such automatic licensure upon receipt of all the below:

(1) Payment of the initial licensure fee;

(2) Evidence that the individual holds a license with a similar scope of practice in another state; and

(3) Evidence that the applicant is a qualified applicant under subsection (b) of this section.

(d) The expiration date of a license for a deployed uniform service member or spouse will be extended for one hundred eighty (180) days following the date of the uniformed service member's return from deployment.

(e) This section shall apply only to applicants for a license as a boiler operator.

20 CAR § 880-416. Earn and learn.

(a) The Boiler Inspection ~~Division~~ Section shall grant a license to an individual applicant for a boiler operator's license who:

(1) Completed an apprenticeship as a boiler operator in an apprenticeship program that meets the federal guidelines set out in 29 C.F.R. pt. 29, as existing on March 1, 2021;

(2) Passes the examination with the score required of all applicants;

(3) Pays the licensing fee unless waived;

(4) Does not have a disqualifying criminal record as determined by the ~~division~~ section under state law; and

(5) Completes all other requirements for licensure unrelated to training and education.

(b) Should the ~~division~~ section deny an application under subsection (a) of this section, the ~~division~~ section shall provide the applicant with a written denial detailing the reason for the denial.

(c) An apprenticeship for a boiler operator is not required to exceed the six (6) months required by 20 CAR § 880-413, except as otherwise required by federal law.

20 CAR § 880-417. Initial license fee waiver.

The Boiler Inspection ~~Division~~ Section shall waive the initial license fee for an individual applicant if the applicant:

(1) Is receiving assistance through the:

(A) Arkansas Medicaid Program;

(B) Supplemental Nutrition Assistance Program;

(C) Special Supplemental Nutrition Program for Women, Infants, and Children;

(D) Temporary Assistance for Needy Families Program; or

(E) Lifeline Assistance Program;

(2) Was approved for unemployment within the last twelve (12) months; or

(3) Has an income that does not exceed two hundred percent (200%) of the federal poverty income guidelines.

20 CAR § 880-418. Reciprocity.

(a) An applicant applying for reciprocal licensure shall meet the following requirements:

(1)(A) Shall hold a substantially similar license in another United States jurisdiction.

(B) A license from another state is substantially similar to the license sought by the applicant if the other state's licensure qualifications require:

(i) For sellers, installers, and repairers, the appropriate ASME code stamp as required per 20 CAR § 880-411;

(ii) For inspectors, employment by an insurance company or approved third-party provider and proof of successful passage of the examination for boiler inspectors administered by the National Board of Boiler and Pressure Vessel Inspectors; and

(iii) For boiler operators, an examination requirement with an experience requirement of at least six (6) months;

(2) Shall hold his or her license in good standing and shall provide a letter from the licensing authority attesting the disciplinary status of the applicant and show that he or she has not had a license revoked for:

(A) An act of bad faith; or

(B) A violation of law, rule, or ethics; and

(3) Shall not hold a suspended or probationary license in a United States jurisdiction.

(b) **Required documentation.** An applicant shall submit a fully executed application, with the required fee, and the documentation described below:

(1) As evidence that the applicant's license from another jurisdiction is substantially similar to Arkansas's, the applicant shall submit the following:

(A)(i) Evidence of current and active licensure in the sister state.

(ii) The Boiler Inspection ~~Division~~ Section may verify this information online if the jurisdiction at issue provides primary source verification on its website, or by telephone to the sister state's licensing entity; and

(B)(i) Evidence that the sister state's licensing requirements match those listed in subdivision (a)(1) of this section.

(ii) The ~~division~~ section may verify this information online or by telephone with the sister state's licensing entity;

(2) To demonstrate that he or she meets the requirement in subdivision (a)(2) of this section, the applicant shall provide the ~~division~~ section with:

(A) The names of all states in which the applicant is currently or has been previously licensed; and

(B)(i) Letters of good standing or other information from each state in which the applicant is currently or has ever been licensed showing that he or she has not had his or her license revoked for the reasons listed in subdivisions (a)(2) and (3) of this section.

(ii) The ~~division~~ section may verify this information online or by telephone with the other state's licensing entity; and

(3) As evidence that the applicant is sufficiently competent, he or she shall:

(A) If an applicant is seeking a license as a seller, installer, or repairer, proof of the appropriate ASME code stamp as required per 20 CAR § 880-411;

(B) If an applicant is seeking a license as an inspector, proof of employment by an insurance company or approved third-party provider authorized to insure boilers in Arkansas and proof of successful passage of the examination for boiler inspectors administered by the National Board of Boiler and Pressure Vessel Inspectors; and

(C) If an applicant is seeking a license as a boiler operator, proof of at least six (6) months experience.

(c) **Temporary and provisional license.**

(1) The ~~division~~ section shall issue a temporary and provisional license immediately upon receipt of the application, the required fee, and the documentation required under subdivisions (b)(1) and (2) of this section.

(2) A temporary and provisional license shall be effective for at least ninety (90) days or until the ~~division~~ section makes a decision on the application, unless the ~~division~~ section determines that the applicant does not meet the requirements in subsection (b) of this section, in which case the temporary and provisional license shall be revoked immediately.

(3) An applicant may provide the rest of the documentation required above in order to receive a license, or the applicant may provide only the information necessary for the issuance of a temporary and provisional license.

(d) **License for a person from a state that does not license boiler operators.**

(1) **Required qualifications.** An applicant from a state that does not license boiler operators shall meet the following requirements:

(A) Have six (6) months experience as a boiler operator; and

(B) Pass the examination administered by the ~~division~~section.

(2) **Required documentation.** An applicant for a boiler operator license shall submit a fully executed application, the required fee, and the documentation described below to show that the applicant is sufficiently competent:

(A) Letter or letters from former employers verifying six (6) months experience as a boiler operator; and

(B) A passing score on the examination administered by the ~~division~~section.

Subpart 5. Permitting

20 CAR § 880-501. Installation permits.

(a)(1) Installation permits are required by Arkansas Code § 20-23-307.

(2) The fees for such permits are established by Arkansas Code § 20-23-308.

(b) In the event an installation permit is denied by the Boiler Inspection ~~Division~~Section, the applicant may request an adjudicative hearing pursuant to 20 CAR § 880-301 et seq., within twenty (20) days of notice of the denial.

20 CAR § 880-502. Operating certificates or permits.

(a)(1) Operating certificates or permits are required by Arkansas Code § 20-23-301.

(2) The fees for such permits or certificates are established by Arkansas Code § 20-23-306 and are fifteen dollars ($15.00) for boilers and thirty dollars ($30.00) for unfired pressure vessels.

(b)(1) In the event an operating certificate or permit is suspended or revoked by an inspector or the Boiler Inspection ~~Division~~Section, the owner or user may request an adjudicative hearing within twenty (20) days of the suspension or revocation.

(2) Failure to request a timely hearing shall mean that the suspension or revocation is a final administrative determination.

(c) An operating certificate will not be renewed if there is an unpaid administrative fine or uncorrected violations.

Subpart 6. General Requirements and Exemptions

20 CAR § 880-601. Construction requirements.

All boilers and pressure vessels must be constructed in accordance with the ASME code, as adopted by 20 CAR § 880-701 and registered with the National Board of Boiler and Pressure Vessel Inspectors, except for those vessels stamped "UM" pursuant to U-1 and UG-115 of Section VIII-Division 1 of the ASME code as adopted by 20 CAR § 880-701, and air vessels of twelve gallons (12 gals.) or less containing one hundred fifty

pounds per square inch (150 psi) or less as exempted by Arkansas Code § 20-23-102(a)(2).

20 CAR § 880-602. Installation requirements.

(a) Installers, sellers, or repairers of boilers and pressure vessels must be licensed by the Boiler Inspection ~~Division~~Section.

(b) Installers must obtain installation permits from the ~~division~~section.

20 CAR § 880-603. Inspection requirements.

(a) All boilers shall be inspected as follows:

(1)(A) High-pressure steam boilers shall be inspected internally and externally once each year unless the Chief Inspector of the Boiler Inspection ~~Division~~ Section grants an extension for good cause.

(B) Such an extension shall:

(i) Not exceed six (6) months; ~~and~~

(ii) Cause the time period for the next annual inspection to begin on the day following the date of inspection; and

(iii) Include a nonrefundable fee of twenty-five dollars ($25.00);

(2) All low-pressure steam boilers shall be inspected externally annually and internally once each three (3) years to the extent permitted by the design and construction of the vessel;

(3) All hot water heating boilers shall be inspected externally annually and internally if required by the inspector; and

(4) An inspector may require a more frequent inspection than those required in subdivisions (a)(1) – (3) of this section if the inspector has reason to question the integrity of the boiler or boiler controls.

(b) Pressure vessels shall be inspected biennially externally and internally where conditions permit.

(c)(1) Insurance companies shall employ inspectors licensed pursuant to Arkansas Code § 20-23-402, and shall inspect all boilers and pressure vessels insured by them.

(2) Insurance companies shall file annual reports of all boilers and pressure vessels insured and inspected by the company with the Boiler Inspection ~~Division~~ Section by January 30 of each year.

(3) Insurance company inspectors must report all boilers and pressure vessels found during their inspections that are in use, but not insured by their insurance company.

(d)(1) Authorized inspectors can shut down equipment they consider unsafe.

(2) Any inspector knowingly reporting an unsafe boiler as safe to operate may be subject to sanction, fines, or criminal prosecution.

(e) Inspectors shall attach state numbers to vessels as follows:

(1) High-pressure boiler state number shall be preceded by the letters "AR";

(2) Low-pressure boilers used for heating or hot water supply and unfired pressure vessels state numbers shall be preceded by the letters "AR"; and

(3) All fired and unfired hot water heaters which come under the law shall have a state number assigned which shall be preceded by the letters "AR".

(f)(1) Insurance companies shall notify the ~~division~~ section of any cancellation of insurance coverage or any new insurance policy issued within thirty (30) days of the event on a form approved by the ~~division~~section.

(2) In the event insurance coverage is canceled due to an existing dangerous defect, the ~~division~~ section shall be notified immediately.

(3) If insurance companies do not file their inspection reports with the ~~division~~ section within ~~sixty~~ thirty (~~60~~30) days from the date the inspection is due, the ~~division~~ section shall make the required inspection, and charge the insurance company for a special inspection fee of one hundred dollars ($100) per vessel~~, plus mileage, meals, and motel expenses incurred not to exceed the rates authorized for state employees~~.

(g)(1) Approved third-party providers shall provide a list of objects that they have contracted to perform inspections covered by this part.

(2) Approved third-party providers shall notify the section in writing within thirty (30) calendar days when their agreement to inspect any object covered by this part has ended.

(3) Approved third-party providers shall comply with all applicable requirements stated in 20 CAR §880-603.

20 CAR § 880-604. Exemptions from permit and inspection.

The following are exempt from installation permits and inspections to the extent stated:

(1) Hot water heating boilers below two hundred thousand British thermal units per hour (200,000 Btu/hr) input, except that such objects located in schools, daycare centers, hospitals, and nursing homes shall be inspected annually as provided in 20 CAR §880-705;

(2) Air tanks in garages and service stations that perform vehicular service or do vehicular repair work, including bodywork repair shops as part of daily operations;

(3) Air tanks of five cubic feet (5 ft^3) capacity (thirty seven and one-half gallons (37.5 gals.)) or less containing two hundred pounds per square inch gauge (200 psig) or less are exempt from inspection and permitting, however tanks above twelve gallons (12 gals.) or one hundred fifty pounds per square inch gauge (150 psig) must be "UM" stamped;

(4) Boilers and pressure vessels subject to inspection by the United States Department of Transportation;

(5) Boilers and pressure vessels used in private residences and apartment complexes with eight (8) apartments or less;

(6) Pressure vessels with six inches (6") internal diameter or less, with no limit on length of vessel or pressure;

(7) Pressure vessels, other than air tanks, with a maximum allowable working pressure of fifteen pounds per square inch (15 psi) or less, or a volume of five cubic feet (5 ft^3) or less;

(8) Liquefied petroleum gas vessels (propane and butane tanks);

(9) Boilers and pressure vessels used in the production, transmission, or storage of oil, natural gas, or casinghead gas (refineries);

(10)(A) Coil-type steam generators that do not have an accumulator drum.

(B) Coil-type hot water boilers where the water can flash into steam when released directly to the atmosphere through a manually operated nozzle may be exempted from this subpart provided the following conditions are met:

(i) There is no drum, header, or other steam space;

(ii) No steam is generated within the coil;

(iii) Tubing outside diameter does not exceed one inch (1”);

(iv) Pipe size does not exceed nominal pipe size three-quarters (3/4);

(v) Nominal water capacity does not exceed six gallons (6 gals.);

(vi) Water temperature does not exceed three hundred fifty degrees Fahrenheit (350° F); and

(vii) Adequate safety relief valves and controls are provided;

(11) Fired and unfired water heaters below two hundred thousand British thermal units per hour (200,000 Btu/hr), however, such objects located in schools, daycare centers, hospitals, and nursing homes shall be inspected;

(12)(A) Hot water supply storage tanks.

(B) Tanks which are heated by steam or any other direct or indirect means, when none of the following are exceeded:

(i) Heat input of less than two hundred thousand British thermal units per hour (200,000 Btu/hr);

(ii) Water temperature of less than two hundred ten degrees Fahrenheit (210° F); and

(iii) Nominal water containing capacity of less than one hundred twenty gallons (120 gals.);

(13) Pressure vessels which are an integral part of:

(A) Components of rotating or reciprocating mechanical devices and hydraulic or pneumatic cylinders where the primary design considerations and/or stresses are derived from the functional requirements of the device; or

(B) The structure that has a primary function of transporting fluids from one (1) location to another within the system;

(14) Vessels with a capacity of one hundred twenty gallons (120 gals.) or less for containing water under pressure, including those containing air, the compression of which serves only as a cushion; and

(15) Fired swimming pool heaters, except those in publicly owned swimming pools.

20 CAR § 880-605. Repair requirements.

(a) Major repairs and all welding repairs must have Boiler Inspection ~~Division~~ Section approval.

(b) Repairs must be done in accordance with ASME and the National Board of Boiler and Pressure Vessel Inspectors Inspection Code as adopted by 20 CAR § 880-701.

(c) Repairs must be accomplished by a licensed entity.

(d) Repair firms must obtain a license to engage in repair work from the ~~division~~section.

(e) Plants with qualified maintenance personnel may perform their own repairs on their own boilers and pressure vessels, but all such repairs shall comply with the National Board of Boiler and Pressure Vessel Inspectors Inspection Code as adopted by 20 CAR § 880-701.

20 CAR § 880-606. Miscellaneous.

(a) There are special requirements pertaining to anhydrous ammonia equipment and facilities contained elsewhere in this part and in Arkansas Code § 20-23-101 et seq.

(b) Explosions and accidents must be reported by the owner/operator to the Boiler Inspection ~~Division~~ Section within twenty-four (24) hours.

(c) Steam boilers fifty (50) horsepower and over, and steam boilers used in hospitals, hotels, motels, schools, day cares, nursing homes, theatres, and office buildings must be under regular attendance by a licensed operator.

(d) Manually operated boilers must be under constant attendance when fired.

(e)(1) Inspection certificates to operate power and heating boilers shall be posted in the boiler room.

(2) Inspection certificates for unfired pressure vessels and portable boilers shall be kept on the premises with the vessel.

(f) Safety valves must meet ASME code requirements, as adopted by 20 CAR § 880-701.

(g) Blowoff piping and tanks must meet ASME code requirements as adopted by 20 CAR § 880-701.

(h) Water columns must meet ASME code requirements as adopted by 20 CAR § 880-701.

(i) All boilers, whether gas, oil, or mechanically fired, shall be provided with an automatic low-water fuel cutout so located as to automatically cut off the fuel supply in case the water level falls to a point not lower than the bottom of the water glass.

Subpart 7. Standards

20 CAR § 880-701. Minimum standards.

(a) All new and used boilers, unfired pressure vessels, and steam-generating apparatuses installed in the state shall be built to conform with the ~~several~~ specifications and provisions of the Boiler and Pressure Vessel Construction Codes of the American Society of Mechanical Engineers (ASME), ~~2004~~ 2025 edition, specifically, the following sections of the ASME codes, ~~2004~~ 2025 edition, are adopted by reference and incorporated herein:

(1) Sec. I, Power Boilers;

(2) Sec. II, Material Specifications;

(3) Sec. III, Subsection NCA, General Requirements for Divisions 1 & 2;

(4) Sec. IV, Heating Boilers;

(5) Sec. V, Nondestructive Examination;

(6) Sec. VI, Recommended Rules for care and operation of heating boilers;

(7) Sec. VII, Recommended guidelines for the care of power boilers;

(8) Sec. VIII, Pressure Vessels Divisions 1 and 2;

(9) Sec. IX, Welding and Brazing Qualifications;

(10) Sec. X, Fiberglass-reinforced plastic pressure vessels;

(11) Sec. XI, Rules for in-service inspections of nuclear power plants; and

(12) B31.1, Power Piping.

(b) The minimum standards for controls and safety devices shall be Controls and Safety Devices for Automatically Fired Boilers, ANSI/ASME, CSD-1, ~~1998~~ 2024 edition and ~~1999~~ addenda, which is adopted by reference and incorporated herein.

(c) The minimum standards for conducting inspections of boilers and pressure vessels shall be Part RB, In-service Inspection of Pressure-Retaining Items, of the National Board Inspection Code, ~~2004~~ 2025 edition, which is adopted by reference and incorporated herein.

(d) The minimum standards for repairs shall be Part RC (Repairs & Alterations) of the National Board Inspection Code, ~~2004~~ 2025 edition, which is adopted by reference and incorporated herein.

(e)(1) The minimum standards for storage and handling of anhydrous ammonia shall be the American National Standards Institute (ANSI), ~~K61.1~~CGA G-2.1, Safety Requirements for the Storage and Handling of Anhydrous Ammonia, ~~1989~~ 2023 edition, which is adopted by reference and incorporated herein, as well as applicable ASME code provisions including B31.5 for refrigeration piping.

(2) The standards for boilers with fuel input rating of 12.5 million Btu/hr (12.5 MMBtu/hr) or 3.6 MW and above shall follow National Fire Protection Association (NFPA) 85 for design, installation, operation, maintenance, and testing in conjunction with the application section or sections of the ASME and the NBBI as adopted by 20 CAR §880-701.

(f) This section does not include any later amendments or editions of the standards incorporated by reference.

(g) Copies of these standards incorporated by reference can be viewed in the offices of the Boiler Inspection ~~Division~~ Section or can be obtained by contacting the following:

(1) The ASME codes are available through:

American Society of Mechanical Engineers
22 Law Drive
P. O. Box 2300
Fairfield, NJ 07007-2300
1-800-843-2763
www.asme.org

(2) The National Board of Boiler and Pressure Vessel Inspectors Inspection Code is available through:

National Board of Boiler and Pressure Vessel Inspectors
1055 Crupper Avenue
Columbus, OH 43229-1183
614-888-8320
www.nationalboard.org

(3) The American National Standards Institute (ANSI) Standards are available through:

American National Standards Institute
25 West 43rd Street
New York, NY 10036
www.ansi.org

(4) The National Fire Protection Association (NFPA) Standards are available through:

National Fire Protection Association

1 Batterymarch Park

Quincy, MA 02169-7471

www.nfpa.org

(h) Exemptions are listed under Arkansas Code § 20-23-102, 20 CAR § 880-604, and the referenced ASME codes listed above.

(i)(1) The provisions of Arkansas Code § 20-23-101 et seq., and this part may differ from the language of the ASME codes concerning construction or exemptions.

(2) In such cases, state statutes and this part override the ASME.

(3) In the event there is a conflict between an ASME code and a statute or other rule adopted by the Boiler Inspection ~~Division~~Section, such statute or other rule shall apply and control.

(j) All boilers and pressure vessels shall be stamped "National Board" unless exceptions are made by this part.

(k)(1) Fired storage water heaters rated two hundred thousand British thermal units (200,000 Btu) and below are exempt from ASME construction and National Board of Boiler and Pressure Vessel Inspectors registration.

(2) These objects are not exempt from state inspection.

(3) All such objects located in schools, hospitals, nursing homes, and daycare centers shall be inspected annually in accordance with 20 CAR §880-705.

(l)(1) The hydrostatic test pressure of both new and used boilers and pressure vessels shall be obtained from the vessel's data report or vessel nameplate.

(2) For boilers, the test pressure shall at no time exceed ninety percent (90%) of its yield strength.

(3) For unfired pressure vessels, the test pressure shall at no time exceed one and three-tenths (1.3) times the MAWP (maximum allowable working pressure) at any point within the vessel.

(4) Pneumatic testing of a pressure vessel shall not exceed one and one-tenth (1.1) times the MAWP stamped on the vessel.

(m)(1) Boilers below fifty (50) horsepower are not subject to the additional hydrostatic test requirements outlined in the ASME code for boilers that have been hydrostatically tested at the manufacturer, and for which the boiler external piping has not been shipped with the boiler.

(2) Boiler external piping for these boilers, which must be separately manufactured, shall be tested in accordance with B31.1 and code stamped if required.

(3) Anhydrous Ammonia pressure piping shall be designed in accordance with ASME B31.5 and code stamped if required.

20 CAR § 880-702. Variances.

(a)(1) The Boiler Inspection ~~Division~~ Section may, in any particular case, grant an exception or variance from the literal requirements of the minimum standards for construction, installation, repair, and operation set out in the ASME codes as adopted in 20 CAR § 880-701.

(2) A variance shall be granted only when both of the following conditions are present:

(A) Existing conditions or undue hardship prevent compliance with the literal requirements of this part; and

(B) Equivalent safety will be secured.

(b) **Procedure.**

(1)(A) An application for a variance shall be submitted by the owner, operator, or installer to the ~~division~~ section on a form approved by the ~~division~~section.

(B) The application shall be accompanied by an application for installation or repair and detailed plans and specifications for the vessel, together with any other information requested by the Chief Inspector of the Boiler Inspection ~~Division~~Section.

(C) The applicant shall state with specificity the rule or ASME standard for which a variance is sought.

(D) Failure to comply may result in dismissal of the application for a variance.

(2)(A) The Chief Inspector of the Boiler Inspection ~~Division~~ Section may grant or deny the variance or impose conditions upon the granting of the variance.

(B) If the variance is denied, the applicant may request an adjudicative hearing pursuant to 20 CAR § 880-301~~ et seq~~.

(C) Such a hearing shall be before ~~the Boiler Advisory Board~~an appointed administrative hearing officer by the Department who shall make a recommendation to the Director of ~~the Division of Labor~~Code Enforcement.

(D) The director shall make a final administrative determination.

(3)(A) The Chief Inspector of the Boiler Inspection ~~Division~~ Section may neither grant nor deny the variance but refer it for an adjudicative hearing pursuant to 20 CAR § 880-301~~ et seq~~.

~~(B) Such a hearing shall be before the board who shall make a recommendation to the director.~~

(~~C~~B) The director shall make a final administrative determination.

(c) The owner or operator shall maintain the variance certificate or order at the location of the boiler and make it accessible to any licensed boiler inspector.

20 CAR § 880-703. Administrative penalties.

(a) **Types of fines.** The Boiler Inspection ~~Division~~ Section is authorized to issue the following administrative fines:

(1) Arkansas Code § 20-23-301 authorizes a fine of no less than twenty-five dollars ($25.00) and not more than one thousand dollars ($1,000) for the following:

(A) Operating a boiler or pressure vessel without a certificate of inspection or operating permit;

(B) Operating a boiler or pressure vessel at a pressure greater than permitted by the certificate of inspection or operating permit;

(C) Installing, repairing, or operating a boiler or pressure vessel in violation of this part, including the ASME standards adopted by 20 CAR § 880-701;

(D) Operating a boiler or pressure vessel on which the permit has been suspended or operation has been forbidden by a licensed inspector; and

(E) Installing pressure piping in violation of this part or the ASME standards adopted by 20 CAR § 880-701;

(2) Arkansas Code § 20-23-302 authorizes an administrative fine of one hundred dollars ($100) for any owner or operator who fails to report the location of a boiler or pressure vessel to the Boiler Inspection ~~Division~~Section;

(3) Arkansas Code § 20-23-311(d) provides that any owner or user who fails to pay an inspection fee within thirty (30) days of it being due, shall be subject to a civil penalty equal to the amount of the inspection fee;

(4) Arkansas Code § 20-23-404(b)(2) authorizes an administrative fine of not less than twenty-five dollars ($25.00) and not more than one hundred dollars ($100) for operating a boiler without a boiler operator's license; and

(5) Arkansas Code § 20-23-407 authorizes an administrative fine of not less than one hundred dollars ($100) and not more than five thousand dollars ($5,000) per violation per day to any owner/user participating in the owner/user program in 20 CAR § 880-1301 et seq., for the failure to comply with this part, including the ASME standards adopted by 20 CAR § 880-701.

(b) **Procedure.**

(1) In administrative fine cases, the Director of Code Enforcement or his or her designee~~Administrator of the Division of Labor~~ shall notify the person or persons or entity charged with the violation or violations by certified mail of the following:

(A) A statement identifying the boiler or pressure vessel by state-issued identification number, as well as the physical address of the boiler or pressure vessel;

(B) A short, plain statement of the facts constituting the violation or violations, together with a citation to the statute, rule, or standard violated;

(C) The amount of the administrative fine or civil penalty;

(D) The date of the boiler inspection, if applicable; and

(E) A statement that the administrative fine or penalty shall be final unless within:

(i) Ten (10) days after receipt of this notice, the owner or user pays any delinquent inspection fee required for issuance of an operating certificate; or

(ii) Twenty (20) days after receipt of this notice, the person, firm, corporation, partnership, or association charged with the violation or violations notifies the ~~Director~~ director ~~of the Division of Labor~~ in writing that he or she contests the penalty.

(2)(A) Notice of the fine or civil penalty will be sent by United States Postal Service, return receipt requested, delivery restricted to the named recipient or his or her agent.

(B) Notice shall be sufficient when it is so mailed to the respondent's latest address on file with the Boiler Inspection ~~Division~~Section.

(C) Notice may also be made in the same manner as authorized for a summons in a civil action.

(3) If the person or entity charged with the violation has not filed notice that he or she contests the administrative fine within twenty (20) days after receiving notice in accordance with subdivision (b)(1) of this section, the fine or penalty assessment by the Director of Code Enforcement ~~Administrator~~ shall constitute a final administrative determination.

(4)(A) A fine or penalty may be contested by filing a written request for a hearing with the:

Director ~~of the Division of Labor~~Code Enforcement
~~10421 West Markham Street~~900 West Capitol, Suite 400
Little Rock, AR ~~72205~~ 72201

(B) The written request must be received by the ~~Division of Labor~~director within twenty (20) days of person or entity's receipt of the notification of the fine or penalty.

(5)(A) A contested fine shall be set for an adjudicative hearing pursuant to 20 CAR § 880-301 ~~et seq~~.

(B) The director shall designate a hearing officer.

(c) Assessment of an administrative fine shall be made no later than two (2) years from the date of the occurrence of the violation.

20 CAR § 880-704. Installation.

(a) **Generally.**

(1)(A) Every manufacturer, contractor, jobber, owner, or user of a boiler or unfired pressure vessel shall obtain permission from the Boiler Inspection ~~Division~~ Section before any boiler or unfired pressure vessel may be installed or moved and reinstalled in the State of Arkansas.

(B) When boilers or unfired pressure vessels are to be installed, the manufacturer's data report for each boiler and unfired pressure vessel must be submitted with the application for installation.

(C) No boiler or unfired pressure vessel may be installed without approval from the ~~division~~section.

(D) All persons, firms, or corporations engaged in the installation of boilers, unfired pressure vessels or hot water storage tanks or fired/unfired storage water heaters two hundred thousand British thermal units per hour (200,000 Btu/hr) or greater input in any location shall be licensed by the ~~division~~ section to perform such work pursuant to Arkansas Code § 20-23-405 and 20 CAR § 880-401 et seq.

(2)(A) All new and second-hand boilers and pressure vessels shall be installed and equipped to conform to the requirements of the ASME Boiler Construction Code and CSD-1 as adopted by 20 CAR § 880-701, and shall be inspected and approved by a state boiler inspector, approved third-party inspector, or an authorized insurance inspector before they are placed in service.

(B) All such work must be performed by persons or firms possessing the requisite license and any applicable NBBI certification.

(C) Permits must be obtained from the Boiler Inspection Section for each boiler and/or pressure vessel before they may be installed.

~~(b) **Method of support.**~~

~~(1)(A) A horizontal-return tubular boiler over seventy-two inches (72″) in diameter shall be supported from steel hangers by the outside-suspension type of setting, independent of the boiler side walls.~~

~~(B) The hangers shall be so designed that the load is properly distributed between the rivets attaching them to the shell and so that no more than two (2) of these rivets come in the same longitudinal line on each hanger.~~

~~(C) The distance girthwise of the boiler from the centers of the bottom rivets to the centers of the top rivets attaching the hangers shall be not less than twelve inches (12″).~~

~~(D) The other rivets used shall be spaced evenly between these points.~~

~~(2)(A) A horizontal-return tubular boiler, fourteen feet (14′) or more in length, or over fifty-four inches (54″) and up to and including seventy-two inches (72″) in diameter, shall be supported by the outside-suspension type of setting as specified above or at four (4) points by not less than eight (8) steel or cast iron lugs set in pairs.~~

~~(B) A horizontal-return tubular boiler up to and including fifty-four inches (54″) in diameter, shall be supported by the outside-suspension type of setting as specified above, or by not less than two (2) steel or cast iron lugs on each side.~~

~~(C) The distance girthwise of the boiler from the centers of the bottom rivets to the centers of the top rivets attaching the hangers shall be not less than the square of the shell diameter divided by six hundred seventy-five (675).~~

~~(D) If more than four (4) lugs are used, they shall be set in four (4) pairs, the lugs of each pair to be spaced not over two inches (2″) apart and the load to be equalized between them.~~

~~(E) If the boiler is supported on structural steel work, the steel supporting members must be so located or insulated that heat from the furnace cannot impair their strength.~~

~~(3) Lugs or hangers, when used to support a boiler of any type, shall be properly fitted to the surfaces to which they are attached.~~

~~(4)(A) Where it is impracticable to use rivets, studs with not less than ten (10) threads per inch may be used.~~

~~(B) In computing the shearing stresses, the area at the bottom of the thread shall be used.~~

~~(C) The shearing and crushing stresses on the rivets or studs used for attaching the lugs or brackets shall not exceed eight percent (8%) of the strength given in the ASME code.~~

~~(5)(A) Lugs, hangers, or brackets made of materials in accordance with the ASME code requirements may be attached by fusion welding providing the welding meets the requirements of the ASME code, as adopted, including stress relieving but omitting radiographic examination, and provided that they are attached by fillet welds along the entire periphery or contact edges, of the size and form shown in the ASME code.~~

~~(B) The stresses computed by dividing the total load on the lug, hanger, or bracket by the minimum cross-sectional area of the weld shall not exceed, for tension and compression, forty percent (40%), and for shear, thirty-two percent (32%), of the stress values given multiplied by the welded joint efficiency specified in the ASME code.~~

~~(C) The furnace setting shall have adequate means for expansion and contraction.~~

~~(c)~~ **~~Settings.~~**

~~(1)(A) Steel boilers of the wet-bottom type having an external width of over thirty-six inches (36″) shall have not less than eighteen inches (18″) between the bottom of the boiler and the floor line, with access for inspection.~~

~~(B) When the width is thirty-six inches (36″) or less, the distance between the bottom of the boiler and the floor line shall not be less than six inches (6″), and when any part of the wet bottom is not farther from an outer edge than twelve inches (12″), it shall be not less than four inches (4″).~~

~~(2) The minimum size of the access door used in a boiler setting shall be twelve inches by sixteen inches (12″ x 16″), or equivalent area, the least dimension being eleven inches (11″).~~

20 CAR § 880-705. Inspections.

(a)(1) No person shall operate or cause to be operated any new boiler or unfired pressure vessel which has been installed or erected, or any used boiler or unfired pressure vessel which has been reinstalled or re-erected in the State of Arkansas, until it has been inspected by a state boiler inspector or an authorized insurance inspector and a certificate of inspection has been issued as required by Arkansas Code § 20-23-301.

(2) The certificate of inspection for power and heating boilers shall be posted in the boiler or engine room in a location where it may be easily read by the engineer or firefighter.

(3) Certificates of inspection for unfired pressure vessels or portable boilers shall be kept on the premises where such pressure vessels or boilers are located and shall be accessible at all times.

(b)(1) The owner or user of a boiler which requires annual internal inspection shall prepare the boiler for inspection by:

(A) Cooling it down;

(B) Blanking off connections to adjacent boilers if necessary;

(C) Drawing off the water;

(D) Removing the handhole and manhole plates;

(E) Opening the low-water cutout;

(F) Removing the water column plugs; and

(G) Removing the grate bars from internally fired boilers.

(2) When considered necessary by the inspector, the brickwork, lagging, jacketing, appliances, other parts or fittings, and any boiler covering shall be removed.

(c)(1) The combustion chamber and passages and the firebox shall be cleaned and soot and ashes removed.

(2) Water, scale, and mud must be removed from the interior portions of the boiler.

(3) Unfired pressure vessels shall be prepared for inspection in a manner that will ensure a thorough and proper inspection.

(d) Where, in the opinion of the inspector, as a result of conditions disclosed at an inspection, it is deemed advisable to remove interior or exterior lining, covering, or brick work to expose certain parts of the vessel not visible, the inspector shall require the removal of such materials to permit the proper inspection and the drilling of any part of the vessel when necessary to ascertain thickness.

(e) When the tensile strength is not known, it shall be taken as fifty-five thousand pounds per square inch (55,000 psi) for temperatures not exceeding six hundred fifty degrees Fahrenheit (650° F).

(f)(1) If at any time the owner, user, or agent of the owner of any boiler within the state shall desire a special inspection of any boiler or unfired pressure vessel, it shall be made by the Boiler Inspection ~~Division~~ Section after due request, and the ~~inspector making the inspection~~section shall collect a fee of one hundred dollars ($100) for each boiler~~, together with his or her expenses from Little Rock to the place of inspection and return at the rate authorized for state employees~~.

(2) All inspection fees shall be paid by the owner, user, or agent of the owner~~, and the inspector is authorized to receive such fee and issue his or her receipt therefore~~.

(g)(1) All boilers or unfired pressure vessels that have been inspected and found unsafe by an authorized inspector shall be stamped "XXOOOXX", which will designate it as an unsafe boiler.

(2) No person except an authorized inspector shall deface or remove such stamping.

(h)(1) If, upon an external inspection, there is evidence of a leak or crack, enough of the covering of the boiler or unfired pressure vessel shall be removed to enable the inspector to determine the safety of the boiler or unfired pressure vessel.

(2) If the covering cannot be removed at that time, the inspector may order the operation of the boiler or unfired pressure vessel stopped until the covering can be removed and proper examination made.

(i)(1) If in the judgment of an authorized inspector the condition of a boiler warrants the certificate being withheld or withdrawn, such reasons shall be stated fully in a report to the Boiler Inspection ~~Division~~Section.

(2) When a certificate has been withdrawn or withheld, it shall not be reissued until a repair or inspection report has been filed with the Boiler Inspection ~~Division~~ Section showing that the boiler has been placed in a safe working condition.

(j) When an authorized inspector finds it necessary to change the pressure allowed on a boiler, either increasing or decreasing it, the reasons therefore shall be stated on the report and the certificate taken up and forwarded with the report to the Boiler Inspection ~~Division~~Section.

(k) **Inspectors.**

(1) Inspectors of boilers and/or unfired pressure vessels employed by insurance companies are required to hold certificates of competency issued by the Boiler Inspection ~~Division~~Section.

(2) Any inspector of steam boilers who shall report a boiler for a certificate of inspection as safe to operate while knowing such report to be false and that the boiler is unsafe to operate, or who shall fail to perform his or her duties as required by this part or Arkansas Code § 20-23-101 et seq., or who shall cause the repair, installation, or sale of a boiler that does not comply with the standards as set out in Arkansas Code § 20-23-101 et seq., and this part, shall be subject to the criminal penalties provided by Arkansas Code § 20-23-403, as well as sanctions or fines issued by the Boiler Inspection ~~Division~~ Section pursuant to 20 CAR § 880-401 et seq., and 20 CAR § 880-703.

(3)(A) All boilers inspected by insurance companies shall be inspected as follows:

(i) High-pressure steam boilers shall be inspected internally and externally at least once each year;

(ii) All low-pressure steam boilers shall be inspected externally annually and internally once each three (3) years as far as construction permits; and

(iii) All hot water heating boilers shall be inspected externally annually, and internally if required, by the inspector.

(B) These times may be shortened at any time an inspector feels there is reason to question the boiler or controls integrity.

(C) If the internal and external inspections are made on different dates, two (2) inspection reports shall be filed with the Boiler Inspection ~~Division~~Section.

(4) The annual internal inspection, or general inspection where internal inspection cannot be made, shall be made at least once each twelve (12) months, and should be made during the same calendar month each year if possible.

(5) If annual inspection reports are not filed with the Boiler Inspection ~~Division~~ Section by insurance companies who have insurance on boilers in the State of Arkansas within sixty (60) days from the date they are due inspection, the Boiler Inspection ~~Division~~ Section shall make the required inspection, and a special fee of one hundred dollars ($100) for each boiler or unfired pressure vessel inspected~~, plus mileage and expenses from Little Rock to the point of inspection and return, not to exceed the current rate authorized by the General Assembly to employees of state agencies who furnish their own transportation, plus meals and hotel bills incurred,~~ shall be charged to the insurance company insuring the boilers or unfired pressure vessels unless extension of time is granted by the Chief Inspector of the Boiler Inspection ~~Division~~Section.

(6)(A) When insurance on a boiler or pressure vessel is canceled or new business is written, the Boiler Inspection ~~Division~~ Section shall be notified on approved forms.

(B) The reason for cancellation must be given.

(C) When insurance is canceled because of an existing dangerous defect, the Boiler Inspection ~~Division~~ Section shall be notified immediately upon cancellation of the insurance.

(7) All representations and recommendations made by authorized inspectors, ~~Division of Labor~~Department of Labor and Licensing inspectors, approved third-party inspectors, or insurance inspectors, ~~-~~in regard to necessary repairs and pressure to be allowed, are subject to the final approval or disapproval of the Chief Inspector of the Boiler Inspection ~~Division~~Section.

(8) Insurance companies must report to the Boiler Inspection ~~Division~~ Section any boiler and/or unfired pressure vessel that is in use and not insured by them in any location of their insured within thirty (30) days from the date of discovery of the vessel.

(9)(A) All authorized inspectors as well as the owner or user of a boiler or unfired pressure vessel shall notify the Boiler Inspection ~~Division~~ Section of any explosion or accident involving a boiler or unfired pressure vessel.

(B) No part or parts of such boiler or unfired pressure vessel shall be disturbed or moved until authority to do so is granted by the Chief Inspector of the Boiler Inspection ~~Division~~Section.

(l) **Data reports.**

(1)(A) A data sheet shall be filled out and signed by the manufacturer and the inspector.

(B) When signing each data report, the manufacturer shall show under his or her signature the expiration date of his or her certificate of authorization to use the ASME symbol.

(C) This data sheet, together with the stamping on the vessel, shall be a guarantee by the manufacturer that he or she has complied with all requirements of the ASME code.

(2)(A) A complete data report shall be furnished with the first internal inspection report on all new boilers and unfired pressure vessels.

(B) At the time of the first inspection, the boiler shall be stamped with a state number preceded by the letters "AR", said letters and figures to be not less than one-fourth inch (1/4") in height.

(C) The stamping shall not be concealed by:

(i) Lagging;

(ii) Covering; or

(iii) Paint.

(D) On high-pressure boilers, the state number shall be attached as close to the code stamping as possible.

(E) On cast iron boilers and boilers (encased), the state number shall be stamped on a metal tag attached to the boiler.

(m) **Inspection of water heating units under 200,000 Btu's required.**

(1) Hot water heating boilers below two hundred thousand British thermal units per hour (200,000 Btu/hr) input located in schools, daycare centers, hospitals, and nursing homes shall be inspected annually as follows:

(A) For gas fired objects, check the flue venting to determine that no deterioration, holes, or obstructions are present that would prevent the escape of all post combustible gasses;

(B) Test the temperature relief valve to verify working status;

(C)(i) Verify that the relief valve discharge line exits the building to an exterior wall and to the outside of the building; or

(ii) The discharge line drains to an interior drain that prevents a release of heated water to come in contact with the public;

(D) Inspect the mechanical room or closet the object is located in to insure there are no hazardous or flammable materials stored or placed in the area;

(E) Check that a carbon monoxide detector is in working order, present within the exterior room that the object is located;

(F) Inspect that a fuel supply cut off valve is present to the object; and

(G) Inspect any electrical connections to the device or area to ensure there are no loose, bare, or hazardous wiring conditions that could create an ignition source or electrical shock.

20 CAR § 880-706. Repairs.

(a) **Major repairs — Notice to Boiler Inspection ~~Division~~Section.**

(1)(A) Each person, firm, or corporation licensed to repair boilers shall have a written quality control (Q.C.) program.

(B) The Q.C. program shall be comprised of all planned and systematic actions necessary to provide adequate assurance that the boiler or pressure vessel will

be installed or repaired in accordance with the standards adopted pursuant to 20 CAR § 880-701.

(2) All welders and welding operators shall be qualified in accordance to ASME Section IX, Welding and Brazing Qualifications, as adopted by 20 CAR § 880-701.

(3)(A) Each firm or corporation that intends to make weld repairs on boilers or pressure vessels shall submit written documentation to verify that they have a Welding Procedure Specification and Procedure Qualification Record.

(B) Performance qualification documentation is as per ASME Section IX.

(4)(A) The Boiler Inspection ~~Division~~Section, either directly or through an authorized inspector, shall be notified of any contemplated major repairs to a boiler or pressure vessel.

(B) The repair firm or corporation as well as the owner or user of the vessel may give the aforementioned notice to the Boiler Inspection ~~Division~~ Section before repair work is started and after it is completed.

(5) All repairs shall be made to comply with the recommendations and standards specified by the Boiler Inspection ~~Division~~Section.

(6)(A) Persons, companies, firms, ~~and/~~or businesses that wish to perform repairs or alterations on ASME constructed pressure vessels, or within the vessels' code boundaries, must have in place a written quality control system acceptable to the ~~Division of Labor~~Boiler Inspection Section, and~~/or~~ have authorization from the ASME or the National Board of Boiler and Pressure Vessel Inspectors to perform such repairs or alterations.

(B) In all cases, the ~~Division of Labor~~Boiler Inspection Section must be notified prior to starting repairs or alterations.

(7)(A) The original construction code of the vessel shall be used for any repairs or alterations.

(B) When this is not possible, it is permissible to use other codes, standards, or specifications, including the ASME code, provided the repair firm has the concurrence of the inspector and the ~~Division of Labor~~Boiler Inspection Section.

(8)(A) The inspector's authorization to do repairs or alterations must be obtained prior to starting, and this inspector shall do the final acceptance inspection of the repair or alteration.

(B) In all cases, the inspector shall be an employee of the original organization or an inspector authorized by the ~~Division of Labor~~department.

(b) **Materials and workmanship.**

(1)(A) When repairs of any nature are made on a boiler, the materials used in such repairs shall be only materials recommended by the ASME code for new boilers, and the Boiler Inspection ~~Division~~ Section shall be furnished with satisfactory evidence that there has been compliance with this requirement.

(B) The workmanship must be of a quality that will pass inspection by an inspector from the Boiler Inspection ~~Division~~Section, or by an authorized insurance inspector or approved third-party inspector whose opinion shall be subject to the approval or disapproval of the Chief Inspector of the Boiler Inspection ~~Division~~Section.

(2) All welded repairs shall be made to conform to the recommended procedures outlined in the National Board of Boiler and Pressure Vessel Inspectors Inspection Code, as adopted by 20 CAR § 880-701.

(3) No welding of any type shall be performed on any boiler or unfired pressure vessel until permission is granted by the Boiler Inspection ~~Division~~Section.

(4)(A) The shell or drum of a boiler in which a typical "lap seam crack" is discovered along a longitudinal riveted joint, either butt joint or lap joint, shall be permanently discontinued for use under pressure.

(B) "Lap seam crack" means the typical crack frequently found in lap seams extending parallel to the longitudinal joint and located either between or adjacent to rivet holes.

(5) The maximum allowable working pressure on a water tube boiler, the tubes of which are secured to cast iron or malleable iron headers or which have cast iron and mud drums, shall not exceed one hundred sixty pounds per square inch (160 psi).

(c) **Repairs – Patch.**

(1)(A) When damage or injury to a boiler is of a nature which apparently necessitates the use of a patch, the Boiler Inspection ~~Division~~ Section or an authorized inspector shall be consulted before work is started on the patch so that one of the proper design may be prescribed to avoid a possible reduction in the approved pressure.

(B) All patches shall be designed and installed to comply with the applicable National Board of Boiler and Pressure Vessel Inspectors and the ASME requirements and standards, as adopted by 20 CAR § 880-701.

(2) Any person or persons who shall make or cause the repair, installation, or sale of a boiler that does not comply with the standards and rules as set out in this part shall be guilty of a felony, and upon conviction thereof shall be punished by fine in any sum of not less than one hundred dollars ($100) nor more than five hundred dollars ($500), and in addition, may be imprisoned for not more than three (3) years, or both, as provided by Arkansas Code § 20-23-309.

(d) **Tubes.**

(1) When the tubes are removed from any firetube boiler for the purpose of retubing the boiler, the Boiler Inspection ~~Division~~ Section shall be notified by the owner, user, ~~and/~~or the workman performing such work, so that inspection can be made of the internal surface of the shell by a state inspector, approved third-party provider, or an authorized insurance inspector while the tubes are out of the boiler, and the boiler may be approved before new tubes are applied.

(2)Any repair, modification, or replacement shall be in accordance with the applicable ASME requirements and standards ,the NBBI, and inspected in accordance with the standards as adopted by 20 CAR §880-701. ~~(A) A fire tube boiler shall have the ends of the tubes firmly rolled and beaded, or rolled, beaded, and welded around the edge of the bead.~~

~~(B) Attachment methods as described in ASME Section I PFT 12.2 may also be used if acceptable to the inspector.~~

(C) Where the tubes do not exceed one and one-half inches (1 1/2") in diameter, the tube sheet may be beveled or recessed to a depth at least equal to the thickness of the tubes and the tubes rolled into place and welded.

(D) In no case shall the tube end extend more than three-eighths inch (3/8") beyond the tube sheet.

(3) Tube ends not subjected to direct radiant heat of the furnace may be rolled and seal welded without beading, provided that:

(A) The tube ends extend not less than one fourth inch (1/4") nor more than five sixteenths inch (5/16") through the tube sheet; and

(B) The throat of the seal weld is not less than three sixteenths inch (3/16"), nor more than five sixteenths inch (5/16").

(4) After welding, the tubes are re-expanded.

(5)(A) In the case of tubes not exceeding one and one-half inches (1 1/2") in diameter, they may be expanded by the Prosser method instead of rolling.

(B) If tubes larger than one and one-half inches (1 1/2") in diameter are expanded by the Prosser method, the work shall be completed as required above.

(6) The ends of all tubes, suspension tubes, and nipples shall be expanded and flared not less than one-eighth inch (1/8") over the diameter of the tube hole on all water-tube boilers and superheaters, or they may be flared not less than one-eighth inch (1/8"), rolled and beaded, or flared, rolled, and welded (except as provided in the ASME code), or rolled and seal welded without flaring, provided the throat of the seal weld is not less than three-sixteenths inch (3/16"), nor more than three-eighths inch (3/8"), and the tubes are re-expanded after welding.

(7) Tube ends or welded necks may be fusion welded to the drums of water-tube boilers without expanding or flaring, provided the materials and welding comply with requirements of the ASME code, except that the test plate requirements may be omitted, and the connections comply with the requirements of the ASME code.

(8)(A) Where pipe as provided in the ASME code is used for tubes in water-tube boilers, it may be screwed instead of rolled and flared, and the minimum number of threads shall conform to the requirements of the ASME code.

~~(B) The ends of stub tubes may be closed by either forge or fusion welding.~~

~~(9) Tubes may be seal welded into fittings or headers for both boilers and superheaters after they have been expanded and flared, provided the materials in the fittings or headers complies with the ASME code.~~

~~(10)(A) The ends of all tubes, suspension tubes, and nipples of water tube boilers and superheaters shall project through the tube sheets or headers not less than one fourth inch (1/4") or more than one half inch (1/2") before flaring.~~

~~(B) Where the tubes enter at an angle, the maximum limit of one half inch (1/2") shall apply only at the point of least projection.~~

~~(11) Re-ending of tubes in fire tube boilers is permissible provided the Boiler Inspection Division is notified and if after inspection it is found the remaining tube wall is not less than seventy five percent (75%) of the original thickness, and providing further that the welding is performed in compliance with National Board of Boiler and Pressure Vessel Inspectors rules as adopted by 20 CAR § 880-701.~~

~~(12) Piecing or replacement of sections of tubes or pipes in water tube boilers is permissible, provided the remaining tube or pipe wall is not less than seventy five percent (75%) of the original thickness, and that the welder is certified.~~

~~(13) Repairing of bulges in tubes in water tube boilers is permissible when the area to be repaired does not exceed two inches (2") in maximum dimension and there are not more than three (3) such repairs in any one (1) tube.~~

20 CAR § 880-707. Operators and operation.

(a)(1) All power boilers subject to the provisions of Arkansas Code § 20-23-101 et seq., and this part shall be under attendance by a licensed operator whenever they are in use for any purpose.

(2) Boilers that are fired up are considered in use whether steam is being withdrawn or not, unless the boiler is in a building that is not occupied at any time.

(b) Steam boilers fifty (50) horsepower and over, as rated by the manufacturer, and steam boilers used in hospitals, hotels, schools, theaters, and office buildings, but

not limited to those, must be under regular attendance by a licensed operator who holds a license issued by the Boiler Inspection ~~Division~~Section.

(c) All power boilers and high-pressure/high-temperature water boilers without fully automatic controls shall have a full-time licensed operator while the boiler is in service.

(d)(1) "Operator" means a competent attendant who is familiar with the particular boilers to be operated, and who has received proper instruction in their safe operation.

(2) He or she must also be licensed by the ~~division~~section.

(e) **Operator attendance.**

(1) It should be noted that nothing will replace the need for one (1) or more boiler operators being in attendance when the boilers are in operation.

(2) **High-pressure steam boilers.**

(A)(i) Manual boilers shall be maintained by constant attendance by a boiler operator.

(ii) See definition of constant attendance in 20 CAR § 880-103.

(B)(i) High-pressure steam boilers, which meet CSD-1 ~~-~~recommendations, as adopted by 20 CAR §880-701, for local alarms and safety devices, shall be maintained by regular attendance by a boiler operator.

(ii) See definition of regular attendance in 20 CAR § 880-103.

(C)~~(i)~~ High-pressure steam boilers, which meet CSD-1 as adopted by 20 CAR §880-701 ~~as~~ in subdivisions (e)(2)(A) and (B) of this section, plus have installed remotely actuated alarms to detect low water condition, high pressure, high water condition, loss of operating boiler, etc., shall be maintained by periodic attendance by a boiler operator provided the operator has the prior approval of the Chief Inspector of the Boiler Inspection ~~Division~~Section.

~~(ii) See definition of periodic attendance in 20 CAR § 880-103.~~

(D) High-temperature, high-pressure water boilers fall under the same guidelines as those for high-pressure boilers in subdivisions (e)(2)(A) – (C) of this section.

(E)(i) Remote monitoring for high-pressure boilers (safety valve is set at greater than fifteen pounds per square inch (15 psi)~~)~~ shall only be approved with a

formal request, in writing, to the Chief Inspector of the Boiler Inspection ~~Division~~Section.

(ii) It must describe the system, the equipment, what is presently installed, and what the plans are for remote monitoring.

(3) **Low-pressure steam, hot water heating, and hot water supply boilers.**

(A)(i) Low-pressure steam boilers shall meet the requirements of CSD-1 for controls, local alarms, and safety devices, as adopted by 20 CAR § 880-701.

(ii) Boiler operator attendance shall be as described for regular attendance, except the time frame shall be expanded to every two (2) hours for inspections and readings.

(iii) This can be extended to four (4) hours by meeting the requirements for periodic attendance of a boiler.

(iv) All readings shall be maintained on a log sheet, either hand written or electronic document with a non-editable time stamp entry, that includes the operating condition of the vessel, input and output pressure reading, the operator name, initials if hand written or a digital signature stamp if electronically kept.

(v) These records are to be maintained for three (3) years and made available to the Boiler Inspection Section or the authorized inspector upon request.

(B)(i) Hot water heating boilers shall meet the requirements of CSD-1 for controls, local alarms, and safety devices, as adopted by 20 CAR § 880-701.

(ii) Boiler operator attendance shall be a maximum of every twelve (12) hours for inspection and any required readings with the boilers in operation, and more often should there be other extenuating circumstances.

(C)(i) Hot water supply boilers shall meet the requirements of CSD-1 for controls, local alarms, and safety devices, as adopted by 20 CAR § 880-701.

(ii) Boiler operator attendance shall be a maximum of every twelve (12) hours for inspection and any required readings with the boilers in operation, and more often should there be other extenuating circumstances.

Subpart 8. Boilers

20 CAR § 880-801. Generally.

(a)(1) Boilers are vessels in which water is heated and/or steam is generated, and shall be classified as defined by ~~the several sections of~~ the ASME Boiler Construction Code, as adopted by 20 CAR § 880-701.

(2) All such boilers must be constructed in compliance with the ASME code and be registered with the National Board of Boiler and Pressure Vessel Inspectors.

~~(b) Horizontal return tubular boilers externally fired of lap joint construction exceeding thirty-six inches (36") in diameter or any horizontal longitudinal joint exceeding twelve feet (12') in length shall not be installed or reinstalled.~~

(~~c~~b)~~(1)~~ The factor of safety on all second-hand boilers moved into Arkansas from another state shall be determined at the time of the inspection and a complete report containing all construction data shall be submitted to the Boiler Inspection ~~Division~~ Section for approval.

~~(2) All such boilers must be constructed in compliance with the ASME code and be registered with the National Board of Boiler and Pressure Vessel Inspectors.~~

~~(d) The flat surface of boilers or pressure parts shall be stayed in accordance with the requirements of the ASME Boiler Construction Code for power boilers.~~

~~(e)(1) The furnace and setting shall be provided with sufficient openings to permit inspection and repairs.~~

~~(2) All boilers having an external width of over thirty-six inches (36") shall have not less than eighteen inches (18") clearance between the bottom of the boiler and the floor line, with access for inspection.~~

~~(3) When the width is thirty-six inches or less, the distance between the bottom of the boiler and the floor line shall be not less than six inches (6").~~

(~~f~~c) Boilers installed after October 1, 1999, should be isolated from employees and the general public with a reinforced concrete block wall of not less than eight inches (8") in thickness, six feet (6') in height, and the length of such wall shall be governed

by the size and positioning of the boiler, but should surround the boiler, leaving adequate openings for entry into the boiler space.

~~(g) All boilers shall be located so that adequate space will be provided on all sides for the proper operation of the boiler and its appurtenances, for the inspection of all surfaces, tubes, water walls, economizers, piping, valves, and other equipment and for their necessary maintenance and repair.~~

(~~h~~d)(1) The gas train and boiler controls shall comply with ASME CSD-1, as adopted by 20 CAR § 880-701.

~~(2) Paragraph CE110 (a) pertaining to disconnect and remote emergency shutoff requirements shall only apply to steam boilers, however, all other boilers must comply with the National Electrical Code, as adopted by the Board of Electrical Examiners of the State of Arkansas, for disconnect devices.~~

~~(3) Manifolding of fuel vents and bleeds will be allowed, although good engineering practice shall be used as described in CF-190.~~

(4~~2~~) ~~Owners' reports and periodic testing as required in part CM are the owners' responsibility and do not have to be submitted to the division, but shall be requested to be reviewed by the inspector.~~ All boilers must comply with the National Electrical Code, as adopted by the Board of Electrical Examiners of the State of Arkansas, for disconnect devices.

(~~i~~e) "State Specials" can be any boiler or fired/unfired pressure vessel of any type or size, which carries neither the ASME symbol nor National Board of Boiler and Pressure Vessel Inspectors stamping, and which has otherwise been proven acceptable to the Chief Inspector of the Boiler Inspection ~~Division~~ Section and assigned an Arkansas state number.

(~~j~~f) All steam boilers shall have installed an audible alarm system to work in union with their other operating control devices, unless the boiler is operated under constant attendance by a boiler operator.

20 CAR § 880-802. Heating boilers.

(a) Expansion tanks, feedwater connections, bottom blowoff, safety valves, relief valves, steam gauges, pressure or altitude gauges, and thermometer temperature-combustion regulators shall be defined, constructed, repaired, and inspected in accordance with the adopted ASME code and the applicable NBBI standards as adopted by 20 CAR §880-701.

(b) All feedwater installations should use the ASME Consensus on Operating Practices for the Control of Feedwater and Boiler Water Chemistry as a guide.

(c) Pressure piping shall follow the applicable codes set forth in the ASME code as adopted in 20 CAR §880-701 including the design, materials, fabrication, examination, and testing requirements in ASME B 31.1.

~~(a) **Expansion tanks.**~~

~~(1)(A) If the system is equipped with an open expansion tank, an internal overflow from the upper portion of the expansion tank must be provided in addition to an open vent, the internal overflow to be carried within the building to a suitable plumbing fixture or to the basement.~~

~~(B) If the system is of the closed type, an airtight tank or other suitable air cushion must be installed that will be consistent with the volume and capacity of the system.~~

~~(2)(A) If a system is equipped with a check valve or pressure-reducing valve in the cold water inlet line, consideration should be given to the installation of an airtight expansion tank or other suitable air cushion.~~

~~(B) Otherwise, due to the thermal expansion of the water, the safety relief valve may lift periodically.~~

~~(C) If an expansion tank is provided, it shall be constructed in accordance with Section VIII Division 1 for a maximum allowable working pressure equal to or greater than the water heater.~~

~~(D) Except for prepressurized tanks, provisions shall be made for draining the tank without emptying the system.~~

~~**Recommended Expansion Tank Capacities for Gravity Hot Water Systems**~~

Based on two-pipe system with average operating water temperature 170° F, using cast iron column radiation with heat emission rate 150 Btu/hr sq ft equivalent direction radiation

Installed Equivalent Direct Radiation, sq ft [Note (1)]	Tank Capacity, gal
Up to 350	18
Up to 450	21
Up to 650	24
Up to 900	30
Up to 1100	35
Up to 1400	40
Up to 1600	2-30
Up to 1800	2-30
Up to 2000	2-35
Up to 2400	2-40

NOTE: For systems with more than 2400 sq ft of installed equivalent direct water radiation, the required capacity of the cushion tank shall be increased on the basis of one gallon tank capacity per 33 sq ft of additional equivalent direct radiation.

Recommended Expansion Tank Capacities for Forced Hot Water Systems

Based on average operating water temperature 195° F, fill pressure 12 psig, and maximum operating pressure 30 psig

	Tank Capacities, gal	
System Volume, gal	Prepressurized Diaphragm Type	Nonprepressurized Type
100	9	15
200	17	30
300	25	45
400	33	60
500	42	75

1,000	83	150
2,000	165	300

NOTE: System volume includes volume of water in boiler, radiation, and piping, not including the expansion tank.

Expansion tank capacities are based on an acceptance factor of 0.4027 for prepressurized types and 0.222 for nonprepressurized types. A procedure for estimating system volume and determining expansion tank sizes for other design conditions may be found in Chapter 13 of the 1987 Systems and Applications Volume of the ASHRAE Handbook.

(b)(1) The return water connections to all low-pressure steam heating boilers supplying a gravity return heating system shall be so arranged as to form a loop substantially as shown in Section 4 of the ASME Boiler Construction Code, the bottom of the return pipe close nipple where it enters the equalizing loop being at the same level as the top of the lower water gauge glass nut.

(2) Equalizing pipe sizes shall not be less than the following:

GRATE AREA	EQUALIZING PIPE INCHES
Under 4 sq. ft	1 ½
4 to 15 sq. ft	2 ½
15 sq. ft and over	4

(c) Provisions shall be made for cleaning the interior of the return piping at or close to the boiler.

(d)(1) When a stop valve is used in the supply pipe connection of a single boiler, there shall be one (1) used in the return pipe connection.

(2) When stop valves over two inches (2") in size are used, they shall be of the outside screw and yoke rising spindle type or of such type as to indicate at a distance by the position of its spindle or other operating mechanism whether it is closed or open, and the wheel may be carried either on the yoke or attached to the spindle.

~~(3) If the valve is of the plug-cock type, it must be fitted with a slow-opening mechanism and an indicating device, and the plug must be held in place by a guard or gland.~~

~~(4) When stop valves are used, they shall be properly designated substantially as indicated by the following tags of metal or other durable material fastened to them:~~

~~Supply Valve Number ( ) Do Not Close Without Also Closing Return Valve – Number ( )~~	~~Return Valve Number ( ) Do Not Close Without Also Closing Return Valve – Number ( )~~

~~(e) A stop valve shall be used in each supply and return pipe connection of two (2) or more boilers connected to a common system.~~

~~(f) Any cross connection between two (2) or more boilers shall have a stop valve in the supply line with a stop valve and a check valve in each return line.~~

~~(g) If a boiler may be closed off from the heating system by closing a steam stop valve, there shall be a stop valve and check valve in the condensate return line between the boiler and the system.~~

~~(h) If any part of a heating system may be closed off from the remainder of the system by closing a steam stop valve, there shall be a stop valve and a check valve in the condensate return pipe from that part of the system.~~

~~(i) When a valve is placed in the top connection from a hot water supply boiler to a storage tank, an additional connection without valve shall be made between the boiler and top storage tank.~~

(~~i~~id)(1) Should a situation arise which is not covered by this part, the ASME code Section One (I) for Power Boilers and Section Four (IV) for Heating Boilers shall be consulted.

(2) Should Section Four (IV) for Heating Boilers not cover the situation, Section One (I) shall be consulted, even though the object may come under Section Four (IV).

(~~k~~b) ~~**Feedwater connections.**~~

~~(1)(A) Feedwater connections shall be independent of any water gauge connections and it is recommended that the connection be made to the condensate return pipe or reservoir of the condensate return pump.~~

~~(B) There should be a stop valve and a check valve in the feedwater line of the boiler.~~

~~(2) Feed or make-up water shall not be discharged directly into any part of the boiler exposed to the direct radiant heat of the fire.~~

~~(3) A bypass shall be provided around any pump or trap.~~

~~(4) Feedwater shall not be introduced through the openings or connections used for the water column, the water gauge, or the gauge cocks.~~

~~(5) The boiler feed line shall be adequate to take care of the maximum demand of the boiler.~~

~~(6) A manual bypass shall be provided around any feedwater pressure-reducing regulator on all hot water heating boilers.~~

~~(7) Each boiler equipped with a condensate return pump, where practicable, shall be provided with a water level control arranged to automatically maintain the water level in the boiler within the range of the gauge glass.~~

~~(8)(A) Hot water heating and hot water supply boilers shall have a flow switch installed to detect loss of water flow through the boiler.~~

~~(B) It shall be so located in the line that it cannot be isolated from the boiler through valve manipulation.~~

~~(l) **Bottom blowoff.**~~

~~(1) Each boiler shall have one (1) or more blowoff pipe connections fitted with straightaway valve or cocks of not less than three-fourths inch pipe size connected directly with the lowest water space and so located that the discharge shall not constitute a hazard.~~

~~(2) All washout plugs and handhole openings shall be accessible and shall not be obstructed in any way.~~

(3) All hot water heating systems shall be so installed that there will be no opportunity for the fluid relief column to freeze or to be accidentally shut off.

(m) **Safety valves.**

(1)(A) Each steam boiler shall have one (1) or more safety valves of the spring pop type adjusted and sealed to discharge at a pressure not to exceed fifteen pounds per square inch (15 psi).

(B) Seals shall be attached in a manner to prevent the valve from being taken apart without breaking the seal.

(C) The safety valves shall be arranged so that they cannot be reset to relieve at a higher pressure than the maximum allowable working pressure of the boiler.

(2)(A) Each safety valve three fourths inch (3/4") or over, used on a steam heating boiler, shall have a substantial device which will positively lift the disk from its seat at least one sixteenth inch (1/16") when there is no pressure on the boiler.

(B) The seats and disks shall be of suitable material to resist corrosion.

(3)(A) No safety valve for a steam boiler shall be smaller than three fourths inch (3/4") except in case the boiler and radiating surfaces are a self contained unit.

(B) No safety valve shall be larger than four and one half inches (4 1/2").

(C) The inlet opening shall have an inside diameter approximately equal to, or greater than, the seat diameter.

(n) **Relief valves.**

(1)(A) Each hot water heating or hot water supply boiler shall have one (1) or more relief valves of the spring loaded type, without disk guides on the pressure side of the valve.

(B) The valves shall be set to relieve at a pressure at or below the maximum allowable working pressure of the boiler and so arranged that they cannot be reset to relieve at a higher pressure than the maximum allowable working pressure of the boiler.

(2) Each relief valve shall have a substantial device which will positively lift the disk from its seat at least one sixteenth inch (1/16") when there is no pressure on the boiler.

~~(3)(A) The seats and disks shall be of material suitable to resist corrosion.~~

~~(B) No materials liable to fail due to deterioration of vulcanization when subjected to any temperature not exceeding two hundred fifty degrees Fahrenheit (250° F) shall be used for any part.~~

~~(4)(A) No relief valve shall be smaller than three fourths inch (3/4”) nor larger than two inch standard pipe size.~~

~~(B) The inlet opening shall have an inside diameter approximately equal to, or greater than, the seat diameter.~~

~~(o) **Installation of safety and relief valves.**~~

~~(1) Safety valves shall be connected to boilers with the spindle vertical, if possible, either directly to a tapped or flanged opening in the boiler, to a fitting connected to the boiler by a close nipple, to a Y base, to a valveless steam pipe between adjacent boilers, or to a valveless header connecting steam outlets on the same boiler.~~

~~(2) Relief valves shall be connected to the top of boilers with a spindle vertical, if possible, either directly to a tapped or flanged opening in the boiler, to a fitting connected to boiler by a close nipple, to a Y base, to a valveless water pipe between adjacent boilers, or to a valveless header connecting water outlets on the same boiler.~~

~~(3) When a Y base is used, the inlet area shall be not less than the combined outlet areas.~~

~~(4)(A) When the size of the boiler requires a safety valve larger than four and one half inches (4 1/2") in diameter or a relief valve larger than two inches (2”) in diameter, two (2) or more valves having the required combined capacity shall be used.~~

~~(B) When two (2) or more valves are used on a boiler, they may be:~~

~~(i) Single;~~

~~(ii) Directly attached; or~~

~~(iii) Mounted on a Y base.~~

~~(5)(A) No shutoff of any description shall be placed between the safety or relief valve and the boiler, or on discharge pipes between such valves and the atmosphere.~~

~~(B) Safety and relief valves shall not be connected to an internal pipe in the boiler.~~

~~(6)(A) When a discharge pipe is used, its area shall be not less than the area of the valve or aggregate area based on the nominal diameters of the valves with which it connects, and the discharge pipe shall be fitted with an open drain to prevent water from lodging in the upper part of the valve or in the pipe.~~

~~(B) When an elbow is placed on a safety or relief valve discharge pipe, it shall be located close to the valve outlet.~~

~~(C) The pipe shall be supported so that no undue stress is placed on the valve body.~~

~~(D) The discharge from safety or relief valves shall be so arranged that there will be no danger of scalding attendants.~~

~~(p) **Steam gauges.**~~

~~(1)(A) Each steam boiler shall have a steam gauge connected to its steam space, or to its water column, or to its steam connection by means of a siphon or equivalent device exterior to the boiler and of sufficient capacity to keep the gauge tube filled with water, and so arranged that the gauge cannot be shut off from the boiler except by a cock with tee or lever handle placed in the pipe near the gauge.~~

~~(B) The handle of the cock shall be parallel to the pipe in which it is located when the cock is open.~~

~~(2)(A) The scale on the dial of a steam boiler gauge shall be graduated to not less than thirty pounds (30 lbs.).~~

~~(B) The gauge shall be provided with effective stops for the indicating pointer at the zero (0) point and at the maximum pressure point.~~

~~(C) The travel of the pointer from zero (0) to thirty (30) pounds pressure shall be at least three inches (3").~~

~~(3) Connections to steam gauge siphons shall be of nonferrous metal when smaller than one inch pipe size and longer than five feet (5') between the siphon and point of connection of pipe to boiler, and also when smaller than one-half inch pipe size~~

and shorter than five feet (5') between the siphon and point of connection of pipe to boiler.

(4) On a compound gauge, effective stops shall be set at the limits of the gauge readings on both the pressure and vacuum sides.

(q) **Pressure or altitude gauges.**

(1)(A) Each hot water boiler shall have a pressure or altitude gauge connected to it or to its flow connection in such a manner that it cannot be shut off from the boiler except by a cock with tee or lever handle placed on the pipe near the gauge.

(B) The handle of the cock shall be parallel to the pipe in which it is located when the cock is open.

(C) It is recommended that this gauge be of the pressure type with its equivalent in altitude feet indicated.

(2)(A) The scale on the dial of the pressure or altitude gauge shall be graduated to not less than one and one-half (1 1/2) times the maximum allowable working pressure.

(B) The gauge shall be provided with effective stops for the indicating pointer at the zero (0) point and at the maximum pressure point.

(3) Pressure or altitude gauge connections shall be of nonferrous composition when smaller than one-inch pipe size and longer than five feet (5') between the gauge and point of connection of pipe to boiler, and also when smaller than one-half inch pipe size and shorter than five feet (5') between the gauge and point of connection of pipe to boiler.

(r) **Thermometers.**

(1) Each hot water boiler shall have a thermometer so located and connected that it shall be easily readable when observing the water pressure or altitude.

(2) The thermometer shall be so located that it shall at all times indicate the temperature in degrees Fahrenheit of the water in the boiler at or near the outlet.

(s) **Temperature-combustion regulators.**

(1) A temperature-combustion regulator, which will control the rate of combustion to prevent the temperature of the water from rising above two hundred

~~fifty degrees Fahrenheit (250° F) at or near the outlet, or a thermostatic device which will relieve the pressure on the boiler when the temperature exceeds two hundred fifty degrees Fahrenheit (250° F), shall be used on all hot water heating and hot water supply boilers.~~

~~(2) All hot water heating and hot water supply boilers automatically fired must be equipped with an automatic device to automatically control the rate of combustion.~~

~~(t) **Pressure-combustion regulators.**~~

~~(1) When a pressure-combustion regulator is used, it shall operate to prevent the steam pressure from rising above fifteen pounds (15 lbs.).~~

~~(2) All automatically fired boilers shall be equipped with an automatic pressure control.~~

~~(u) **Water gauge glasses.**~~

~~(1) Each steam boiler shall have one (1) or more water gauge glasses attached to the water column or boiler by means of valved fittings, with the lower fitting provided with a valve or pet cock to facilitate cleaning.~~

~~(2) Gauge glass replacement shall be possible under pressure.~~

~~(3) Transparent material other than glass may be used for the water gauge provided that material has proved suitable for the pressure, temperature, and corrosive condition met with in service.~~

~~(v) **Water-column pipes.**~~

~~(1)(A) The minimum size of ferrous or nonferrous pipes connecting a water column to a steam boiler shall be one inch (1″).~~

~~(B)(i) No outlet connections, except for damper regulator, feedwater regulator, steam gauges, or apparatus which does not permit the escape of any steam or water except for manually operated blowdowns, shall be attached to a water column or the piping connecting a water column to a boiler.~~

~~(ii) See HG-705 of Section IV of the ASME code for introduction of feedwater into a boiler.~~

~~(C) If the water column, gauge glass, low-water fuel cutoff, or other water level control device is connected to the boiler by pipe and fittings, no shutoff valves of~~

any type shall be placed in such pipe, and a cross tee, or equivalent fitting, to which a drain valve and piping may be attached, shall be placed in the water piping connection at every right angle turn to facilitate cleaning.

(D) The water column drain pipe and valve shall not be less than three-fourths inch pipe size.

(2)(A) The steam connections to the water column of a horizontal firetube wrought boiler shall be taken from the top of the shell or the upper part of the head, and the water connection shall be taken from a point not above the center line of the shell.

(B) For a cast iron boiler, the steam connection to the water column shall be taken from the top of an end section or the top of the steam header, and the water connection shall be made on an end section not less than six inches (6") below the bottom connection to the water gauge glass.

(w) **Automatic low-water fuel cutoff and water feeding device.**

(1)(A) All automatically fired steam or vapor system boilers must be equipped with an automatic low-water fuel cutoff and automatic water feeding device so constructed that the water inlet valve cannot feed water into the boiler through the float chamber, and so located as to automatically cut off the fuel supply and supply requisite feedwater when the surface of the water falls to the lowest safe water line.

(B) This point should be not lower than one inch (1") above the bottom of the water glass.

(2)(A) Such a fuel cutoff or water feeding device may be attached directly to a boiler.

(B) A fuel cutoff or water feeding device may also be installed in the tapped openings available for attaching a water glass directly to a boiler, provided the connections are made to the boiler with nonferrous tees or Ys not less than one-half-inch 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.

(C) The run of the tee or Y shall take the water glass fittings, and the side outlet or branch of the tee or Y shall take the fuel cutoff or water feeding device.

(D) The ends of all nipples shall be reamed to full size diameter.

(3) Designs embodying a float and float bowl shall have a vertical straightway valved 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.

20 CAR § 880-803. Miniature boilers.

Miniature boilers shall be defined, constructed, repaired, and inspected in accordance with the adopted ASME code and the applicable NBBI standards as adopted by 20 CAR §880-701.

(a)(1) Boilers to which the classification "miniature" applies embrace fired pressure vessels which do not exceed the following limits:

(A) Sixteen inches (16") inside diameter of shell;

(B) Five cubic feet (5 ft^3) gross volume, exclusive of casing and insulation;

(C) Twenty square feet (20 ft^2) of water heating surface; and

(D) One hundred pounds per square inch (100 psi) maximum allowable working pressure.

(2) Where any one (1) of the above limits are exceeded, the rules of power boilers shall apply.

(b)(1) The construction of miniature boilers, except where otherwise specified, shall conform to that required for power boilers.

(2) The factor of safety and method of computing the maximum allowable working pressure shall be the same as for power boilers.

(3) The flat surfaces of boilers or pressure parts shall be stayed in accordance with the ASME code, as adopted by 20 CAR § 880-701.

(c)(1) For forced circulation boilers and boilers with no fixed steam or water line, the materials used shall comply with the ASME Boiler Construction Code.

(2) All other code requirements shall be met except where they relate to special features of construction made necessary in boilers of this type and to accessories that are manifestly not needed in connection with such boilers such as water gauge columns and gauge cocks.

(d) **Clearance.**

(1) Each boiler shall be located so that adequate space will provide for an operation of the boiler and appurtenances and for inspection of all surfaces and their necessary maintenance and repair.

(2) Each boiler shall have at least eighteen inches (18″) clearance on all sides.

(3) Each boiler shall have at least thirty six inches (36″) clearance from electric meters and main line switches.

(4) They shall have at least eighteen inches (18″) clearance from all other switches and fuse boxes.

(5) Each boiler shall not be located closer than seven feet (7′) horizontally from any gas meter.

(e) **Safety valves.**

(1)(A) Each miniature boiler shall be equipped with a sealed spring-loaded pop safety valve not less than one-half inch (1/2″) in diameter.

(B) Where there is no extraction of steam (closed system), a safety fracturing disk may be used in addition to the spring-loaded pop safety valve.

(2) The minimum relieving capacity of the safety valve shall be determined on the basis of three (3) pounds per hour per square foot of boiler heating surface, and shall be sufficient to discharge all the steam that can be generated by the boiler without allowing the pressure to rise more than six percent (6%) above the maximum allowable working pressure.

(3)(A) To ensure the safety valve being free, each valve shall have a substantial lifting device by which the valve disk may be lifted from its seat when there is at least seventy-five percent (75%) of full working pressure in the boiler.

(B) All safety valves shall be mounted with their spindles vertical in an upright position and freely accessible.

(f) **Gauge glass.**

(1) Each miniature boiler shall be equipped with a water gauge glass.

(2) The lowest permissible water level shall be at a point one-third (1/3) of the height of the shell except where the boiler is equipped with an internal furnace, in

~~which case it shall not be less than one-third (1/3) the tube length above the top of the furnace.~~

~~(3) In case of small generating units operated on a closed system where there is insufficient room for the usual water gauge, water level indicators of the glass bulls-eye type may be used.~~

~~(g) **Steam gauge.**~~

~~(1) Each miniature boiler shall be equipped with a steam gauge having its dial graduated to not less than one and one-half (1 1/2) times the maximum allowable working pressure.~~

~~(2) The gauge shall be connected to the steam space or to the steam connection to the water column by a syphon tube or equivalent device that will keep the gauge tube filled with water.~~

~~(h) **Stop valves.** Each steam line from a miniature boiler shall be provided with a standard valve located as close as practicable to the boiler except in those cases where the boiler and steam receiver are operated as a closed system.~~

~~(i) **Feed pumps.**~~

~~(1)(A) Each boiler shall be provided with at least one (1) feed pump or other feeding device except where it is connected to a water main carrying sufficient pressure to feed the boiler or where the steam generator is operated with no extraction of steam (closed system).~~

~~(B) In the latter case, in lieu of a feeding device, a suitable connection or opening shall be provided to fill the generator when cold.~~

~~(C) Such connection shall not be less than one-half inch pipe size.~~

~~(2)(A) Each miniature boiler shall be fitted with feedwater and blowoff connections which shall not be less than one-half inch iron pipe size unless operated on a closed system as provided in the ASME code.~~

~~(B) The feed pipe shall be provided with a check valve and a stop valve.~~

~~(C) The feedwater may be delivered to the boiler through the blowoff, if desired.~~

(D) The blowoff shall be fitted with a valve or cock in direct connection with the lowest water space practicable.

(E) When the boiler is under pressure, feedwater shall not be introduced through the openings or connections used for the:

(i) Water columns;

(ii) Water gauge glass; or

(iii) Gauge cocks.

(F) In closed systems, the water may be introduced through any opening when the boiler is not under pressure.

(j) **Blow-down.**

(1) Each boiler shall be provided with a blowoff connection which shall not be reduced in size and shall be led to a safe point of discharge.

(2) Whenever, in the judgment of the boiler inspector, such a place cannot be provided, a blow-down tank shall be installed and vent leading to a safe point of discharge shall be provided on all such tanks.

(3) The blowoff shall be fitted with a valve or cock in direct connection with lowest water space practicable.

(k) **Low-water fuel cut-out.** All boilers, gas, oil, or mechanically fired, shall be provided with an automatic low-water fuel cutout so located as to automatically cut off the fuel supply in case the water level falls to a point not lower than the bottom of the water glass.

(l) **Gas burners.**

(1) Where boilers are gas fired, the burners shall in such cases be equipped with a fuel regulating governor which shall be automatic and regulated by steam pressure.

(2) This governor shall be so constructed that in the event of its failure there can be no possibility of steam from the boiler entering the gas chamber or supply pipe.

(3) The manual stop cock or throttle valve shall be located in the inlet pipe ahead of the fuel regulating governor.

~~(4) A safety ignition pilot shall be installed on all automatically fired boilers of this type.~~

~~(m) **Flue connections.**~~

~~(1) Each gas-fired boiler shall be connected to a four-inch vent pipe or flue extending to an approved location outside of the building or connected to a chimney flue.~~

~~(2) A draft hood of approved design shall be provided on each boiler.~~

~~(3) Where the horizontal run is more than ten feet (10'), the vent shall be increased to six inches (6").~~

~~20 CAR § 880-804. Electric steam generators.~~

~~All appliances required for electric steam generators shall be attached in accordance with the following rules:~~

~~(1)(A) A cable at least as large as one of the incoming power lines to the generator shall be provided for grounding the generator shell.~~

~~(B) This cable shall be permanently fastened on some part of the generator and shall be grounded in an approved manner;~~

~~(2)(A) A suitable screen or guard shall be provided around high-tension bushings and a sign posted warning of high voltage.~~

~~(B) This screen or guard shall be so located that it will be impossible for anyone working around the generator to accidentally come in contact with the high-tension circuits; and~~

~~(3)(A) The minimum safety valve or safety relief valve capacity for electric boilers shall be three and one-half pounds per hour per kilowatt (3 1/2 lbs./hr/kW) (one and six-tenths kilograms per hour per kilowatt (1.6 kg/hr/kW)) input.~~

~~(B) The pressure setting shall not be higher than the maximum allowable working pressure on the completed boiler.~~

20 CAR § 880-~~805~~804. Potable water heater/supply tanks.

(a) **Service restrictions and exceptions.** This section is restricted to potable water heaters and water storage tanks for operation not exceeding one hundred sixty pounds per square inch (160 psi), and water temperatures not in excess of two hundred ten degrees Fahrenheit (210° F), except that water heaters and supply tanks are exempted when none of the following limitations is exceeded:

(1) Heat input less than two hundred thousand British thermal units per hour (200,000 Btu/hr);

(2) Water temperature two hundred ten degrees Fahrenheit (210° F); or

(3) Nominal water-containing capacity of one hundred twenty gallons (120 gals.), except that they shall be equipped with appropriate safety valves.

(b)(1) "Boiler", as defined by Arkansas Code § 20-23-101, means any boiler or like vessel or container in which water is heated and/or steam is generated by the application of heat.

(2) "Hot water heater/boiler" as defined above falls under the authority and responsibility of the Boiler Inspection ~~Division~~Section.

(c) **Minimum controls.** All fired storage water heaters and most electric water heaters and supply vessels shall be equipped with the following controls and devices:

(1) Operating temperature control;

(2) High-limit temperature control;

(3) Positive flame failure cutoff; and

(4) Approved pressure temperature relief valve, set at or below the safe working pressure of the vessel, with such setting satisfactory for the application.

(d) **Location.**

(1) All fired/unfired vessels and heaters shall be so located as to provide access to the controls, safety relief valve, and drain.

(2) All vessels shall also be raised sufficiently above the floor level to reduce/prevent rust and corrosion of the bottom and reduce possible early gas ignition from combustible fumes.

(e) **Discharge lines.** When a discharge line from a relief valve is installed, it shall not be reduced, but shall be full size and be piped to a safe location, and installed so

that all water will drain from the valve without leaving water trapped in the line or on the valve.

(f) **Relief valve testing.** The operator/owner shall manually test the relief valve semiannually (every six (6) months).

(g) **Alternate use.** Storage water heaters and supply vessels, fired or unfired, shall not be used as a heating boiler.

(h) **Vent pipes.**

(1) All fired heaters shall be equipped with a vent pipe or flue conforming to the requirements of the National Fire Protection Association or manufacturer.

(2) The flue or vent shall terminate at any acceptable location outside the building.

(i) **Shutoff valves.** A shutoff valve shall be provided in the cold water branch line next to each vessel.

(j) **Openings.**

(1) Water heaters, both potable and domestic type, are provided with drain valves and/or removable handhole covers.

(2) The drain should be used to drain the water heater on a regular schedule to keep it as clean internally as possible.

(3) The handhole covers should be removed and the unit cleaned internally on an as-needed schedule.

(k) Certificate inspections are required on hot water heaters located in:

(1) Schools;

(2) Hospitals;

(3) Daycare centers; and

(4) Nursing homes.

Subpart 9. Unfired Pressure Vessels

20 CAR § 880-901. Generally.

(a) Unfired pressure vessels are any pressure vessel constructed for the accumulation, storage, or transportation of air, liquids, or gases that are under induced pressure.

(b) All vessels shall have the following:

(1) The official code symbol;

(2) Name of the manufacturer of the pressure vessel, preceded by the words "Certified by";

(3) Maximum allowable working pressure ___psi at ___° F;

(4) Minimum design metal temperature ___° F at ___ psi;

(5) Manufacturer's serial number _____; and

(6) Year built _____.

(c) The manufacturer's nameplate shall not be permanently covered with any insulating or other material but shall be readily accessible at all times.

20 CAR § 880-902. Manholes and handholes.

~~(a) All unfired pressure vessels for use with compressed air or subject to internal corrosion shall be provided with suitable manhole, handhole, or other inspection openings for examination and cleaning, except that such openings may be omitted from vessels containing compressed air when the actual service conditions or other material stored in them are such that the vessel is not subject to internal corrosion.~~

~~(b)~~ All access and inspection openings in a shell or unstayed head shall be designed in accordance with Section VIII Division 1 of the ASME Boiler and Pressure Vessel Code, as adopted by 20 CAR § 880-701.

20 CAR § 880-903. Corrosive substances.

(a) All pressure vessels which are to contain substances having a corrosive action upon the material of which the vessel is constructed, or those subjected to erosion or mechanical abrasion, shall be designed for the pressure they are to carry, and the thickness of all parts subject to corrosion, erosion, or abrasion should be increased by a uniform amount to safeguard against early rejection.

(b)(1) Where a vessel goes into corrosive service without previous service experience, it is recommended that service inspections be made at frequent intervals until the nature and rate of corrosion in service can be definitely established.

(2) The data thus secured should determine the subsequent intervals between service inspections and the probable safe operating life of the vessel.

20 CAR § 880-904. Inspection of inaccessible parts.

(a) Where, in the opinion of the inspector, as the result of conditions disclosed at the time of inspection, it is advisable to remove the interior or exterior lining, covering, or brickwork to expose certain parts of the vessel not normally visible, the owner or user shall remove such material to permit proper inspection and to establish construction details.

(b) Metal thickness shall be determined utilizing appropriate equipment including drilling if necessary.

20 CAR § 880-905. Pressure relief devices.

Pressure relief devices for each pressure vessel installation shall comply with the requirements of ASME Pressure Vessel Code Section VIII Division I, as adopted.

~~**20 CAR § 880-906. Safety appliances.**~~

~~(a) Each pressure vessel shall be protected by such safety devices, including relief valves and rupture disks, as will ensure its safe operation.~~

~~(b) These valves and devices shall be so constructed, located, and installed that they cannot readily be rendered inoperative.~~

~~(c) The relieving capacity of the safety devices shall be such as to prevent a rise of pressure in the vessel of more than ten percent (10%) above the maximum allowable working pressure, taking into account the effect of static head pressure.~~

~~(d) Safety device discharges shall be to a safe place.~~

~~(e) Device outlets shall not be reduced, and device header piping should not rely on the device body for its support.~~

20 CAR § 880-~~907~~906. Repairs and renewals of fittings and appliances.

(a) All repairs and alterations shall be made by a person or company in possession of a repair license from the Boiler Inspection ~~Division~~Section.

(b) All cases not specifically covered by this subpart shall be treated as new installations, or may be referred to the Chief Inspector of the Boiler Inspection ~~Division~~ Section for instructions concerning the requirements.

(c)(1) The maximum allowable working pressure of an ASME vessel shall be determined by the nameplate information and/or the data report.

(2) Rerating of a pressure-retaining item by increasing the maximum allowable working pressure (internal or external) or temperature, or decreasing the minimum temperature such that mechanical tests are required, shall be done only with prior approval of the Chief Inspector and to the original issue/addenda of the code of construction.

(d) For information concerning noncode pressure vessels, refer to the ASME Code Section VIII Division I, as adopted.

(e) All repairs or alterations shall be made by a person or company that has all required state and national commissions or certifications and in accordance with the ASME Boiler and Pressure Vessel Code, as adopted by 20 CAR §880-701.

~~**Subpart 10. Fittings and Appliances**~~

~~**20 CAR § 880-1001. Generally.**~~

~~(a) Fittings and appliances on new boilers or new unfired pressure vessels shall comply with the applicable provisions of the ASME Boiler Construction Code, as adopted, or of this subpart.~~

~~(b)(1) Where pressure-reducing valves are used, one (1) or more relief or safety valves shall be provided on the low-pressure side of the reducing valve in case the piping or equipment on the low-pressure side does not meet the requirements of the full initial pressure.~~

~~(2) The relief or safety valves shall be located adjoining to or as close as possible to the reducing valve.~~

~~(3) Proper protection shall be provided to prevent injury or damage caused by the escaping steam from the discharge of relief or safety valves if vented to the atmosphere.~~

~~(4) The combined discharge capacity of the relief valves shall be such that the safe working pressure of the lower pressure piping or equipment shall not be exceeded in case the reducing valve sticks in the open position.~~

~~(c)(1) The use of hand-controlled bypasses around reducing valves is permissible.~~

~~(2) The bypass if used around a reducing valve shall not be greater in capacity than the reducing valve unless the piping or equipment is adequately protected by relief valves or meets the requirements of the high-pressure system.~~

~~(d) The flange dimensions, wall thicknesses, and material of reducing and relief valves shall conform to the requirements specified for valves and fittings for the pressures and temperatures to which they may be subjected.~~

~~(e) It is mandatory that a pressure gauge be installed on the low-pressure side of the reducing valve.~~

~~**20 CAR § 880-1002. Water glasses.**~~

~~(a)(1) Each boiler shall have at least one (1) water gauge glass except that boilers operated at pressures over four hundred pounds per square inch (400 psi) shall be provided with two (2) water gauge glasses which may be connected to a single water column or connected directly to the drum.~~

~~(2) The gauge glass connections and pipe connection shall be not less than one-half inch pipe size.~~

~~(3) Each water gauge glass shall be equipped with a valved drain.~~

~~(b) The lowest visible part of the water gauge glass shall be at least two inches (2") above the lowest permissible water level, which level shall be that at which there will be no danger of overheating any part of the boiler when in operation at that level.~~

~~(c) Boilers of the horizontal fire-tube type shall be so set that when the water is at the lowest reading in the water gauge glass, there shall be at least three inches (3″) of water over the highest point of the tubes, flues, or crown sheet.~~

~~(d)(1) Each water gauge glass shall be equipped with a top and a bottom shutoff valve of such through-flow construction as to prevent stoppage by deposits of sediment and to indicate by the position of the operating mechanism whether they are in operation or closed position.~~

~~(2) If stopcocks are used, they shall be of a type with the plug held in place by a guard or gland.~~

~~(3) The pressure-temperature rating shall be at least equal to that of the lowest set pressure of any safety valve on the boiler drum and the corresponding saturated steam temperature.~~

~~(e)(1) Straight-run globe valves of the ordinary type shall not be used on such connection.~~

~~(2) Where water columns are seven feet (7′) or more above the floor level, adequate means for operating gauge cocks or blowing out the water glass must be provided.~~

~~(f) When automatic shutoff valves are used, they shall conform to the requirements of the ASME code, as adopted.~~

~~(g)(1) When shutoffs are used on the connections to a water column, they shall be either outside screw-and-yoke or leverlifting type gate valves or stopcocks with levers permanently fastened thereto and marked in line with their passage, or of such other through-flow construction to prevent stoppage by deposits of sediment and to indicate by the position of the operating mechanism whether they are in open or closed position, and such valves or cocks shall be locked or sealed open.~~

~~(2) Where stopcocks are used, they shall be of a type with the plug held in place by a guard or gland.~~

~~**20 CAR § 880-1003. Gauge cocks.**~~

~~(a) Gauge cocks are not required on new installations since the 1995 ASME code, or on older installations that are CSD-1 compliant.~~

~~(b) Boilers that have two (2) water glasses located on the same horizontal lines are not required to have gauge cocks.~~

~~(c) No outlet connections, except for control devices, drains, steam gauges, or apparatus of such form which does not permit the escape of an appreciable amount of steam or water therefrom shall be placed on the pipes connecting a water column or gauge glass to a boiler.~~

~~**20 CAR § 880-1004. Steam gauges.**~~

~~(a)(1) Each boiler shall have a steam gauge connected to the steam space or to the water column or its steam connection.~~

~~(2) The steam gauge shall be connected to a syphon or equivalent device of sufficient capacity to keep the gauge tube filled with water and so arranged that the gauge cannot be shut off from the boiler except by a cock placed near the gauge and provided with a tee or level handle arranged to be parallel to the pipe in which it is located when the cock is open.~~

~~(3) For boilers carrying five hundred pounds (500 lbs.) pressure or over, valves may be used in place of cocks.~~

~~(4) Gauge connections which are filled with water at a temperature never greater than that of saturated steam at a pressure of two hundred fifty pounds per square inch (250 psi) or four hundred sixty degrees Fahrenheit (460° F) shall be of brass, copper, bronze, or other noncorrosive composition suitable for the pressure and temperature conditions.~~

~~(5) Connections that are filled with steam or water of a temperature greater than that of saturated steam at a pressure of two hundred fifty pounds per square inch (250 psi) or four hundred sixty degrees Fahrenheit (460° F) shall be of steel pipe or of other material capable of safely withstanding the temperatures corresponding to the maximum allowable working pressure.~~

~~(6) Where steel or wrought iron pipe connections are used, they shall be not less than one-inch pipe size.~~

~~(b) The wall thickness of all pipe connections shall comply at least with the requirements of the ASME code, as adopted.~~

~~(c)(1) Where the use of a pipe longer than ten feet (10') becomes necessary, an exception may be made to the rule that the gauge must be arranged so that it cannot be shut off except by a cock placed near the gauge, and a shutoff valve or cock arranged so that it can be locked or sealed open may be used near the boiler.~~

~~(2) Such a pipe shall be of ample size and arrangement so that it may be cleared by blowing out.~~

~~(d) The dial of the steam gauge shall be graduated to approximately double the pressure at which the safety valve is set but in no case to less than one and one-half (1 1/2) times this pressure.~~

~~(e) Each boiler shall be provided with a one-fourth-inch pipe size valved connection for the exclusive purpose of attaching a test gauge when the boiler is in service, so that the accuracy of the boiler steam gauge can be ascertained.~~

~~**20 CAR § 880-1005. Valves.**~~

~~(a)(1) Each steam discharge outlet, except safety valve and superheater connections, shall be fitted with a stop valve located at an accessible point in the steam delivery line and as near the boiler nozzle as convenient and practicable.~~

~~(2) When such outlets are over two inch pipe size, the valve or valves used on the connection shall be of the outside screw and yoke rising spindle type so as to indicate at a distance by the position of its spindle whether it is closed or open, and the wheel may be carried either on the yoke or attached to the spindle.~~

~~(3) A plug-cock type valve may be used provided the plug is held in place by a guard or gland, and it is equipped:~~

~~(A) To indicate at a distance whether it is closed or open; and~~

~~(B) With a slow-opening mechanism.~~

~~(b)(1) If a shutoff valve is used between the boiler and its superheater connections, the safety valve capacity on the boiler must comply with the requirements of the ASME Pressure Vessel Code Section 1 PG-68, as adopted, no credit being taken for the safety valve on the superheater, and the superheater must be equipped with a safety valve capacity as required by the ASME Pressure Vessel Code, as adopted.~~

~~(2) In a separately fired superheater installation, a stop valve is not required at the inlet or the outlet of the superheater.~~

~~(c) All stop valves and the fittings between them and the boiler shall be equal at least to the requirements in the ASME code for the maximum allowable working pressure and the temperature in service and material used, subject to the provisions of the ASME code, and except where heavier construction is specifically required.~~

~~(d) Valves and fittings made of any material permitted by the ASME code, as adopted, for pressure ratings of one hundred pounds (100 lbs.) or more, and marked as required by the ASME code, as adopted, may be used for saturated steam service up to the rated pressure, except that in no case shall they be used for temperatures exceeding that permitted by the ASME code, as adopted.~~

~~(e) The nearest steam stop valve or valves to the superheater outlet shall have a pressure rating at least equal to the minimum set pressure of any safety valve on the boiler drum at the corresponding saturated steam temperature.~~

~~(f) The nearest stop valve or valves to the superheater outlet shall have a pressure rating at least equal to the minimum set pressure of any safety valve on the superheater and at the expected superheated steam temperature, or at least equal to eighty-five percent (85%) of the lowest set pressure of any safety valve on the boiler drum at the expected steam temperature of the superheater outlet, whichever is greater.~~

~~(g)(1) When high-pressure boilers are connected to a common steam main, the steam connection from each boiler having a manhole opening shall be fitted with two (2) stop valves having an ample freeblow drain between them.~~

~~(2) The discharge of this drain shall be visible to the operator while manipulating the valve.~~

(3) The stop valves shall consist preferably of:

(A) One (1) automatic nonreturn valve (set next to the boiler) and a second valve of the outside screw and yoke type; or

(B) Two (2) valves of the outside screw and yoke type shall be used.

(h) When a second steam stop valve or valves is required, it shall have a pressure rating at least equal to that required for the expected steam temperature and pressure at the valve, or the pressure rating shall be not less than eighty five percent (85%) of the lowest set pressure of any safety valve on the boiler drum and for the expected temperature of the steam at the valve, whichever is greater.

(i)(1) When a stop valve is so located that the water can accumulate, ample drains shall be provided.

(2) All drain lines, including pipes, fittings, and valves, shall comply with the requirements for steam piping or water piping according to the service.

20 CAR § 880-1006. Steam mains.

(a)(1) Provisions shall be made for the expansion and contraction of steam mains connected to boilers by providing substantial anchorage at suitable points so that there shall be no undue strain transmitted to the boiler.

(2) Steam reservoirs shall be used on steam mains when heavy pulsations of the steam currents cause vibration of the boiler shell plates.

(b) Each superheater shall be equipped with at least one (1) drain so located as to most effectively provide for the proper operation of the apparatus.

20 CAR § 880-1007. Blowoff piping.

(a)(1) A blowoff as required herein is defined as a pipe connection provided with valves through which the water in the boiler may be blown out under pressure, excepting drains such as are used on water columns, gauge glasses, or piping to feedwater regulators, etc., used for the purpose of determining the operating condition of such equipment.

~~(2) Piping connections used primarily for continuous operation, such as deconcentrators on continuous blowdown systems, are not classed as blowoffs, but the pipe connections and all fittings up to and including the first shutoff valve shall be equal at least to the pressure requirements for the lowest set pressure of any safety valve on the boiler drum and with the corresponding saturated steam temperature.~~

~~(b)(1) A surface blowoff shall not exceed two and one-half inch pipe size, and the internal and external pipes, when used, shall form a continuous passage, but with clearance between their ends and arranged so that the removal of either will not disturb the other.~~

~~(2) A properly designed steel busing, similar to or equivalent to those shown in the ASME code, or flanged connection shall be used.~~

~~(c) Each boiler shall have a bottom blowoff pipe fitted with a valve or cock in direct connection with the lowest water space practicable.~~

~~(d)(1) The minimum size pipe and fittings shall be one inch (1") and the maximum size shall be two and one-half inches (2 1/2").~~

~~(2) The minimum size of pipe and fittings may be one-fourth inch for boilers with one hundred square feet (100 ft^2) of heating surface or less.~~

~~(e) Straight-run globe valves of the ordinary type or valves of such type that dams or pockets can exist for the collection of sediment shall not be used on such connections.~~

~~(f) Straightway Y-type globe valves as shown in the ASME code or angle valves may be used in vertical pipes or horizontal runs of piping provided they are so constructed or installed that the lowest edge of the opening through the seat shall be at least twenty-five percent (25%) of the inside diameter below the center line of the valve.~~

~~(g)(1) Return connections of the same size or larger than the size herein specified may be used, and the blowoff may be connected to them.~~

~~(2) In such case, the blowoff must be so located that the connection may be completely drained.~~

~~(h) All integral economizers, waterwalls, or water screens forming parts of a steam boiler shall be equipped with drain or blowoff valves conforming to the requirements herein described.~~

~~(i)(1) A bottom blowoff cock shall have the plug held in place by a guard or gland.~~

~~(2) The end of the plug shall be distinctly marked in line with the passage.~~

~~(j) The blowoff valve or valves and the pipe between them and the boiler shall be of the same size except where a larger pipe for the return of condensation is used, as described above.~~

~~(k) All fittings between the boiler and valves shall be of steel for pressures not less than one hundred twenty-five pounds per square inch (125 psi).~~

~~(l) In all cases, the valves and fittings from the boiler to and including the required stop valves shall be equal at least to the requirements of the ASME code for pressure one and one-quarter (1.25) times the maximum allowable working pressure of the boiler or one and one-quarter (1.25) times the lowest set pressure of any safety valve on the boiler drum, except that for pressures not exceeding one hundred pounds per square inch (100 psi), the valves and fittings shall be equal at least to the requirements of the ASME code, as adopted, for one hundred twenty-five pounds per square inch (125 psi).~~

~~(m) For pressure exceeding one hundred pounds per square inch (100 psi), the valves shall:~~

~~(1) If of cast iron, be equal at least to the requirements for two hundred fifty pounds (250 lbs.) as given in the ASME code, as adopted; and~~

~~(2) If of steel construction, shall be equal to the requirements of the ASME code, as adopted.~~

~~(n) For pressures over two hundred pounds per square inch (200 psi), the valves or cocks shall be of steel construction equal at least to the requirements for three hundred pounds per square inch (300 psi) as given in the ASME code, as adopted.~~

~~(o) On all boilers, except those used for traction and/or portable purposes, when the allowable working pressure exceeds one hundred pounds per square inch (100 psi), each bottom blowoff pipe shall have two (2) slow-opening valves or one (1) slow-~~

~~opening valve and a quick-opening valve or cock complying with the above requirements.~~

~~(p) "Slow-opening" valve means one which requires at least five (5) three-hundred-sixty-degree turns of the operating mechanism to change from full-closed to full-opening and vice versa.~~

~~(q)(1) On a boiler having multiple blowoff pipes, a single master valve may be placed on the common blowoff pipe from the boiler, in which case only one (1) valve on each individual blowoff is required.~~

~~(2) In this case, either the master valve or the individual valves or cocks must be of the slow-opening type.~~

~~(r) Two (2) independent slow-opening valves, or a slow-opening valve and a quick-opening valve, or a cock may be combined in one (1) body provided the combined fittings are the equivalent of two (2) independent slow-opening valves, or a slow-opening valve and a quick-opening valve, or a cock so that the failure of one (1) to operate could not affect the operation of the other.~~

~~(s) The drain or blowoff valves for waterwalls or water screens forming parts of a boiler shall conform to the requirements herein.~~

~~(t) The bottom blowoff pipes of every traction and/or portable boiler shall have at least one (1) slow-opening or one quick-opening blowoff valve or cock conforming to the above requirements.~~

~~(u) A bottom blowoff pipe when exposed to direct furnace heat shall be protected by firebrick or other heat-resisting material so arranged that the pipe may be inspected.~~

~~(v) An opening in the boiler setting for a blowoff pipe shall be arranged to provide free expansion and contraction.~~

~~**20 CAR § 880-1008. Blowoff tanks.**~~

~~(a)(1) This section does not contain details of all possible arrangements of boiler blowoff equipment.~~

~~(2) A Guide to Blowoff Vessels, NB-27, governing the installation of blowoff tanks, should be consulted.~~

~~(3) Refer to the National Board of Boiler and Pressure Vessel Inspector's website for information at nationalboard.org.~~

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

~~(c) All blowoff tanks shall be designed and stamped per the ASME Section VIII, Division 1, for a pressure of at least fifty pounds per square inch gauge (50 psig).~~

~~(d) The temperature of the water leaving the blowoff equipment shall not exceed one hundred fifty degrees Fahrenheit (150° F).~~

~~(e) The pressure of the blowdown leaving any type of blowoff tank shall not exceed five pounds per square inch gauge (5 psig).~~

~~(f) The blowoff equipment shall be fitted with openings to facilitate cleaning and inspection.~~

~~(g) The tank shall be fitted with an opening for a thermometer well, which shall be located close to the water outlet connection and in contact with the retained water in the tank.~~

~~(h) All blowoff tanks shall have a vent to atmosphere of at least the size indicated in Table 1 of this section.~~

~~TABLE 1~~

~~OPENING OF BLOWOFF TANKS~~

~~PIPE SIZE~~

~~BOILER BLOWOFFLINE~~	~~WATER OUTLET~~	~~VENT~~
~~*3/4~~	~~¾~~	~~2~~
~~1~~	~~1~~	~~2 ½~~
~~1 ¼~~	~~1 ¼~~	~~3~~
~~1 ½~~	~~1 ½~~	~~4~~
~~2~~	~~2~~	~~5~~
~~2 ½~~	~~2 ½~~	~~6~~

See Figures

TABLE EXPLANATION

From the blowoff column, pick the size of pipe which is the smallest size of pipe in the blowoff line from the boiler to the blowoff tank. The size of the water outlet and vent will be that as indicated on the same line of the table. Example: A boiler installation that has a 1 ½ inch blowoff line from the drum to a 2 ½ inch header which leads to the blowoff tank, the size of the water outlet and vent will be determined by the 1 ½ inch size.

*To be used only with boilers of 100 sq. ft of heating surface or less.

Note: Vent size in the above table is based on the area of extra heavy pipe and is approximately 5 times the area of the blowoff line.

20 CAR § 880-1009. Feed piping.

(a)(1) The feedwater shall be introduced into a boiler in such a manner that the water will not be discharged directly against surfaces exposed to gases of high temperature or to direct radiation from the fire, or close to any riveted joints of the furnace sheets or of the shell.

(2) For pressures of four hundred pounds (400 lbs.), or over, the feedwater inlet through the drum shall be fitted with shields, sleeves, or other suitable means to reduce the effects of temperature differentials in the shell or head.

(3) If necessary, the discharge end of a feed pipe shall be fitted with a baffle to divert the flow from the riveted joint.

(4) Feedwater, other than condensate returned as provided for in 20 CAR § 880-1007 shall not be introduced through the blowoff.

(b)(1) When the horizontal return tubular boiler exceeds forty inches (40") in diameter, the feedwater shall discharge at about three fifths (3/5) the length from that end of the boiler which is subjected to the hottest gases of the furnace (except a horizontal return tubular boiler equipped with an auxiliary feedwater heating and circulating device), above the central rows of tubes.

(2) The feed pipe shall be carried through the head or shall farthest from the point of discharge of the feedwater in the manner specified for a surface blowoff in the ASME code, as adopted, and be securely fastened inside the shall above the tubes.

(c)(1) In vertical tubular boilers having tubes four feet (4') or less in length, the feedwater shall be introduced at a point not less than one fourth (1/4) the length of the tube above the lower tube sheet.

(2) For tubes more than four feet (4') in length, the feedwater shall be introduced at a point not less than twelve inches (12") above the crown sheet.

(3) When the boiler is under pressure, feedwater shall not be introduced through the openings or connections used for the:

(A) Water column;

(B) Water gauge glass;

(C) Blowoff; or

(D) Gauge cocks.

(4) In closed systems, the water may be introduced through any opening when the boiler is not under pressure.

(d) In these and other types of boilers where both internal and external pipes making a continuous passage are employed, the boiler bushing or its equivalent shall be used.

20 CAR § 880-1010. Feed piping check valve requirements.

(a)(1) The feed pipe shall be provided with a check valve near the boiler and a valve or cock between the check valve and the boiler, and when two (2) or more boilers are fed from a common source, there shall also be a globe or regulating valve on the branch to each boiler between the check valve and the source of supply.

(2) A typical arrangement is shown in the ASME code.

(3) Wherever globe valves are used on feed piping, the inlet shall be under the disk of the valve.

(b) When the supply line to a boiler is divided so as to feed a drum in more than one (1) place or to feed more than one (1) drum, it is recommended that each such

~~branch line be equipped with a stop-and-check valve even though the common source is equipped as required above.~~

~~(c) If a boiler is equipped with duplicate feed arrangements, each such arrangement shall be equipped as required by the ASME code, as adopted.~~

~~(d) A combination stop-and-check valve in which there is only one (1) seat and disk, and a valve stem is provided to close the valve when the stem is screwed down, shall be considered only as a stop valve, and a check valve shall be installed as otherwise provided.~~

~~(e) Where an economizer or other feedwater heating device is connected directly to a boiler without intervening valves, the feed valves and check valves required shall be placed on the inlet of the economizer or feedwater heating device.~~

~~(f)(1)(A) For boilers having a water heating surface of not more than one hundred square feet (100 ft^2), the feed connection to the boiler shall not be smaller than one-half inch pipe size.~~

~~(B) For a water heating surface of more than one hundred square feet (100 ft^2), the feed connection to the boiler shall not be less than three-fourths inch pipe size.~~

~~(2) High temperature water boilers shall be provided with a means of adding water to the boiler or to the system under pressure.~~

~~(3) A forced flow steam generator with no fixed steam and waterline shall be provided with a source of feeding capable of supplying water to the boiler at a pressure not less than the expected maximum sustained pressure at the boiler inlet.~~

~~**20 CAR § 880-1011. Selection of feed pumps.**~~

~~(a)(1) In selecting boiler feed pumps, the fact that boilers are often operated two hundred percent (200%) or three hundred percent (300%) of their rating should be taken into consideration.~~

~~(2) The figures as outlined in Table 2 are of the actual boiler horsepower developed, based on thirty-four and one-half pounds (34.5 lbs.) of water evaporated per hour from and at two hundred twelve degrees Fahrenheit (212° F).~~

TABLE 2

REQUIREMENTS IN U.S.G.P.M. BOILER FEEDING

BOILER HP	GPM	BOILER HP	GPM
5	.345	350	24
10	.690	400	28
15	1.03	500	34
20	1.38	750	53
25	1.72	1000	69
30	2.07	1500	104
35	2.41	2000	138
40	3	2500	172
50	4	3000	207
75	5	3500	242
100	7	4000	276
150	10	4500	310
175	12	5000	345
200	14	10000	689
225	16	15000	1034
250	17	20000	1387
275	19	25000	1723
300	21	35000	2413

(b)(1) Boiler feed pumps should have pressure in excess of the boiler rated pressure in order to compensate for frictional losses, entrance losses, regulating valve losses, and normal static head, etc.

(2) However, for estimating purposes, the following are fair values for feed pumps differential:

Boiler Pressure	Feed Pump Discharge Pressure
200	250
400	475
800	925
1200	1350

20 CAR § 880-1012. Feedwater supply.

~~(a)(1) A boiler having more than five hundred square feet (500 ft^2) of water heating surface shall have at least two (2) means of feeding water.~~

~~(2) Each source of feeding shall be capable of supplying water to the boiler at a pressure of three percent (3%) higher than the highest setting of any safety valve on the boiler.~~

~~(3) For boilers that are fired with solid fuel not in suspension, and for boilers whose setting or heat source can continue to supply sufficient heat to cause damage to the boiler if the feed supply is interrupted, one such means of feeding shall not be susceptible to the same interruption as the other, and each shall provide sufficient water to prevent damage to the boiler.~~

~~(b) A boiler fired by gaseous, liquid, or solid fuel in suspension may be equipped with a single means of feeding water, provided means are furnished for shutting off its heat input prior to the water level reaching the lowest permissible level.~~

~~**20 CAR § 880-1013. Water fronts.**~~

~~(a) Each boiler fitted with a water-jacketed boiler furnace mouth protector, or similar appliance, having valves on the pipes connecting them to the boiler, shall have these valves locked or sealed open.~~

~~(b) Such valves, when used, shall be of the straightway type.~~

~~**20 CAR § 880-1014. Water column pipes.**~~

~~(a)(1) The minimum size of pipes connecting the water column to a boiler shall be one inch (1″).~~

~~(2) For pressures of four hundred pounds (400 lbs.), or over, lower water column connections to drums shall be provided with shields, sleeves, or other suitable means to reduce the effect of temperature differentials in the shells of heads.~~

~~(3) Water glass fittings or gauge cocks may be connected directly to the boiler.~~

~~(b)(1) The design and materials of a water column shall comply with the requirements of the ASME code.~~

~~(2) Water columns made of cast iron in accordance with Specification SA-48 may be used for maximum boiler pressures not exceeding two hundred fifty pounds per square inch (250 psi).~~

~~(3) Water columns made of malleable iron in accordance with Specification SA-47 may be used for maximum boiler pressures not exceeding three hundred fifty pounds per square inch (350 psi).~~

~~(4) For higher pressures, steel construction shall be used.~~

~~(c)(1) The steam and water connections to a water column or a water gauge glass, including all pipes, fittings, valves, and drains, shall comply with requirements of the ASME code, as adopted.~~

~~(2) These connections shall be such that they are readily accessible for internal inspection and cleaning.~~

~~(3) Some acceptable methods of meeting this requirement would be by providing a cross or fitting with a back outlet at each right angle turn to permit inspection and cleaning in both directions, or by using pipe bends or fittings of a type which do not leave an internal shoulder or pocket in the pipe connection and with a radius of curvature which will permit the passage of a rotary cleaner.~~

~~(4) The water column shall be fitted with a drain cock or drain valve with a suitable connection to the ashpit, or other safe point of waste, and if the water connection thereto has a rising bend or pocket which cannot be drained by means of water column drain, an additional drain shall be placed on this connection in order that it may be blown off to clear any sediment from the pipe.~~

~~(5) The water column blowoff pipe shall be at least three fourths inch pipe size.~~

~~(d) When the gauge glasses and gauge cocks required above are not connected substantially directly to the shell or drum of a boiler, a water column shall be used into which the gauge glass and gauge cocks shall be connected, except as modified by the ASME code, as adopted.~~

~~(e) The lower edge of the steam connections to a water column and the boiler shall not be below the highest visible water level in the water gauge glass.~~

~~(f) There shall be no sag or offset in the piping which will permit the accumulation of water.~~

~~(g) The upper edge of the water connection to a water column and the boiler shall not be above the lowest visible water level in the gauge glass.~~

~~(h) No part of this pipe connection shall be above the point of connection at the water column.~~

~~(i) An acceptable arrangement is shown in the ASME code.~~

~~**20 CAR § 880-1015. Fusible plugs.**~~

~~(a) A fusible plug, if used, shall be placed at the lowest safe water line and in contact with the products of combustion.~~

~~(b) Any or all of the fittings and appliances required by this part may be installed inside the boiler jackets provided the water gauge and try cocks on a steam boiler are accessible without the use of tools and provided the water gauge and pressure gauge on a steam boiler or the thermometer and pressure gauge on a water boiler are visible through an opening or openings at all times.~~

~~**20 CAR § 880-1016. Washout opening.**~~

~~(a) All steam and hot water boilers shall be provided with suitable washout openings to permit the removal of any sediment that may accumulate therein.~~

~~(b) Washout openings may be used for return pipe connections and the washout plug placed in a tee so that the plug is directly opposite and as close as possible to the opening in the boiler.~~

~~**20 CAR § 880-1017. Safety valves.**~~

~~(a)(1) No person shall in any manner load the safety valve or relief valve to a greater pressure than that allowed in the certificate of inspection.~~

~~(2) Dead weight or weighted lever safety valves shall not be used.~~

~~(3) Each boiler, if it is subject to the provisions of Section 1 of the ASME code, shall have at least one (1) safety valve and if it has more than five hundred square feet (500 ft^2) of water heating surface, it shall have two (2) or more safety valves.~~

~~(4) The method of computing the steam-generating capacity of the boiler shall be in compliance with the ASME code, as adopted.~~

~~(b)(1) The safety valve capacity for 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 (6%) above the highest pressure at which any valve is set and in no case to more than six percent (6%) above the maximum allowable working pressure.~~

~~(2) The maximum steaming capacity of a boiler shall be determined by the manufacturer and shall be based on the capacity of the fuel-burning equipment, on the air supply, draft, etc.~~

~~(c)(1) One (1) or more safety valves on the boiler proper shall be set at or below the maximum allowable working pressure.~~

~~(2) If additional valves are used, the highest pressure setting shall not exceed the maximum allowable working pressure by more than three percent (3%).~~

~~(3) The complete range of pressure settings of all the saturated steam safety valves on a boiler shall not exceed ten percent (10%) of the highest pressure to which any valve is set.~~

~~(d)(1)(A) All safety valves shall be so constructed that the failure of any part cannot obstruct the free and full discharge of steam from the valve.~~

~~(B) Safety valves shall be of the direct spring-loaded pop type, with seat inclined at any angle between forty-five degrees and ninety degrees (45° and 90°), inclusive, to the center line of the spindle.~~

~~(C) The maximum rated capacity of a safety valve shall be determined by actual steam flow at a pressure of three percent (3%) in excess of that at which the valve is set to blow, and shall operate without chattering and shall be set and adjusted as follows, to close after blowing down not more than four percent (4%) of the set pressure but not less than two pounds (2 lbs.) in any case.~~

~~(2)(A) For spring-loaded pop safety valves for pressures between one hundred pounds per square inch (100 psi) and three hundred pounds per square inch (300 psi), both inclusive, the blowdown shall be not less than two percent (2%) of the set pressure.~~

~~(B) To ensure the guaranteed capacity of satisfactory operation, the blowdown as marked upon the valve shall not be reduced.~~

~~(c)(1) Safety valves used on forced-circulation boilers of the once through type may be set and adjusted to close after blowing down not more than ten percent (10%) of the set pressure.~~

~~(2) The valve for this special use must be so adjusted and marked by the manufacturer.~~

~~(f) The blowdown adjustment shall be made and sealed by the manufacturer.~~

~~(g) The popping point tolerance plus or minus shall not exceed the following:~~

~~(1) Two pounds (2 lbs.) for pressures up to and including seventy pounds (70 lbs.);~~

~~(2) Three percent (3%) for pressures from seventy-one pounds (71 lbs.) to three hundred pounds (300 lbs.); and~~

~~(3) Ten pounds (10 lbs.) for pressures over three hundred pounds (300 lbs.).~~

~~(h)(1) Each safety valve shall be plainly marked by the manufacturer in such a way that the markings will not be obliterated in service.~~

~~(2) The markings may be stamped on the casing or stamped or cast on a plate or plates securely fastened to the casing, and shall contain the following markings:~~

~~(A) The name or identifying trademark of the manufacturer;~~

~~(B) Manufacturer's design or type number;~~

~~(C)(i) Size _____in. seat diameter _____in.~~

~~(ii) The pipe size of the valve inlet;~~

~~(D)(i) SET pressure _____lb.~~

~~(ii) The steam pressure at which it is to blow;~~

~~(E)(i) Capacity _____lb. per hr.~~

~~(ii) As stated above and with the valve adjusted to the blowdown given in the preceding item;~~

~~(F)(i) Capacity lift _____in.~~

~~(ii) "Capacity lift" means the distance the valve disc rises under the action of the steam when the valve is blowing under a pressure of three percent (3%) above set pressure;~~

~~(G) Year built _____; and~~

~~(H) ASME symbol as shown in the ASME code.~~

~~(i) If the safety valve capacity cannot be computed or if it is desirable to prove the computations, it may be checked in any one (1) of the three (3) following ways, and if found insufficient, additional capacity shall be provided:~~

~~(1)(A) By making an accumulation test, that is, by shutting off all other steam discharge outlets from the boiler and forcing the fires to the maximum.~~

~~(B) The safety valve equipment shall be sufficient to prevent an excess pressure beyond that specified previously;~~

~~(2) By measuring the maximum amount of fuel that can be burned and computing the corresponding evaporative capacity upon the basis of the heating value of the fuel as outlined in the ASME Code for Power Boilers, as adopted; or~~

~~(3)(A) By determining the maximum evaporative capacity by measuring the feedwater.~~

~~(B) The sum of the safety valve capacities marked on the valves shall be equal to or greater than the maximum evaporative capacity of the boiler.~~

~~(j) All firms that are in the business of repairing safety or temp/relief valves shall be qualified and hold a VR certificate of authorization from the National Board of Boiler and Pressure Vessel Inspectors.~~

~~(k)(1) Any firm or corporation operating within the state that has their own qualified personnel and quality control program may repair and reset their own valves.~~

~~(2) Each firm or corporation shall submit a copy of their Q.C. program to the Boiler Inspection Division.~~

(l)(1) When two (2) or more safety valves are used on a boiler, they may be mounted either separately or as twin valves made by placing individual valves on Y bases, or duplex valves having two (2) valves in the same body casing.

(2) Twin valves made by placing individual valves on Y bases, or duplex valves having two (2) valves in the same body, shall be of equal size.

(m) When not more than two (2) valves of different sizes are mounted singly, the relieving capacity of the smaller valve shall be not less than fifty percent (50%) of that of the larger one.

(n)(1) The safety 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 any unnecessary intervening pipe or fitting.

(2) Every safety valve or valves shall be connected so as to stand in an upright position, with spindle vertical.

(o)(1) The opening or connection between the boiler and the safety valve shall have at least the area of the valve inlet.

(2)(A) In the case of fire-tube boilers, the openings in the boilers for safety valves shall not be less than in the ASME code, as adopted, except fire-tube boilers used for waste heat purposes only, and which are not equipped for direct firing.

(B) This type boiler need not meet the requirements of the code provided the rated steam capacity is stamped on the boiler and safety valves of the required relieving capacity are supplied so that the provisions of subsection (b) of this section are satisfied.

(4) No valve of any description shall be placed between the required safety valve or valves and the boiler, or on the discharge pipe between the safety valve and the atmosphere.

(5) When a discharge pipe is used, the cross-sectional area shall be:

(A) Not less than the full area of the valve outlet or of the total of the areas of the valve outlets discharging therein; and

(B) As short and straight as possible and so arranged as to avoid undue stresses on the valve or valves.

~~(p)(1) All safety valve discharges shall be so located or piped as to be carried clear from the running boards or platforms.~~

~~(2) Ample provisions for gravity drain shall be made:~~

~~(A) In the discharge pipe at or near each safety valve; and~~

~~(B) Where water or condensation may collect.~~

~~(3) Each valve shall have an open gravity drain through the casing below the level of the valve seat.~~

~~(4) For iron and steel bodied valves exceeding two inch size, the drain hole shall be tapped not less than three eighths inch pipe size.~~

~~(q)(1) If a muffler is used on a safety valve, it shall have sufficient outlet area to prevent back pressure from interfering with the proper operation and discharge capacity of the valve.~~

~~(2) The muffler plates or other devices shall be so constructed as to avoid any possibility of restriction of the steam passages due to deposit.~~

~~(r) When a boiler is fitted with two (2) or more safety valves on one (1) connection, this connection to the boiler shall have a cross sectional area not less than the combined areas of inlet connections of all the safety valves with which it connects.~~

~~**20 CAR § 880-1018. Superheater safety valves.**~~

~~(a)(1) Every attached superheater shall have one (1) or more safety valves near the outlet.~~

~~(2) If the superheater outlet header has a full, free steam passage from end to end and is so constructed that steam is supplied to it at practically equal intervals throughout its length so that there is a uniform flow of steam through the superheater tubes and the header, the safety valve or valves may be located anywhere in the length of the header.~~

~~(b) The discharge capacity of the safety valve or valves on an attached superheater may be included in determining the number and size of the safety valves for the boiler, provided there are no intervening valves between the superheater safety valve and the boiler, and provided the discharge capacity of the safety valve or valves on the boiler,~~

~~as distinct from the superheater, is at least seventy-five percent (75%) of the aggregate valve capacity required.~~

~~(c)(1) Every independently fired superheater which may be shut off from the boiler and permit the superheater to become a fired pressure vessel shall have one (1) or more safety valves having a discharge capacity equal to six pounds (6 lbs.) of steam per square foot of superheater surface measured on the side exposed to the hot gases.~~

~~(2) The number of safety valves installed shall be such that the total capacity is at least equal to that required.~~

~~(d) A soot blower connection may be attached to the same outlet from the superheater that is used for the safety valve connection.~~

~~(e)(1) Every safety valve used on a superheater discharging superheated steam at a temperature over four hundred fifty degrees Fahrenheit (450° F) shall have a casing, including the base, body, bonnet, and spindle of:~~

~~(A) Steel;~~

~~(B) Steel alloy; or~~

~~(C) Equivalent heat-resistant material.~~

~~(2) The valve shall have a flanged inlet connection and shall have the seat and disk of suitable heat erosive and corrosive-resisting material, and the spring fully exposed outside of the valve casing so that it shall be protected from contact with the escaping steam.~~

~~(f) Every superheater shall have adequate means of supplying sufficient steam circulation when equipment using superheated steam is out of operation or main steam valve is closed.~~

~~(g)(1) Every boiler shall have proper outlet connections for the required safety valve or valves independent of any other outside steam connection, the area of opening to be at least equal to the aggregate areas of inlet connections of all of the safety valves to be attached thereto.~~

~~(2) An internal collecting pipe, splash plate, or pan may be used, provided the total area for inlet of steam thereto is not less than twice the aggregate areas of the inlet connection of the attached safety valves.~~

~~(3) The holes in such collecting pipes shall be at least one-fourth inch (1/4") in diameter and the least dimension in any other form of opening for inlet of steam shall be one-fourth inch (1/4").~~

~~(h) Such dimensional limitations to operations for steam need not apply to steam scrubbers or driers provided the net free steam inlet area of the scrubber or dryer is at least ten (10) times the total area of the boiler outlets for the safety valves.~~

~~(i) If safety valves are attached to separate steam drum or dome, the opening between the boiler proper and the steam drum or dome shall be not less than required above.~~

Subpart ~~11~~10. Anhydrous Ammonia

20 CAR § 880-~~1101~~1001. General provisions.

(a) Applicable ASME standards for anhydrous ammonia systems, including design codes adopted in 20 CAR §880-701, minimum standards ASME B31.4 for piping, and ASME B&PV Code (Section VIII) for pressure vessels shall be followed for installation, inspection, testing, and maintenance.

(b) The minimum standards for storage and handling of anhydrous ammonia shall be the American National Standards Institute (ANSI), CGA G-2.1 Safety Requirements for the Storage and Handling of Anhydrous Ammonia, 2023 edition, which is adopted by reference and incorporated herein.

~~(a)(1) Under moderate pressure, the gas liquefies, but upon release of the pressure, the liquid is readily converted into the gaseous phase.~~

~~(2) Advantage of this characteristic is taken by the industry, and for convenience the gas is shipped and stored under pressure as a liquid.~~

~~(b) Anhydrous ammonia may cause varying degrees of irritation of the skin or mucous membrane, and may injure severely the respiratory tract and organs.~~

~~(c)(1) At atmospheric temperatures and pressures, ammonia is a pungent and colorless gas and serves as its own warning agent.~~

(2) Since ammonia gas is lighter than air, adequate ventilation is the best means of preventing any accumulation.

(d)(1) In the case of the pure product at atmospheric pressure and below negative twenty-eight degrees Fahrenheit (-28° F), anhydrous ammonia is a liquid.

(2) Anhydrous ammonia freezes to a white crystalline mass at negative one hundred seven and nine-tenths degrees Fahrenheit (-107.9° F).

(e)(1) The common metals are not affected by dry ammonia.

(2) Moist ammonia will not corrode iron or steel, but will rapidly react with:

(A) Copper;

(B) Brass;

(C) Zinc; and

(D) Many alloys, especially those containing copper.

(3) It is required that only iron, steel, and certain nonferrous alloys which have proved to be satisfactory for ammonia service, be used for ammonia containers, fittings, and other equipment.

(f)(1) The flammable limits of ammonia are presently classified from sixteen percent (16%) to twenty-five percent (25%) by volume in air.

(2) Experience has shown that ammonia is extremely hard to ignite in spite of these theoretical limits.

20 CAR § 880-1102. Definitions.

For the purpose of this subpart, the terms listed below shall be construed to have the following meanings:

(1) "Approved"means:

(A) Tested and listed by a recognized testing laboratory; or

(B) Inspected and approved by the Boiler Inspection Division;

(2) "Appurtenances" means all devices such as safety devices, liquid level gauge devices, valves, pressure gauges, fittings, and metering or dispensing devices;

(3) "Capacity" means the total volume of the container measured in standard United States gallons, unless otherwise specified;

~~(4) "The code" or the "ASME code" means the Unfired Pressure Vessel Code of the American Society of Mechanical Engineers, Section VIII, Division 1 of the ASME code, as adopted;~~

~~(5) "Design working pressure" is identical to the term "maximum allowable working pressure", used in the code;~~

~~(6) "Filling density" means the percent ratio of the weight of the gas in a container to the weight of water the container will hold at sixty degrees Fahrenheit (60° F);~~

~~(7) "Gas" means anhydrous ammonia in either the gaseous or liquefied state;~~

~~(8) "Liquid fertilizer" means anhydrous ammonia or any ammonia solution generating a vapor pressure of twenty-five pounds per square inch gauge (25 psig), and over, at seventy degrees Fahrenheit (70° F);~~

~~(9) "Systems" means an assembly of equipment consisting essentially of the:~~

~~(A) Container or containers;~~

~~(B) Appurtenances;~~

~~(C) Pumps;~~

~~(D) Compressors; and~~

~~(E) Interconnecting hose and piping; and~~

~~(10) "Tank", "container", or "vessel" means vessels designed and constructed for the storage, transportation, and utilization of anhydrous ammonia.~~

20 CAR § 880-~~1103~~1002. License requirement.

(a) Every manufacturer, jobber, or dealer selling or offering for sale in the State of Arkansas containers used for the storage, transportation, and dispensing of anhydrous ammonia shall be licensed by the Boiler Inspection ~~Division~~ Section in compliance with Arkansas Code § 20-23-405 and 20 CAR § 880-401 et seq., which states all persons, firms, or corporations engaged in the sale and/or installation of unfired pressure vessels shall be licensed by the ~~division~~ section to perform such work and hold the appropriate NBBI commission if required.

(b) ~~The following fees~~A fee of $30.00 shall be paid before permits may be issued for the installation of any unfired pressure vessel~~:~~.

~~500 Gallons or less $15.00~~
~~Over 500 Gallons to 1,000 Gallons, Incl. $20.00~~
~~Over 1,000 Gallons to 5,000 Gallons, Incl. $40.00~~
~~Over 5,000 Gallons $50.00~~

(c) A license may be revoked as provided in 20 CAR § 880-401 et seq.

(d)(1) It shall be unlawful to fill any container requiring annual inspections with anhydrous ammonia when such container is over thirty (30) days past due annual inspection.

(2) Any dealer filling such container may be subject to license revocation.

20 CAR § 880-~~1104~~1003. Design and construction.

(a)(1) Vessels used for storage and dispensing of liquid fertilizer shall be constructed to comply with the provisions of Section VIII, of the adopted ASME Boiler Code.

(2) All containers shall be constructed for a safe working pressure of not less than two hundred fifty pounds per square inch gauge (250 psig) with minimum head and shell thickness of not less than three-sixteenths inch (3/16”).

(3) All trucks and transports used for the transportation of anhydrous ammonia shall be constructed for a safe working pressure of not less than two hundred sixty-five pounds per square inch gauge (265 psig) and in compliance with Section VIII of the ASME code.

(b) In addition to the above requirements, all anhydrous ammonia containers to be used for storage purposes, thirty-six inches (36”) in diameter or larger, and all vessels mounted on transport trucks, delivery trucks, and trailer units, regardless of size, shall be constructed to comply with either of the following requirements:

(1) Stress relieve the container after fabrication in accordance with the ASME code, Par. UW-40, Sub-par. (1) or (2);

(2) Stress relieve cold formed heads in an approved manner; and

(3) Used not formed heads.

(c)(1) It is strongly recommended that vessels of this type be stress relieved.

(2) All such containers shall be stamped "National Board" at the time of construction.

(3) Blueprints showing the type or types of all containers shall be filed with the Boiler Inspection ~~Division~~ Section for approval before shipment of any container into the state.

(d) Shop inspections shall be made of all containers during construction by a duly authorized inspector who holds a National Board of Boiler and Pressure Vessel Inspectors commission, and who is employed by an insurance company, ~~state,~~ or ~~municipality~~authorized third-party inspection service.~~.~~

(e) All containers shall have the manufacturer's nameplate, firmly attached to the container, designating:

(1) Manufacturer's serial number;

(2) National Board of Boiler and Pressure Vessel Inspectors number;

(3) Year built;

(4) Diameter;

(5) Length;

(6) Shell and head thickness;

(7) Capacity in water gallons;

(8) Pounds; and

(9) Surface area of vessel in square feet.

(f)(1) All containers, except storage tanks, shall be fully equipped with the required fittings by the manufacturer and shall be tested under air pressure of not less than one hundred pounds per square inch gauge (100 psig) before delivery to the user.

(2) Air pressure of not less than twenty-five pounds per square inch gauge (25 psig) or more than seventy-five pounds per square inch gauge (75 psig) shall be left in

the container when shipment is made into the state by the manufacturer or jobber, and this information shall be included in the report of shipment provided for in subsection (g) of this section.

(g)(1) Manufacturers and jobbers shall forward to the Boiler Inspection ~~Division~~ Section notice of shipment and manufacturer's data report on the same day that shipment of containers is made in the state.

(2) Manufacturers and jobbers shall not sell containers to individuals.

(3) They shall sell containers and equipment to bonded and licensed dealers only.

(h) Each container which is to be used for the transportation or utilization of anhydrous ammonia shall be inspected and approved by the Boiler Inspection ~~Division~~ Section at the dealer's place of business before being placed in service, and thereafter at such times and in such manner as may be determined under the rules of the ~~Division of Labor~~Department.

(i)(1) The Boiler Inspection ~~Division~~ Section shall notify all dealers when annual inspections will be made of their equipment requiring annual inspections, and it will be the dealer's responsibility to have all trailers and/or transports at his or her place of business in order that all equipment may be inspected.

(2) Dealers will notify their customers who own their own containers of the date the inspector will be at the dealer's place of business.

(j)(1) All containers used for the storage and all transports and trailer units used for the delivery of anhydrous ammonia shall be inspected annually.

(2) For each inspection made by the ~~Division of Labor~~Boiler Inspection Section, there shall be paid a fee of $15.00 for all inspections including all containers used for dispensing purposes which are mounted on field tractors. ~~in accordance with the following schedule.~~

~~(k) All containers used for dispensing purposes which are mounted on field tractors and have a capacity up to and including:~~

~~150 Gallons $ 9.00~~

~~151 Gallons and over $10.00~~

~~Containers used on trailer units, regardless of size $11.00~~

~~Containers used for storage, regardless of size $18.00~~

(~~l~~k) Owners of all types of anhydrous ammonia vessels shall be responsible for the inspection fees.

~~(m) Special inspection fees of fifteen dollars ($15.00) per container plus mileage, not to exceed the rate authorized by the General Assembly to employees of the state agencies who furnish their own transportation, traveled from dealer's place of business to point of inspection and return, shall be charged for any container moved from dealer's place of business before it is inspected and approved.~~

20 CAR § 880-~~1105~~1004. Container valves and accessories.

(a)(1) Couplings and external flanges used on any container shall be welded both inside and outside.

(2) The use of nipples in lieu of couplings or flanges is prohibited.

(3) All couplings, piping, and valves shall be wrought iron or steel.

(4) The use of cast iron, copper, brass, or galvanized fittings is prohibited.

(b)(1) All containers shall be equipped with necessary safety relief valves, filler valves, vapor return valves, liquid level gauge, outage gauge, and a pressure gauge graduated from zero (0) to four hundred (400).

(2) The vapor return valve, filler valve, and liquid outlet valve shall be equipped with excess flow check valves.

(3) It is not required that dispensing units be equipped with excess flow check valves in the liquid outlet.

(4) Safety relief valves shall have direct communication with the vapor space of the container.

(c)(1) All fittings to be attached to an anhydrous ammonia container of any type (liquid or vapor) shall be approved for use with anhydrous ammonia and designed for not less than the maximum pressure to which they may be subjected.

(2) Valves which may be subjected to container pressure shall have a rated working pressure not less than two hundred fifty pounds per square inch gauge (250 psig).

(d) All connections to containers, except safety relief connections and gauging devices, shall have shutoff valves located as close to the container as possible.

(e) Liquid level gauging devices which are so constructed that outward flow of container content shall not exceed that passed by a No. 54 drill size opening, need not be equipped with excess flow valve.

(f) Openings from the container or through fittings attached directly on container, to which pressure gauge connection is made, need not be equipped with excess flow valve if such openings are protected by not larger than No. 54 drill size openings.

(g) All excess flow valves shall be plainly and permanently marked with the:

(1) Name or trademark of the manufacturer;

(2) Catalog number; and

(3) Rated capacity.

(h) Excess flow valves shall close automatically at the rated flows of vapor or liquid as specified by the manufacturer, and shall be set to close at not more than eighty percent (80%) of the maximum capacity of the normal pipe size into which they are discharging at sixty pounds (60 lbs.) container pressure.

(i)(1) Excess flow and back-pressure check valves shall be located inside the container or at a point outside where the line enters the container.

(2) In the latter case, installation shall be made in such a manner that any undue strain, beyond the excess flow or back-pressure check valve, will not cause breakage between the container and the valve.

(j) Each filling connection or valve shall be fitted with one (1) of the following:

(1) Combination back-pressure check valve and excess flow valve;

(2) One (1) double or two (2) single back-pressure check valves; or

(3) A positive shutoff valve, in conjunction with either:

(A) An internal back-pressure valve; or

(B) An internal excess flow valve.

(k) Excess flow valves shall be designed with bypass, not to exceed a No. 60 drill size opening to allow equalization of pressures.

20 CAR § 880-~~1106~~1005. Piping, tubing, and fittings.

(a)(1) All fittings where subjected to container pressure shall be made of materials specified for use with anhydrous ammonia as described herein and designed for a minimum working pressure of not less than two hundred fifty pounds per square inch gauge (250 psig).

(2) No cast iron bushings, plugs, or pipe fittings shall be allowed.

(b)(1) Galvanized pipe shall not be used.

(2) Black steel or iron pipe, Schedule 40, may be used provided pipe joints are welded or joined by means of welding type flanges.

(3) Screwed joints are permissible only with extra heavy, Schedule 80, pipe.

(4) Pipe joint compounds shall be resistant to ammonia.

(c)(1) All pipe lines shall be installed as nearly as possible in a straight line with a minimum amount of pipe, and shall not be restricted by an excessive amount of elbows and bends.

(2) Where nipples are used, they shall be of extra heavy seamless type.

(d)(1) Flexible connections with a bursting pressure of not less than one thousand seven hundred fifty pounds per square inch gauge (1,750 psig) shall be used for a permanent installation.

(2) Other type flexible connections may be used for temporary installation.

(3) Provisions shall be made for:

(A) Expansion;

(B) Contraction;

(C) Jarring;

(D) Vibration; and

(E) Settling.

(e) Adequate provisions shall be made to protect all exposed piping from physical damage that might result from moving machinery, automobiles, or trucks, or any other undue strain that might be placed upon the piping.

(f)(1) After assembly, all piping and tubing shall be tested and proved to be free from leaks at a pressure not less than the normal operating pressure of the system, or at one hundred fifty pounds per square inch gauge (150 psig), whichever is greater.

(2) All containers shall be purged of air on initial filling.

20 CAR § 880-~~1107~~1006. Hose specifications.

(a) Hose and hose connectors shall be fabricated of materials that are resistant of the action of anhydrous ammonia.

(b)(1) Hoses subject to container pressure shall be designed for a minimum bursting pressure of one thousand seven hundred fifty pounds per square inch gauge (1,750 psig).

(2) Hose assemblies, when made up, shall be capable of withstanding a test pressure of not less than five hundred pounds per square inch gauge (500 psig).

(c)(1) Hose and hose connections located on the low-pressure side of flow control or pressure reducing valves or devices shall be designed for a minimum bursting pressure of one hundred twenty-five pounds per square inch gauge (125 psig).

(2) All connections shall be designed, constructed, and installed so that there will be no leakage when connected.

(d)(1) Where hose is to be used for transferring liquid, wet hose is recommended.

(2) Such hose shall be equipped with an approved shutoff valve at the discharge end.

(3) A safety relief valve shall be installed between the hand shutoff valves as near the containers as possible.

(4) The start-to-discharge pressure of such relief valve shall not be less than two hundred forty pounds per square inch gauge (240 psig) and not in excess of three hundred twelve pounds per square inch gauge (312 psig).

(e) On all hose one-half inch (1/2") I.D. and larger, used for the transfer of anhydrous ammonia liquid or vapor, there shall be etched, cast, or impressed on the hose at five-foot intervals or on a nameplate permanently attached thereto, the following information:

"Anhydrous Ammonia"
Bursting Pressure
Manufacturer's Name or Trademark
Year of Manufacture

20 CAR § 880-~~1108~~1007. Safety devices.

(a)(1) Every container used for anhydrous ammonia shall be provided with one (1) or more safety relief valves of spring-loaded type.

(2) The discharge from safety relief valves shall be directed away from the container upward and unobstructed to the open air.

(3) The rate of discharge shall be in accordance with the provisions of the flow chart in this subpart, 20 CAR § 880-1113.

(b) Container safety relief valves shall be set to start-to-discharge as follows, with the relation to the design pressure of the container:

Containers	Minimum	Maximum
ASME 1949 or earlier Edition	100%	125%
ASME 1959 or earlier Edition	80%	100%

(c)(1) Safety relief valves used on containers or systems as outlined in this part shall be constructed to discharge at the rates required in subsection (b) of this section.

(2) The design of these valves must ensure such discharge before the pressure exceeds one hundred twenty percent (120%) of the maximum start-to-discharge pressure setting.

(d)(1) Safety relief valves shall be so arranged that the possibility of tampering will be minimized.

(2) If the pressure setting adjustment is external, the relief valves shall be provided with approved means for sealing the adjustment.

(3) Shutoff valves shall not be installed between the safety relief valves and the container.

(e) Each safety relief valve shall be plainly and permanently marked as follows:

(1) With the letters "AA";

(2) The pressure in pounds per square inch gauge (psig) at which the valve is set to start-to-discharge;

(3) The rate of discharge of the valve at its full open position in cubic feet per minute of air at sixty degrees Fahrenheit (60° F) and atmospheric pressure; and

(4)(A) The manufacturer's name and catalog number.

(B) For example, a safety relief valve marked AA-250-4050 (air) would mean that:

(i) This valve is suitable for use on an anhydrous ammonia container;

(ii) It is set to start-to-discharge at two hundred fifty pounds per square inch gauge (250 psig); and

(iii) Its rate of discharge at full open position is four thousand fifty cubic feet (4,050 ft^3) per minute of air.

(f) Connections such as couplings, flanges, nozzles, and discharge lines for venting, to which relief valves are attached, shall have internal dimensions of sufficient size to avoid any restrictions of flow through the relief valves.

(g)(1) A safety relief valve venting to atmosphere at a safe location shall be installed between each pair of shutoff valves in an ammonia line where liquid may be trapped.

(2) The start-to-discharge pressure of such relief valves shall not be less than two hundred forty pounds per square inch gauge (240 psig), and not in excess of three hundred pounds per square inch gauge (300 psig).

(3) Discharge from safety relief devices shall not terminate in or beneath any building.

(h) Any type fitting or hose that proves to be unsatisfactory and does not function in a safe and proper manner shall be condemned and the further use of such hose or fitting shall be prohibited.

20 CAR § 880-~~1109~~1008. Transfer of liquids.

(a) At least one (1) attendant shall supervise the transfer of liquids from the time the connections are first made until they are finally disconnected.

(b)(1) Containers shall be filled or used only upon authorization of owner.

(2) Containers shall be gauged and charged only in the open air or in buildings especially provided for that purpose.

(c) Pumps used for transferring ammonia shall be recommended and labeled for ammonia service by the manufacturer.

(d) Liquid pumps may be of piston, rotary, centrifugal, or regenerative type, designed for not less than two hundred fifty pounds per square inch gauge (250 psig) working pressure.

(e)(1) Positive displacement pumps shall have, installed off the discharge port, a constant differential relief valve discharging through a line of sufficient size to carry the full capacity of the pump at relief valve setting.

(2) This setting and installation shall be according to pump manufacturer's recommendation.

(f) On the discharge side of the pump, before the relief valve line, there shall be installed a pressure gauge graduated from zero pounds per square inch gauge (0 psig) to four hundred pounds per square inch gauge (400 psig).

(g) Centrifugal or regenerative pumps do not require a bypass relief valve, but the installation shall incorporate a line from the discharge side of the pump to the vapor space of the supplying tank and in this line, at accessible level, must be installed a shutoff valve.

(h) Shutoff valves shall be installed within three feet (3') of the inlet of the pump and within two feet (2') of the discharge.

(i) Compressors used for transferring and refrigerating ammonia shall be recommended and labeled for ammonia service by the manufacturer.

(j) Compressors may be of reciprocating or rotary type designed for not less than two hundred fifty pounds per square inch gauge (250 psig) working pressure.

(k) Plant piping shall contain shutoff valves located as close as practicable to compressor connections.

(l)(1) A relief valve large enough to discharge the full capacity of the compressor shall be connected to the discharge before any shutoff valve.

(2) The discharging pressure of this valve shall not exceed three hundred pounds per square inch gauge (300 psig).

(m) Compressors shall have pressure gauges graduated from zero pounds per square inch gauge (0 psig) to four hundred pounds per square inch gauge (400 psig) as suction discharge.

(n) Adequate means, such as a drainable liquid trap, shall be provided on the compressor suction to minimize the entry of liquid into the compressor.

(o) The pipe line to which the loading or unloading hoses are connected shall be equipped with a backflow check valve or excess flow check valve to prevent discharge of ammonia from the containers and the line in case of hose or fitting failure.

20 CAR § 880-~~1110~~1009. Liquid level gauging devices.

(a) Each container, except containers covered by United States Department of Transportation regulations, shall be equipped with a liquid level gauging device of approved design.

(b) All gauging devices shall be arranged so that the maximum liquid level to which the container may be filled is readily determinable.

(c)(1) Gauging devices that require bleeding of the product to the atmosphere, such as the rotary tube, fixed tube, and slip tube, shall be so designed that the bleed

valve maximum opening is not larger than a No. 54 drill size, unless provided with an excess flow valve.

(2) **Exception.** Applicator tank may have bleed valve not more than five-sixteenths inch (5/16") in diameter.

(d) Gauging devices shall have a design working pressure of at least two hundred fifty pounds per square inch gauge (250 psig).

(e)(1) Fixed liquid level gauges shall be so designed that the maximum volume of the container filled by liquid shall not exceed eighty-five percent (85%) of its water capacity.

(2) The coupling into which the fixed liquid level gauge is threaded must be placed at the eighty-five percent (85%) level of the container.

(3) If located elsewhere, the dip tube of this gauge must be installed in such a manner that it cannot be readily removed.

(f)(1) Gauge glasses of the columnar type shall be restricted to bulk storage installations.

(2) They shall be equipped with valves having metallic handwheels, with excess flow valves, and with extra heavy glass adequately protected with a metal housing applied by the gauge manufacturer.

(3) They shall be shielded against the direct rays of the sun.

20 CAR § 880-~~1111~~1010. Bulk storage.

(a) The following apply to location, assembling, painting, and protection of bulk storage plants:

(1) No storage container shall exceed thirty thousand (30,000) water-gallon capacity, nor shall any anhydrous ammonia container be buried underground;

(2) Before any storage container may be installed, the location must be checked and approved by a representative of the Boiler Inspection ~~Division~~Section; and

(3) Bulk storage containers should be equipped with approved type manifold safety relief valves.

(b)(1) Containers used for the storage of anhydrous ammonia shall be located not less than fifty feet (50') from the nearest important building or group of buildings or line of adjoining property which may be built on.

(2) They shall be located not less than fifty feet (50') from the main line or passing track of a railroad or public highway.

(3) Waiver of this requirement may be made by the Chief Inspector of the Boiler Inspection ~~Division~~ Section providing no undue hazards exist, but in no case shall they be located closer than twenty-five feet (25'), and in no case shall they be located closer than four hundred feet (400') from any school, hospital, church, or other place of public assembly.

(c) Permits for the installation of any storage container must be obtained before installations are made.

(d)(1) Storage containers shall be provided with substantial reinforced concrete footings and foundations, or structural steel supports mounted on reinforced concrete foundations.

(2) In either case, the reinforced concrete foundations must be below the established frost line, and in no case less than twenty-four inches (24") below the ground level, and shall be of sufficient width and thickness to support adequately the total weight of the container and contents.

(3) Every container shall be mounted on saddles in such a manner as to permit expansion and contraction, and shall be so supported to prevent the concentration of excessive loads on the supporting portion of the shell.

(4) Suitable means of preventing corrosion shall be provided on that portion of the container in contact with the foundation or saddles.

(5) There shall be a resilient cushion of road expansion, or other suitable material, with a thickness of not less than one-half inch (1/2") placed between the saddle and tank to allow for minor imperfections in pier surface to protect the tank from corrosion and to act as a lubricant in tank expansion.

(6) That portion of the tank surface that is to be in contact with the pier or saddle shall be painted with at least two (2) coats of approved primer before installing on the supports.

(7) Blueprints or approved-type footings and foundations may be obtained from the ~~Division of Labor~~Boiler Inspection Section upon request.

(e)(1)(A) Containers shall be equipped with the necessary fittings and piping as outlined herein.

(B) **Exception.** Installation of fifteen percent (15%) outage gauge not required.

(2) The safety relief valve shall discharge upward and away from the container.

(3) Loose-fitting rain caps shall be used.

(4) If riser pipes are used they:

(A) Shall not be attached to the shell by the use of clip angles or brackets; or

(B) May be supported by the use of guy wires.

(5) Any method of attaching risers to relief valves that does not induce any undue stress to the relief valve itself will be acceptable to the ~~Division of Labor~~Boiler Inspection Section.

(6) Size of discharge lines from safety relief valves shall not be smaller than the normal size of the relief valve outlet connection.

(7) Suitable provision shall be made for draining condensate which may accumulate in the discharge pipe.

(8) The vapor return valve on all storage containers exceeding one thousand two hundred (1,200) water-gallon capacity shall be not less than one and one-fourth inches (1 1/4") standard pipe size.

(9) Each container shall be effectively grounded.

(10) Stop valves, where required, shall be installed as near the outlet opening in the container as possible.

(11) Piping from the excess flow check valves shall not be reduced in size.

(12) Any portion of the piping between the tank and the pump inlet which at any time may be closed at both ends shall be provided with a relief valve to prevent excessive pressure developing in the hose or piping.

(f)(1) Containers shall be painted at the time of installation with a light-colored, heat-reflective paint, equivalent to white or aluminum paint, and shall have the words "DANGER - AMMONIA" or "CAUTION - AMMONIA" painted on both sides and heads in red letters at least six inches (6") in height.

(2) The owner's name and address and owner's number shall be painted on at least one (1) side of the container in letters not less than two inches (2") in height.

(3) Containers shall be protected or enclosed by a steel or wire fence, or provisions shall be made for locking the service line valves at the container.

(4) Where a steel or wire fence is used, there shall be two (2) means of exit, located preferably at the front and rear of the fence.

(5) Such exits shall be of a size that will easily and quickly admit one (1) or more persons.

(6) The premises around the container shall be maintained in good order.

(7) Combustible material of any type shall not be allowed to accumulate near the container.

(g)(1) Provisions shall be made at bulk storage tanks to have the following articles available for use and protection of employees:

(A) Goggles;

(B) Rubber gloves; and

(C) Rubberized aprons or slickers.

(2) There shall also be available an ample supply of clean water located so that in the event leaks should occur in the piping or containers, the water facilities will not be rendered inoperative.

(h)(1) Railway tank cars shall not be considered as bulk storage, and the transferring of anhydrous ammonia from railway tank cars to truck or trailer units is prohibited.

(2) Trailer units shall be filled at designated bulk storage plants constructed and equipped as outlined herein.

20 CAR § 880-~~1112~~1011. Farm trailers.

(a)(1) The following applies to the construction, assembly, and painting of tanks mounted on four-wheeled trailers of the farm type used in transporting ammonia from bulk storage plants to the farm, commonly called farm trailers.

(2) Such tanks shall not exceed one thousand two hundred (1,200) water-gallon capacity.

(b) Blueprints of the design, showing location of fittings and method of protection of the fittings, shall be submitted to the Boiler Inspection ~~Division~~ Section for approval before vessels are fabricated for shipment into the state.

(c)(1) Farm trailer tanks shall be equipped with the necessary fittings as outlined herein.

(2) Fittings installed in the top portion of the shell shall be located in the center of the container and shall be adequately protected from physical damage by means of a rigid guard securely fastened to the container.

(3) The guard shall be so designed as to give a rolling effect to the container in the event the trailer overturns.

(4) The guard shall also be designed to give a skid effect in the event the trailer overturns and continues to move forward.

(5) Fittings installed in the rear head of the container shall be protected with a permanent fixture without hinges of a material the same tensile strength as the container itself, and a thickness of not less than three-eighths inch (3/8”).

(6) The safety relief valves shall have direct communication with the vapor space of the container and shall be protected from rain and snow with a loose-fitting covering.

(d)(1) Dip tubes shall be provided for the safety valve, vapor valve, filler valve, vapor gauge, and fifteen percent (15%) outage gauge.

(2) They shall consist of heavy duty piping curved or bent without cutting and welding.

(3) Dip tubes for safety valves, vapor valves, and vapor gauge shall extend up into the vapor space of the container not less than three-fourths inch (3/4") from top of the container.

(4) The dip tube for the outage gauge shall extend up to a point in the container which will indicate the presence of liquid when the container is not more than eighty-five percent (85%) full.

(5) Dip tubes for filler valves shall extend to within not less than three-fourths inch (3/4") from the bottom of the container.

(6) All dip tubes shall be screwed directly into the coupling not less than five (5) full threads and seal welded.

(7) They shall also be firmly anchored at point of termination with a bracket and clamp.

(8) Provision shall be made for the expansion or contraction of the bracket or clamp in the event of any out-of-roundness of shell plate.

(e)(1) All containers shall be equipped with suitable baffle plates which will eliminate the surging of the liquid in the container when the trailer is in motion and when making sudden stops.

(2) Baffle plates shall be attached in such a manner as to allow for any expansion or contraction of shell plates under internal pressure due to any out-of-roundness.

(f) Four-wheeled trailers shall be of a type construction which will prevent the towed vehicle from whipping or swerving from side to side in a dangerous or unreasonable manner but will enable it to follow substantially in the path of the towing vehicle.

(g) All trailers shall be firmly and securely attached to the vehicle drawing them by means of drawbars of the pintle-hook type, equipped with a positive locking device which will prevent separation of the two (2) units, and supplemented by suitable safety chains.

(h) All trailers shall be equipped with axle and wheel assemblies of sufficient size to support the weight of the container and contents adequately and safely when loaded to capacity.

(i) All containers shall be mounted on trailers in such a manner that the bottom of the container will be as close to the ground level as possible, but in no case shall they be over thirty-six inches (36") above ground level.

(j) Containers shall be painted with a light-colored, heat-reflective paint, equivalent to white or aluminum paint, and shall have painted on the sides and rear head the words "DANGER - AMMONIA" or "CAUTION - AMMONIA" in red letters at least six inches (6") in height.

(k) The owner's name and address and owner's number shall be painted on at least one (1) side of the container in letters not less than two inches (2") in height.

(l)(1) Containers used for the storage or transportation of anhydrous ammonia shall not be used for any other purpose.

(2) The filling of containers of this type with liquefied petroleum gases is strictly forbidden.

20 CAR § 880-~~1113~~1012. Dispensing units.

(a) All containers mounted on tractors used for dispensing anhydrous ammonia shall be equipped to comply with the rules as described in 20 CAR § 880-~~1105~~ 1104 with the exception of the requirement for the excess flow check valve in the liquid outlet and the vapor return valve.

(b) Containers used for dispensing purposes shall not exceed two hundred fifty (250) water-gallon capacity and comply with the applicable section or sections of the ASME, ANSI, CGA G 2.1, and the NBBI code as adopted in 20 CAR 880-701.

~~**FLOW CHART**~~

~~Minimum required rate of discharge in cubic feet per minute of air at 120 percent of the maximum permitted start-to-discharge pressure for safety relief valves to be used on Anhydrous Ammonia containers.~~

Surface Area Sq. Ft	Flow Rate C.F.M. Air	Surface Area Sq. Ft	Flow Rate C.F.M. Air	Surface Area Sq. Ft	Flow Rate C.F.M. Air
20	258	185	1600	900	5850
25	310	190	1640	950	6120
30	360	195	1670	1000	6380
35	408	200	1710	1050	6640
40	455	210	1780	1100	6900
45	501	220	1850	1150	7160
50	547	230	1920	1200	7410
55	591	240	1980	1250	7660
60	635	250	2050	1300	7910
65	678	260	2120	1350	8160
70	720	270	2180	1400	8410
75	762	280	2250	1450	8650
80	804	290	2320	1500	8900
85	845	300	2380	1550	9140
90	885	310	2450	1600	9380
95	925	320	2510	1650	9620
100	965	330	2570	1700	9860
105	1010	340	2640	1750	10090
110	1050	350	2700	1800	10330
115	1090	360	2760	1850	10560
120	1120	370	2830	1900	10800
125	1160	380	2890	1950	11030
130	1200	390	2950	2000	11260
135	1240	400	3010	2050	11490
140	1280	450	3320	2100	11720
145	1310	500	3620	2150	11950
150	1350	550	3910	2200	12180
155	1390	600	4200	2250	12400
160	1420	650	4480	2300	12630
165	1460	700	4760	2350	12850
170	1500	750	5040	2400	13080
175	1530	800	5300	2450	13300
180	1570	850	5590	2500	13520

Surface Area = Total outside surface area of container in square feet. When the surface area is not stamped on the nameplate or when the marking is not legible, the area can be calculated by using one of the following formulas:

1. Cylindrical container with hemispherical heads: Area = overall length in feet X outside diameter in feet X 3.1416.

~~2. Cylindrical container with semi-ellipsoidal heads: Area = (Overall length in feet + 0.3 outside diameter in feet) X outside diameter in feet X 3.1416.~~

~~3. Spherical containers: Area = Outside diameter in feet square X 3.1416.~~

~~Flow Rate - C.F.M. Air = Cubic feet per minute of air required at standard conditions, 60_ F and atmospheric pressure (14.7 PSIA)~~

~~The rate of discharge may be interpolated for intermediate values of surface area.~~

Subpart ~~12~~11. Pressure Piping

20 CAR § 880-~~12011~~1101. General provisions.

(a) The requirements of this subpart refer only to system piping connecting to the external limits ~~shown by ASME code in pressure vessels and boilers~~ that comply with the applicable section or sections of the ASME, ANSI and the NBBI code as adopted in 20 CAR §880-701.

(b) ASME B31.1, as adopted, is the accepted code which prescribes the minimum requirements for the designing materials, erection, test, and inspection of power and auxiliary service piping systems for:

(1) Electric generation stations;

(2) Industrial and institutional plants;

(3) Central and district heating plants; and

(4) District heating systems.

~~**20 CAR § 880-1202. Definitions.**~~

~~For the purpose of this subpart, the terms listed below shall be construed to have the following meanings:~~

~~(1)(A) "New installation" means the fabrication and installation of any steam or hot water pressure piping that did not previously exist and is to be connected to a boiler or pressure vessel.~~

~~(B) This shall also apply to a previously existing system which relocated from one location to another such as from one building to another or from one plant to another.~~

~~(C) This subpart does not apply to repair or modifications of existing piping;~~

~~(2)(A) "Pressure piping" means any power piping system, both steam and hot water, and their component parts within or forming a part of the pressure piping system connected to the boiler external piping system of any boiler covered by the provisions of the Boiler and Pressure Vessel Law, Arkansas Code § 20-23-102 et seq.~~

~~(B) This includes only boiler external piping for power boilers and high temperature, high-pressure water boilers in which:~~

~~(i) Steam or vapor is generated at a pressure of more than fifteen pounds per square inch gauge (15 psig); and~~

~~(ii) High temperature is generated at pressures exceeding one hundred sixty pounds per square inch gauge (160 psig); and/or~~

~~(iii)*(a)* Temperatures exceeding two hundred fifty degrees Fahrenheit (250° F) (one hundred twenty degrees Celsius (120° C)).~~

~~*(b)* The boiler external piping shall be considered as that piping which begins where the boiler proper terminates at the:~~

~~*(1)* First circumferential joint for welding and end connections;~~

~~*(2)* Face of the first flange in bolted flanged connections; or~~

~~*(3)(A)* First threaded joint in that type of connection, and which extends up to and including the valve or valves required by code for Pressure Piping Para 122.1 of ASME B31.1, as adopted.~~

~~*(B)* The terminal points themselves are considered part of the boiler external piping; and~~

~~(3) "psig" means pounds per square inch gauge pressure.~~

20 CAR § 880-~~1203~~1102. Qualifications and license.

(a) All persons, firms, or corporations engaged in the fabrication or installation of pressure piping must be licensed by the Boiler Inspection ~~Division~~ Section prior to performing the work as required by Arkansas Code § 20-23-405 and 20 CAR § 880-401 et seq.

(b) The pressure piping license shall consist of an endorsement to a valid license issued by the ~~division~~section.

(c) There will be no additional fee for the endorsement.

20 CAR § 880-~~1204~~1103. Installation permit.

(a) Prior to the installation or the movement of pressure piping, a permit must be obtained from the Boiler Inspection ~~Division~~Section.

(b) One (1) application is required for each installation regardless of the size of the installation.

(c) The fee for the permit shall be one hundred dollars ($100).

20 CAR § 880-~~1205~~1104. Inspections.

(a) All examinations, inspections, and testing shall be performed in accordance with ASME B31.1, as adopted, with regard to frequency and manner.

(b) The owner shall be responsible for all examinations and inspections whether or not the owner performs the examinations and inspections himself or herself.

(c) The examinations and inspections shall be performed by an authorized inspector.

(d) Verification must be reported to the Boiler Inspection ~~Division~~ Section after the work is completed and prior to the installation becoming operational.

Subpart ~~13~~12. Owner – User Program

20 CAR § 880-~~1301~~1201. Owner/user certification.

(a) Any owner of a boiler or pressure vessel who also uses and operates the boiler or vessel may apply for certification under this subpart.

(b) Upon receiving an owner/user certification from the Boiler Inspection ~~Division~~ Section~~of the Division of Labor~~, an owner/user of a boiler or pressure vessel may perform any inspection required by Arkansas Code § 20-23-101 et seq., and this subpart, on such vessels owned and operated by them, with the exception of the initial installation inspection.

(c) The owner/user must first meet the requirements prescribed by this subpart.

20 CAR § 880-~~1302~~1202. Inspectors.

An owner/user must employ boiler inspectors holding a current, valid owner/user commission issued by the National Board of Boiler and Pressure Vessel Inspectors.

20 CAR § 880-~~1303~~1203. Certification by the National Board of Boiler and Pressure Vessel Inspectors required.

(a) Before receiving certification by the Boiler Inspection ~~Division~~Section, an owner/user must first receive an owner/user certification from the National Board of Boiler and Pressure Vessel Inspectors.

(b) Subsequent to certification from the National Board of Boiler and Pressure Vessel Inspectors, the ~~division~~ section shall inspect all boilers to be covered under the owner/user program and shall conduct an onsite review of the owner/user program before issuing a certification under this subpart.

(c) The ~~division~~ section may audit the owner/user's quality system at any time for just cause or upon request of the owner/user or the National Board of Boiler and Pressure Vessel Inspectors.

(d)(1) The National Board of Boiler and Pressure Vessel Inspectors Inspection Code Committee may at any time change the rules for the issuance of owner/user certificates.

(2) All owners/users holding operating certificates from the ~~division~~ section must adhere to the most current rules.

20 CAR § 880-~~1304~~1204. General requirements.

(a)(1) An owner/user holding a certificate issued by the National Board of Boiler and Pressure Vessel Inspectors Inspection Code Committee and certification under this subpart may perform in-service inspections and certification of pressure-retaining items owned/operated by them if such inspections are within the scope of the owner/user program as outlined in the owner/user's quality control manual.

(2) However, the initial inspection upon any pressure-retaining vessel shall be performed by the Boiler Inspection ~~Division~~Section.

(b)(1) A certified owner/user may perform authorized, in-process, and acceptance inspections, including signing the National Board of Boiler and Pressure Vessel Inspectors Inspection Code report forms, associated with repairs and alterations of pressure-retaining items owned and operated by the owner/user.

(2) This includes repairs and alterations performed by an owner or user holding an "R" Certificate or by other "R" Certificate holders performing work on pressure-retaining items owned/operated by the owner/user.

(3) A description of the process for performing these inspections must be included in the quality system written program and included with the application for certification by the ~~division~~section.

(c)(1) All welded repairs and/or alterations shall be documented on appropriate forms and distributed to the ~~division~~section.

(2)(A) All repairs or alterations shall be made to the original code of construction.

(B) If this is not possible or practical, the National Board of Boiler and Pressure Vessel Inspectors Inspection Code, as adopted, shall be followed.

(d) The owner/user must maintain on the premises where the pressure vessel is located:

(1) A current edition and any addendums of the National Board of Boiler and Pressure Vessel Inspectors Inspection Code;

(2) The Arkansas laws and rules governing boiler and pressure vessel inspection; and

(3) The appropriate sections of the American Society of Mechanical Engineers code (ASME).

20 CAR § 880-~~1305~~1205. Operations requirements.

(a) Owners/users certified by the Boiler Inspection ~~Division~~ Section pursuant to this subpart must possess a National Board of Boiler and Pressure Vessel Inspectors "R" stamp before making welded repairs or alterations.

(b) A copy of any form required for a welded repair or alteration by the National Board of Boiler and Pressure Vessel Inspectors shall be provided to the ~~division~~section.

(c) It shall be the responsibility of the owner/user to ensure all required applications to install pressure-retaining items or pressure piping or other installation permits and license requirements are met, prior to starting any work.

(d) The ~~division~~ section shall be notified and a report filed when objects that require licensing or operating certificates are removed from service.

(e) Inspection of objects requiring operating certificates shall be conducted within sixty (60) days of the due date.

(f) The ~~division~~ department reserves the right to inspect objects that are overdue more than sixty (60) days.

(g)(1) Boilers must be inspected internally and externally at least once each year.

(2) The inspection should be made during the same calendar month each year if possible.

(h) Unfired pressure vessels shall be inspected biennially, externally and internally, where conditions permit.

(i)(1) The inspector employed by the owner/user and commissioned by the National Board of Boiler and Pressure Vessel Inspectors and the ~~division~~ section is expected and required by law to shut down equipment that is determined to be a public hazard.

(2) The ~~division~~ department and Chief Inspector of the Boiler Inspection ~~Division~~ Section shall be advised should this be necessary.

(j)(1) Explosions and accidents must be reported to the ~~division~~ section within twenty-four (24) hours of any occurrence, except that any explosion or accident that involves loss of life or serious injury shall be reported immediately.

(2) An investigation report shall be filed with the ~~division~~section.

(3) The Director of ~~the Division of Labor~~Code Enforcement and the Chief Inspector shall be kept informed of the status and all changes.

(k) Equipment that has been shut down because it is a public hazard will not be returned to service until:

(1) Repairs have been satisfactorily made;

(2) Equipment is no longer deemed to be a hazard; and

(3) The ~~division~~ section has been informed of the nature and extent of repairs.

(l) Explosions and accidents shall be reported immediately if possible, or as soon as practicable, especially those which involve loss of life or serious injury.

(m)(1) New or used objects to be installed require proper identification.

(2) A data report for each object shall be forwarded to the ~~division~~ section office when requesting an installation permit.

(n)(1) The ~~division~~ section will complete the first inspection upon new and newly installed objects, unless an Arkansas "AR" number has already been assigned to the object.

(2) The owner/user should contact the ~~division~~ section with all appropriate data and request an installation permit.

(3) Upon receipt of the request for an installation permit, a state inspection will be scheduled.

(4) Each object installed which comes under the law, and is not already registered with the ~~division~~section, shall have a metal tag with identifying numbers preceded by "AR" attached to it.

(o)(1) All boilers and pressure vessels installed or to be installed in any location within the State of Arkansas shall be constructed to a code that has been adopted by or is acceptable to the Chief Inspector and the ~~division~~section.

(2) They shall also be registered with the National Board of Boiler and Pressure Vessel Inspectors.

(p)(1) All new and used boilers and pressure vessels installed or to be installed within the State of Arkansas shall be properly identified.

(2) Application for installation of said vessels shall be accompanied by a manufacturer's data report that verifies its construction.

(q) All installations of new or used vessels may only be performed by installers licensed by the ~~division~~ section pursuant to Arkansas Code § 20-23-401, and the owner/user must also comply with Arkansas Code §§ 20-23-307, 20-23-308, and 20-23-309.

(r)(1) All new and used objects to be installed shall be properly identified.

(2) Each object shall have a legible nameplate installed.

(3) This nameplate data shall be furnished to the division with the request for installation permit.

(s) Should this subpart not cover needed areas of inspection, repairs, or other information which may be required, refer to other applicable rules herein.

20 CAR § 880-~~1306~~1206. Fees.

(a)(1) The ~~following fees for review by the~~owner/user self-inspection program ~~Boiler Inspection Division~~ shall be ~~paid~~ inspected and qualified by a state approved third-party inspection service or insurance inspector that is commissioned by the state and National Board of Boiler and Pressure Vessel Inspectors to perform these reviews before any owner/user self-inspection program will be recognized and issued a certificate by the ~~division~~Section~~:~~.

(2) All inspection and qualification documents shall be submitted to the Boiler Inspection Section at the time of application and updated annually at the time of certificate renewal.

~~(1) A full-day review, four hundred forty dollars ($440); or~~

~~(2) A half-day review, two hundred twenty dollars ($220).~~

(b) A copy of the inspection shall be submitted to the Department within thirty (30) days of completion of the inspection.~~Expenses shall be charged including mileage, meals, and lodging not to exceed the rate authorized by the General Assembly to employees of state agencies.~~

20 CAR § 880-~~1307~~1207. Revocation.

(a) A certificate received pursuant to this subpart will be automatically revoked if, for any reason, the owner/user's certification by the National Board of Boiler and Pressure Vessel Inspectors is revoked.

(b) If periodic inspections of pressure-retaining vessels are not performed in a timely manner, the owner/user may be subject to revocation of the license issued by the Boiler Inspection ~~Division~~Section.