Nebraska Administrative Code
Title 229 - Boiler Safety Code
Table of Contents

In July of 2019, the Boiler Inspection Program was transferred from the Nebraska Department of Labor to the Nebraska State Fire Marshal Agency. The Chapters that follow still reference the Nebraska Department of Labor and the Commissioner of Labor. These should be taken to mean the Nebraska State Fire Marshal Agency and the State Fire Marshal, respectively.

Click on the Chapter Number to Go to the Chapter's First Page

NEBRASKA ADMINISTRATIVE CODE

TITLE 229 - DEPARTMENT OF LABOR

CHAPTER 1 - DEFINITIONS

001. This chapter is adopted pursuant to *Neb. Rev. Stat.* §48-727.

002. Unless the context otherwise requires, the following definitions shall apply for purposes of this title.

ACCIDENT – means any undesired boiler or pressure vessel event that results in personal injury or property damage. This does not include events of routine nature due to the normal operation of a boiler or pressure vessel such as tube leaks, general leakage from the pressure boundary, corrosion, erosion, or other items that are typically associated with maintenance or repair.

ACT – means the Boiler Inspection Act *(Neb. Rev. Stat.* §§48-719 to 48-743).

ALTERATION – Any change in the item described on the original manufacturer's data report which affects the pressure-containing capability of the boiler or unfired pressure vessel. Nonphysical changes such as an increase in the maximum allowable working pressure (internal or external) or design temperature of a boiler or unfired pressure vessel shall be considered an alteration. A reduction in minimum temperature such that additional mechanical tests are required shall also be considered an alteration.

ANSI CODES - The codes of the American National Standard Institute, Inc., which are incorporated by reference in the Boiler Inspection Act at *Neb. Rev. Stat.* §48-727. A copy of the adopted codes is on file in the office of the Commissioner or the Commissioner's designee, and may be obtained from the American National Standards Institute at 11 West 42nd Street, New York, NY 10036.

ANTIQUE BOILERS - Any power steam boiler and other boilers of a historical nature, leisure or heritage value which are not in general use for profit. To include but not be limited to the following as determined by the Department; steam tractors, cranes, locomotives, trains, and steam powered objects.

API – The American Petroleum Institute.

API-510, Pressure Vessel Inspection Code - The code for maintenance inspection, repair, alteration and re-rating procedures for pressure vessels used by the petroleum and chemical process industries, and published by the American Petroleum Institute. The Code is incorporated by reference in the Boiler Inspection Act at *Neb. Rev. Stat.* §48-727. A copy of the code is on file in the office of the Commissioner or the Commissioner's designee and may be obtained from the American Petroleum Institute, 1220 L Street N.W., Washington, D.C. 20005-4070.

API/ASME CODE - refers to the Code for Unfired Pressure Vessels for Petroleum Liquids and Gases, used in conjunction with the ASME Code, as defined in these rules and regulations. This code existed from 1934 - 1956, and is no longer in use.

API CERTIFIED INSPECTOR - An inspector who is certified by the American Petroleum Institute to perform functions specified in API-510.

APPROVED – means approved by the Boiler Safety Code Advisory Board. The Boiler Safety Code Advisory Board, created pursuant to *Neb. Rev. Stat.* §48-739, shall hold hearings and advise the Commissioner on regulations for methods of testing equipment, the construction and installation of new boilers and pressure vessels required to be inspected by the Boiler Inspection Act, and for inspection and certificate fees for such boilers and pressure vessels.

ASME - The American Society of Mechanical Engineers.

ASME CODE - The American Society of Mechanical Engineers Boiler and Pressure Vessel Code. The Code is incorporated by reference in the Boiler Inspection Act at *Neb. Rev. Stat.* §48-727. A copy of the code is on file in the office of the Commissioner or the Commissioner's designee and may be obtained from said society at 345 East 47 Street, New York, New York 10017.

ASME CODE STAMPING

ASME Certification Mark – The standard stamp of the American Society of Mechanical Engineers that is to be applied to all boilers and pressure vessels constructed to the requirements of the ASME Code and certified on-or-after January 1, 2013. A Designator marking shall be applied below the ASME Certification Mark that indicates the appropriate ASME Code section used in construction and design of the item.

ASME Code Symbol Stamp – The stamping applied to an ASME Code boiler or pressure vessel certified prior to January 1, 2013. Each section of the ASME Code has a unique stamp that indicates the appropriate ASME Code section used in construction and design of the item.

References in this Code, NAC Title 229, to the ASME Certification Mark shall be taken to mean the ASME Code Symbol Stamp for those boilers certified prior to January 1, 2013.

ASME INTERNATIONAL - The American Society of Mechanical Engineers International, formerly known as the American Society of Mechanical Engineers (ASME). ASME International is located at 345 East 47 Street, New York, New York 10017.

AUTHORIZED INSPECTION AGENCY – means one of the following:

The Department of Labor, Office of Safety and Labor Standards, for the State of Nebraska.

An insurance company which has been licensed or registered by the appropriate authority of Nebraska to write and does write boiler and pressure vessel insurance, and to provide inspection service of boilers and pressure vessels in Nebraska and whose inspectors hold valid commissions issued by The National Board of Boiler and Pressure Vessel Inspectors.

A company that has been qualified as an Authorized Inspection Agency by The National Board of Boiler and Pressure Vessel Inspectors in accordance with NB-369, *Qualifications and Duties for Authorized Inspection Agencies (AIAs) Performing Inservice Inspection Activities and Qualifications for Inspectors of Boilers and Pressure Vessels,* and which has been approved by the appropriate authority of Nebraska to perform boiler and pressure

vessel inspections within the state, and whose inspectors hold valid commissions issued by The National Board of Boiler and Pressure Vessel Inspectors.

An owner-user inspection organization which has been approved by the State of Nebraska to provide inspection service of pressure vessels in the State and whose inspectors hold valid commissions issued by The National Board of Boiler and Pressure Vessel Inspectors, or whose inspectors are certified by the American Petroleum Institute.

BOILER - A closed vessel in which water or other liquid is heated, steam or vapor is generated, steam or vapor is superheated, or any combination thereof, under pressure or vacuum, for internal or external use to itself, by the direct application of heat and an unfired pressure vessel in which the pressure is obtained from an external source or by the application of heat from an indirect or direct source. The term boiler includes fired units for heating or vaporizing liquids other than water only when such unit is separate from processing systems and complete within itself. The term boiler also shall include the apparatus used by which heat is generated and all controls and safety devices associated with such apparatus or the closed vessels. The types of boilers included in these rules and regulations are as follows:

Power Boiler - A boiler in which steam or other vapor is generated at a pressure of more than 15 psig for use external to itself. ASME Code Symbol Stamps or Designators: A, S, M, E, PP.

High-Temperature Power Boiler - A boiler in which water or other fluid is heated and intended for operation at pressures in excess of 160 psig and/or temperatures in excess of 250 degrees Fahrenheit. This boiler bears the ASME Code Symbol Stamps or Designators: A, S, M, E, PP.

Low Pressure Heating Boilers for external space heating systems include the following:

A steam boiler operating at a pressure not exceeding 15 psig; or

Hot water heating boilers and hot water supply boilers operating at pressures not exceeding 160 psig and/or temperatures not exceeding 250°F.

A boiler with the ASME Code Symbol Stamps or Designators: H, HC, HA.

Electric Boiler - A power boiler or low pressure heating boiler in which the source of heat is electricity.

Miniature Boiler - A power boiler or high-temperature boiler which does not exceed the following limits:

- 16 inch inside diameter of shell;
- 20 square feet heating surface (not applicable to electric boilers);
- 5 cubic feet gross volume exclusive of casing and insulation;
- 100 psig maximum allowable working pressure.

This boiler bears the ASME Stamps or Designators: S, M, E

Portable Boiler - A power boiler or low-pressure heating boiler which is primarily intended for temporary location and the construction and usage permits it to be readily moved from one location to another.

Hot Water Supply Boiler - A low pressure heating boiler used to heat water for purposes other than space heating to be used externally to itself.

Heat Recovery Steam Generator - A power boiler comprised of a heat exchanger that uses a series of heat transfer sections (e.g. superheater, evaporator, and economizer) positioned in the exhaust gas flow of a combustion turbine to recover heat and supply a rated steam flow at a required temperature and pressure. This definition includes those boilers typically defined or referred to as Waste Heat Recovery Steam Generators.

Hobby Boiler - Any power steam boiler and other boilers of a historical nature, leisure or heritage value which are not in general use for profit. To include but not be limited to the following as determined by the Department; steam tractors, cranes, locomotives, trains, and steam powered objects.

Pool Healer - A boiler designed for heating nonpotable water stored at atmospheric pressure such as water in swimming pools, spas, hot tubs, and similar applications. ASME Code Symbol Stamps or Designators: H, HC, HA, HLW.

Water Heater - A closed vessel used to supply potable hot water external to itself which is heated by the combustion of fuels, electricity or any other source and withdrawn for use external to the system at pressures not exceeding 160 psig, and shall include all controls and devices necessary to prevent water temperatures from exceeding 210 degrees Fahrenheit. This boiler has the ASME Code Symbol Stamps and Designators: HLW

BOILER EXTERNAL PIPING – refers to all piping and components connected to a power boiler as defined in ASME B31.1 Power Piping and ASME Section I- Power Boilers.

BOILER NON-EXTERNAL PIPING - refers to all piping and components connected downstream of the boiler external piping as defined in ASME B31.1 - Power Piping.

BTU/HR - British thermal units per hour.

CERTIFICATE OF INSPECTION - An operating permit issued by the State of Nebraska following a satisfactory inspection that indicates the boiler or unfired pressure vessel complies with the Boiler Inspection Act and is permitted to operate.

COMMISSIONER - means the Commissioner of Labor for the State of Nebraska.

CONDEMNED BOILER OR PRESSURE VESSEL - A boiler or pressure vessel that has been inspected and declared unsafe or disqualified by legal requirements by an inspector, and a stamping or marking has been applied by the Chief or a Deputy Inspector designating its condemnation.

CORROSIVE SUBSTANCE - Any fluid that cause physical or chemical alteration of the pressure containing materials of a vessel.

DEPARTMENT - means the Department of Labor of the State of Nebraska.

DERATING - The derating of a boiler or unfired pressure vessel due to any change in the pressure retaining items as described in the original manufactures original data report such that the boiler or unfired pressure vessel cannot be operated within the pressure temperature limits of original design.

EXISTING INSTALLATION - Any boiler or unfired pressure vessel that was installed or within this state ready to be installed or has previously operated in this state prior to the effective date of the most recent amendments of this chapter.

EXTERNAL INSPECTION – means as reasonable an inspection as can be made of the external portions of a boiler or pressure vessel, ideally when the boiler or pressure vessel is in operation.

HAZARDOUS SUBSTANCE - Any fluid for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees, or any fluid that causes a sudden, almost instantaneous release of pressure, gas and heat when subjected to sudden shock, pressure or high temperature.

INSPECTOR – refers to the chief inspector, deputy inspector, ~~or~~ special inspector, or owner-user inspector, defined as follows:

CHIEF INSPECTOR - means the State Boiler Inspector, appointed by the Commissioner under the provisions of *Neb. Rev. Stat.* §48-721.

DEPUTY INSPECTOR - means the Deputy Boiler Inspector appointed by the Commissioner under the provisions of *Neb. Rev. Stat.* §48-721.

SPECIAL INSPECTOR - includes the following:

An inspector employed by an insurance company or Authorized Inspection Agency, which is authorized to insure or inspect boilers in the State of Nebraska, and who shall have been commissioned by the Commissioner. Such inspectors shall be commissioned by the Commissioner provided they hold valid commission from the National Board of Boiler and Pressure Vessel Inspectors; or,

An inspector employed by an Authorized Inspection Agency and is authorized to inspect boilers and pressure vessels during new construction in the field or at the place of manufacture, or to inspect boilers and pressure vessels during repair or alteration activities. Such inspectors shall be commissioned by the Commissioner provided they hold a valid commission with appropriate endorsements from the National Board of Boiler and Pressure Vessel Inspectors; or,

An inspector who holds a valid National Board Owner-User Commission who has passed the examination prescribed by the Board or is an API Certified Inspector under a jurisdictionally approved owner-user inspection organization.

INTERNAL INSPECTION – means as complete an examination as can reasonably be made of the internal and external surfaces of a boiler, or pressure vessel while it is shut down and while the manhole plates, handhole plates or other inspection opening closures are removed, as required by the inspector.

JURISDICTION – The State of Nebraska.

LETHAL SUBSTANCE - Poisonous gases or liquids (fluids) of such a nature that a very small amount of the gas or of the vapor of the liquid mixed or unmixed with air is dangerous to life when inhaled. For purposes of regulations, this definition includes substances of this nature which are stored under pressure or may generate a pressure if stored in a closed vessel. (Pressure vessels containing lethal substances shall be built in accordance with ASME Section VIII, Division I, UW-2.)

NATIONAL BOARD - The National Board of Boiler and Pressure Vessel Inspectors, (NBBI) 1055 Crupper Avenue, Columbus, Ohio 43229, whose membership is composed of the chief inspectors of jurisdictions who are charged with the enforcement of the provisions of a Boiler and Pressure Vessel Safety Act.

NATIONAL BOARD COMMISSION - A certificate issued by National Board to an individual who has passed the National Board examination, who holds a valid certificate of competency and who is regularly employed by an Authorized Inspection Agency.

NATIONAL BOARD COMMISSIONED INSPECTOR – refers to an individual who holds a valid Certificate of Competency to perform in-service, repair and alteration inspections as defined by the National Board Inspection Code; holds a National Board Commission; and is regularly employed as an inspector by an Authorized Inspection Agency.

NATIONAL BOARD INSPECTION CODE - The code for jurisdictional authorities, inspectors, users and organizations performing inspections, repairs and alterations to pressure retaining items at installations other than those covered by API-510 and API-570 unless the jurisdiction rules otherwise. The code is published by the National Board and is developed under procedures accredited as meeting the criteria for American National Standards. A copy of the code is on file in the office of the Commissioner or the Commissioner's designee and may be obtained from The National Board of Boiler & Pressure Vessel Inspectors, 1055 Crupper Ave., Columbus, OH 43229-1183. Interpretations of the NBIC can be used as issued unless there is a disagreement between the organization wishing to use the interpretation and the Authorized Inspection Agency. The Chief Boiler Inspector shall be contacted for resolution and acceptance of any interpretation when there is a disagreement between the organization wishing to use the interpretation and the Authorized Inspection Agency. The Chief Boiler Inspector shall also be contacted for the approval for use of any interpretation referencing an ASME Code Case.

NEBRASKA COMMISSION - A commission issued to Special Inspectors by the Commissioner to inspect in-service jurisdictional boilers and pressure vessels or to conduct repair, alteration or new construction inspections of boilers and pressure vessels in the State of Nebraska.

NEW BOILER INSTALLATION - means and includes all boilers contracted for, constructed, installed, and placed in operation after the effective date of the most recent amendment of this chapter, whether the boiler actually installed is new or used.

NFPA Codes - refers to the National Fire Protection Association Codes as published by the National Fire Protection Association. A copy of the adopted codes is on file in the office of the Commissioner or the Commissioner's designee and may be obtained from the NFPA at P.O. Box 9143, Quincy, MA 02169.

NPS - means Nominal Pipe Size.

ORIGINAL CODE OF CONSTRUCTION - Documents promulgated by recognized national standards-writing bodies that contain technical requirements for construction of pressure retaining items, or its equivalent, to which the pressure-retaining item was certified by the original manufacturer.

OWNER-USER – Any person, firm, or corporation legally responsible for the safe installation, operation, and maintenance of any boiler or pressure vessel within the jurisdiction.

OWNER-USER INSPECTION ORGANIZATION - An owner or user of pressure vessels who maintains a regularly established inspection department, quality control system, quality control manual and whose organization and inspection procedures meet the requirements of the National Board Inspection Code or API-510, as applicable and acceptable to the Boiler Safety Code Advisory Board.

OWNER-USER REPAIR ORGANIZATION - A repair organization as defined at section 3.16 of API-510 and approved by the jurisdiction or an owner-user repair organization approved under the National Board Inspection Code to work on pressure vessels owned or used by the owner-user organization.

PRESSURE VESSEL - A vessel in which the pressure is obtained from an external source, or by the application of heat from an indirect source, or from a direct source other than those boilers defined in this chapter. Pressure vessel shall include any part of the pressure vessel pressure boundary as identified on the Manufacturer's Data Report, original drawings, or as identified in the original code of construction. ASME Code Symbol Stamps or Designators: U, U2, U3.

P.S.I.G. or PSIG – means pounds per square inch gage.

REINSTALLED BOILER OR PRESSURE VESSEL - A boiler or pressure vessel removed from its original setting and reinstalled at the same location or at a new location without change of ownership.

RELIEF VALVE - A pressure relief valve actuated by inlet static pressure having a gradual lift generally proportional to the increase in pressure over opening pressure. It may be provided with an enclosed spring housing suitable for closed discharge system application and is primarily used for liquid service.

REPAIR – means the work necessary to restore a pressure retaining item to a safe and satisfactory operating condition.

REPAIR OF A PRESSURE RELIEF VALVE – The replacement, re-machining or cleaning of any critical part, lapping of seat and disk or any other operation which may affect the flow passage, capacity function or pressure retaining ability of the valve. Disassembly, reassembly and/or adjustments which affect the pressure relief valve function are also considered a repair.

REPLACEMENT COMPONENT – refers to the installation of renewal components, appurtenances and subassemblies or parts of a component or system not affecting existing design requirements.

SAFETY RELIEF VALVE - A pressure relief valve characterized by rapid opening or pop action, or by opening in proportion to the increase in pressure over opening pressure, depending on application.

SAFETY VALVE - A pressure relief valve actuated by inlet static pressure and characterized by rapid opening or pop action.

SECOND HAND BOILER OR PRESSURE VESSEL - A boiler or pressure vessel which has changed location and ownership since primary use.

STANDARD BOILER OR PRESSURE VESSEL - A boiler or pressure vessel which bears the stamp of this state, the ASME Certification Mark with Designator, a National Board stamps, or the stamp of another National Board Member jurisdiction which has adopted a standard of construction equivalent to that required by the Board.

NEBRASKA ADMINISTRATIVE CODE

TITLE 229 - DEPARTMENT OF LABOR

CHAPTER 2 - MINIMUM CONSTRUCTION STANDARDS FOR BOILERS AND PRESSURE VESSELS

001. This chapter is adopted pursuant to *Neb. Rev. Stat.* §§ 48-726 and 48-727.

002. A. All new boilers and hot water heaters, unless otherwise exempt, to be operated in this jurisdiction shall be designed, constructed, inspected, stamped and installed in accordance with the ASME Code and these rules and regulations. Boilers for which an ASME Manufacturer's Data Report is required shall bear the manufacturer's “NB" number as registered with the National Board. A copy of the Manufacturer's Data Report, signed by the manufacturer's representative and the National Board Commissioned authorized inspector, shall be filed with the National Board and with the chief inspector of the jurisdiction. A copy of the Manufacturers/Installing Contractor Report for ASME CSD-1 shall be filed with the chief inspector of the jurisdiction.

B. All new pressure vessels, unless otherwise exempt, to be operated in this jurisdiction shall be designed, constructed, inspected, stamped and installed in accordance with the ASME Code and these rules and regulations. Pressure vessels for which an ASME Manufacturer's Data Report is required shall bear the manufacturer's "NB" number as registered with the National Board. A copy of the Manufacturer’s Data Report, signed by the manufacturer's representative and the National Board Commissioned authorized inspector, shall be filed with the National Board. A copy of the ASME Manufacturer's Data Report, signed by the manufacturer's representative and the authorized inspector, shall be submitted to the chief inspector of the jurisdiction.

003. State Special - if, due to a valid impediment to compliance with the original code of construction, a boiler or pressure vessel cannot bear the required construction code and National Board stamping, details in the English language and United States customary units of the proposed construction, material specifications and calculations, approved by a registered professional engineer experienced in boiler and pressure vessels design, shall be submitted to the chief inspector by the owner or operator prior to the boiler or pressure vessel being installed in Nebraska. Approval as a "State Special" may be given where the chief inspector finds the boiler or pressure vessel to be in compliance with acceptable standards and approval is obtained from the Commissioner before construction or installation is started.

004. Before a secondhand boiler or pressure vessel is installed or reinstalled, application for permission to install it shall be filed by the owner or user with the chief inspector and his/her approval obtained.

005. Minimum clearance for pressure vessels at sides and back wall shall be three feet. Where a pressure vessel manufacturer identifies in the Installation Manual or any other document that the unit requires more than three feet clearance, those dimensions shall be followed. Pressure vessels having man ways shall have five feet of clearance between the man way opening and any wall, ceiling or piping that will prevent a person from entering the pressure vessel. Clearance in front of the pressure vessel shall be sufficient for operation, maintenance and repair but not less than three feet. The Chief Inspector may waive the minimum clearance requirements of this section if the following requirements have been met:

A. The installer of the pressure vessel shall make written request to, and obtain written approval from, the owner and the owner's insurance company or Authorized Inspection Agency to use the proposed minimum clearances; and

B. The installer shall make a written request to the Chief Inspector to use the agreed upon minimum clearances. This request shall include copies of the approvals noted in 229NAC005.A above; and

C. There remains adequate clearance for inspection, maintenance, operation and repair of the pressure vessel.

006. Minimum clearance at sides and back wall of boilers shall be three feet. Where a boiler manufacturer identifies in the Installation Manual or any other document that the unit requires more than three feet clearance, those dimensions shall be followed. Boiler manholes shall have five feet of clearance between the manhole opening and any wall, ceiling or piping that will prevent a person from entering the boiler. Clearance in front of the boiler shall be sufficient for operation, maintenance and repair but not less than three feet. The Chief Inspector may waive the minimum clearance requirements of this section if the following requirements have been met:

A. The installer of the boiler shall make written request to, and obtain written approval from, the owner and the owner's insurance company or Authorized Inspection Agency to use the proposed minimum clearances; and,

B. The installer shall make a written request to the Chief Inspector to use the agreed upon minimum clearances. This request shall include copies of the approvals noted in 229NAC005.A above; and,

C. There remains adequate clearance for inspection, maintenance, operation and repair of the boiler.

007. A. For all newly installed boilers built to ASME Section I, when the boiler is completed in the Manufacturer's shop without boiler external piping or the boiler external piping was not hydrostatically tested at the shop, subsequent hydrostatic testing of the boiler external piping shall be the responsibility of any holder of a valid ASME Certification Mark with the "S", "A", or "PP" designator. The hydrostatic test shall be conducted in accordance with the requirements of ASME Section I, PG-99.

B. All new field assembled boilers built to ASME Section IV that bear the "H" designator shall meet the requirements in ASME Section IV, HG-532 and HG-533. All field assembled Cast Iron boilers shall be hydrostatically tested in accordance with ASME Section IV, HC-410. This test shall be documented on the State of Nebraska NE-R-1 Report of Non-Welded Repairs and Hydrostatic Tests.

C. All boilers and pressure vessels that require further field fabrication of the pressure boundary parts by welding shall be completed, hydrostatically tested and certified in accordance with the original code of construction.

008. For purposes of *Neb. Rev. Stat*. §48-726, the application of heat from an indirect or direct source is not considered to include those processes that use ambient air or the natural environment.

009. Exemptions under *Neb. Rev. Stat.* §48-726 for:

A. Boilers of railway locomotives subject to federal inspection.

B. Boilers operated and regularly inspected by railway companies operating in interstate commerce.

C. Boilers under the jurisdiction and subject to regular periodic inspection by the United States Government. Pressure vessels used for transportation and storage of compressed or liquefied gases when constructed in compliance with specifications of the U.S. Department of Transportation or Food and Drug Administration and when charged with gas marked, maintained and periodically requalified for use, as required by appropriate regulations of the U.S. Department of Transportation or Food and Drug Administration are considered to be exempt from inspection under the Act under the exception provided for at *Neb. Rev. Stat*. §48-726(3).

D. Boilers used exclusively for agricultural purposes.

E. Steam heating boilers in single-family residences and apartment houses with four or less units using a pressure of less than fifteen pounds per square inch and having a safety valve set at not higher than fifteen pounds pressure per square inch.

F. Heating boilers using water in single-family residences and apartment houses with four or less units using a pressure of less than thirty pounds per square inch and having a safety valve set at not higher than thirty pounds pressure per square inch.

G. Fire engine boilers brought into the state for temporary use in times of emergency.

H. Boilers of a miniature locomotive or boat or tractor or stationary engine constructed and maintained as a hobby and not for commercial use and having a diameter of less than ten inches inside diameter and a grate area not in excess of one and one-half square feet and that are properly equipped with a safety valve.

I. Hot water supply boilers if none of the following limitations is exceeded:

(1) Two hundred thousand British thermal units of input;
(2) One hundred twenty gallons of nominal capacity; or
(3) two hundred ten degrees Fahrenheit output.

J. Unfired pressure vessels not exceeding

(1) Five cubic feet in volume; or
(2) A pressure of two hundred fifty pounds per square inch.

K. Unfired pressure vessels owned and maintained by a district or corporation organized under the provisions of Chapter 70, article 6.

L. Exemptions, as of September 4, 2005, for unfired pressure vessels

(1) Not exceeding a maximum allowable working pressure of five hundred pounds per square inch,

(2) That contain carbon dioxide, helium, oxygen, nitrogen, argon, hydroflourocarbon refrigerant, or any other nonflammable gas determined by the commissioner not to be a risk to the public,
(3) That are manufactured and repaired in accordance with applicable American Society of Mechanical Engineers standards, and
(4) That are installed in accordance with the manufacturer's specifications.

010. The following codes have been adopted:

A. The following sections of the 2015 Edition of the ASME Boiler and Pressure Vessel Code and any edition or addenda published by ASME on or before July 1, 2015:

(1) ASME Section I, Rules for Construction of Power Boilers;
(2) ASME Section II Part A, Ferrous material Specifications;
(3) ASME Section II Part B, Nonferrous Material Specifications;
(4) ASME Section II Part C, Specifications for Welding Rods, Electrodes, and Filler Metals;
(5) ASME Section II Part D, Properties;
(3) ASME Section IV Rules for Construction of Heating Boilers;
(4) ASME Section V Nondestructive Examination;
(5) ASME Section VI, Recommended Guidelines for the Care and Operation of Heating Boilers;
(6) ASME Section VII, Recommended Guidelines for the Care of Power Boilers;
(7) ASME Section VIII Division 1, Rules for the Construction of Pressure Vessels;
(8) ASME Section VIII Division 2, Alternative Rules for the Construction of Pressure Vessels;
(9) ASME Section VIII Division 3, Alternative Rules for the Construction of High Pressure Vessels;
(10) ASME Section IX, Welding and Brazing Qualifications;
(11) ASME Section X, Fiber-Reinforced Plastic Pressure Vessels; and
(12) ASME Section XII, Rules for Construction and Continued Service of Transport Tanks.

B. ASME CSD-1, Controls and Safety Devices for Automatically Fired Boilers, 2012 Edition and any edition or addenda published by ASME on or before July 1, 2012.

C. ASME B31.1, Power Piping, 2014 Edition and any edition or addenda published by ASME on or before July 1, 2014, or as referenced in Appendix A-360 of ASME Section I, Power Boilers.

D. ASME B31.3, Process Piping, 2012 Edition and any edition or addenda published by ASME on or before July 1, 2012.

E. ASME B31.4, Pipeline Transportation Systems for Liquids and Slurries, 2012 Edition and any edition or addenda published by ASME on or before July 1, 2012.

F. ASME B31.5, Refrigeration Piping and Heat Transfer Components, 2010 Edition and any edition or addenda published by ASME on or before July 1, 2010.

G. ASME B31.8, Gas Transmission and Distribution piping Systems, 2010 Edition and any edition or addenda published by ASME on or before July 1, 2010.

H. ASME B31.9, Building Services Ppiping, 2011 Edition and any edition or addenda published by ASME on or before July 1, 2011.

I. National Board Inspection Code. 2015 Edition and any edition or addenda published on or before July 1, 2015.

J. The following NFPA Codes published on or before July 1, 2013:

(1) NFPA-30, Flammable and Combustible Liquids Code, 2012 Edition;
(2) NFPA-31, Standard for the Installation of Oil Burning Equipment, 2011 Edition;
(3) NFPA-54, National Fuel Gas Code, 2012 Edition;
(4) NFPA-55, Compressed and Gases and Cryogenic Fluids Code, 2013 Edition;
(5) NFPA-58, Liquefied Petroleum Gas Code, 2011 Edition; and
(6) NFPA-85, Boiler and Combustion Systems Hazards Code, 2011 Edition.

K. The following API Codes, published on or before July 1, 2009.

(1) API-510- Pressure Vessel Inspection Code, Ninth Edition and any edition or Addendum published on or before July 1, 2009; and .
(2) API-579, Fitness for Service, Second Edition and any Edition or Addendum published on or before July 1, 2009.

L. Any additional codes referenced in the codes that have been adopted.

011. ASME Code Cases and Interpretations

A. Proposed Code Cases to the ASME Boiler & Pressure Vessel Code Sections will be reviewed by the chief inspector. If during the review he/she determines that the proposed Code Case does not meet the safety requirements outlined in the Nebraska Boiler Inspection act, he/she shall forward the proposed Code Case to the Boiler Safety Code Advisory Board for review and their recommendation. The Boiler Safety Code Advisory Board's recommendation will be forwarded to the Commissioner of Labor for final approval. If the Commissioner of Labor determines that the proposed Code Case will not be allowed to be used in the construction of boilers or pressure vessels to be installed in the state, he/she shall post a notice on the agency web site. Unless otherwise noted, Code Cases issued by ASME can be used upon their approval by the ASME Boiler and Pressure Vessel Committee.

B. Interpretations of the ASME Code can be used as issued unless there is a disagreement in the applicability between the manufacturer and the Authorized Inspection Agency. The chief inspector shall be contacted for resolution and acceptance of any interpretation when there is a disagreement between the manufacturer and the inspection agency.

C. The chief inspector shall use the latest edition or any previous edition/addenda, including previous interpretations, of the ASME code, ANSI codes, or other such standards or publications for guidance in making a determination if a question arises in the use of a Code Case or an ASME interpretation. If a resolution cannot be found, the Boiler Safety Code Advisory Board shall be contacted for a recommendation and forwarded to the Commissioner of Labor for a final resolution.

012. All newly constructed units to be installed in the State of Nebraska shall be built to the appropriate Edition of the ASME Boiler and Pressure Vessel Code. All documentation, including the Manufacturers' Data Report, data plates, drawings, parts lists, Installation Manuals, Operating Manuals and all other documentation supplied for the unit shall be in English and all measurements shall be in U.S. customary units indicating inches, feet, pounds per square inch, etc. All pressure

gauges, thermometers and other controls and safety devices shall also be provided in U.S. customary units.

013. All power boiler external and non-boiler external piping shall meet the requirements of ASME B31.1 Power Piping. All other boiler or pressure vessel piping shall meet the requirements of the applicable piping codes.

014. Effective January 1, 2006 the installation of boilers in new buildings, when there is a structural renovation of over 50% of an existing boiler room, or replacement of equipment in the room, shall meet the installation requirements outlined in Part 1 of the National Board Inspection Code. If the new installation cannot meet the requirements outlined in the NBIC, the chief inspector shall be notified prior to the installation of a new unit to request a variance from the requirements. The request shall detail the problem on what conditions cannot be met and any drawings or other documentation outlining the conditions shall be provided so that a solution to the conditions can be made.

015. Combustion air and dilution air shall meet the requirements of NFPA-31, NFPA-54 or NFPA-58 as appropriate. Engineered installations shall be approved by the Chief Inspector.

016. Effective January 1, 2007 new boiler rooms shall meet the requirements of the building and mechanical codes adopted by the local jurisdiction. Where there is no local jurisdiction or the local jurisdiction has not adopted a building or mechanical code, the requirements of the International Building and Mechanical Codes should be used as a guide.

NEBRASKA ADMINISTRATIVE CODE

TITLE 229 - DEPARTMENT OF LABOR

CHAPTER 3 - NOTICE OF INSTALLATION OF BOILERS AND PRESSURE VESSELS

001. This chapter is adopted pursuant to *Neb. Rev. Stat.* §48-727.

002. Owners, users and lessees of all jurisdictional boilers and pressure vessels now in use or installed ready for use in the state of Nebraska, shall report to the Commissioner, giving the location, type, capacity, age, and date of installation of the boiler or pressure vessel. Such boilers and pressure vessels shall be designed and certified per applicable ASME codes, or they shall have equivalent safety measures consistent with codes recognized in *Neb. Rev. Stat.* §48-727 of the Boiler Inspection Act to obtain a~~n~~ Certificate of Inspection.

003. At least ten days prior to the installation, construction, or operation of any new, used, or reinstalled jurisdictional boiler or pressure vessel, the contractor, person, or entity responsible for installing or constructing the boiler or pressure vessel shall give notice of the proposed installation to the Commissioner using the electronic/on-line form provided on the Department's website. The notice shall designate the proposed place and date of installation, the type and capacity of the boiler or pressure vessel, the use to be made of the boiler or pressure vessel, the name of the company which manufactured the boiler or pressure vessel, and whether the boiler or pressure vessel is new or used or being reinstalled. Any inspection of a new installation for which notice was not given to the Commissioner in accordance with this chapter and *Neb. Rev. Stat.* §48-730 shall be deemed a special inspection under 229 NAC 7 §005(A)(2); except that if the installation was done as a part of a repair process and written notice was given to the Commissioner prior to actual installation, the inspection shall not be considered a special inspection under 229 NAC 7 §005(A)(2).

004. All new installations of boilers, water heaters or pressure vessels shall be inspected by the state chief boiler inspector or a deputy state boiler inspector prior to operation of the unit.

005. If an owner or user enters into a contract with an installer and in that contract the installer is responsible for all inspection, permit or other fees, a copy of that contract shall be given to the state boiler inspector at the time of the initial inspection of the unit.

NEBRASKA ADMINISTRATIVE CODE

TITLE 229 - DEPARTMENT OF LABOR

CHAPTER 4 - GENERAL REQUIREMENTS FOR BOILERS AND PRESSURE VESSELS

001. This chapter is adopted pursuant to *Neb. Rev. Stat.* §48-727.

002. Any required safety appliance shall not be removed or tampered with except for the purpose of repair or inspection.

003. Where pressure reducing valves are used in a system, the following requirements shall be met:

A. If the piping equipment on the low pressure side has not been designed for the full initial pressure, one or more relief or safety valves shall be provided on the low pressure side of the reducing valve;

1. The relief or safety valves shall be located, adjoining, or as close as possible to the reducing valve. Proper protection shall be provided to prevent injury or damage caused by the escaping fluid from the discharge of relief or safety valves that are vented to the atmosphere.

2. The set point, in PSI, shall be no higher than the design pressure of the system on the low pressure side of the reducing valve.

B. If a bypass is used around the reducing valve, a safety valve is required on the low pressure side and shall be of sufficient capacity to relieve all the fluid that can pass through the bypass without over pressuring the low pressure side.

C. The combined discharge capacity of the relief valves or safety valves shall be such that the pressure rating of the lower pressure piping shall not be exceeded in case the reducing valve sticks open.

D. A pressure gauge shall be installed on the low pressure side of a reducing valve.

004. The blowdown from a boiler that enters a sanitary sewer system or which is considered a hazard to life or property, shall pass through proper blowoff equipment that will reduce pressure and temperature. The temperature of the fluid leaving the blowoff equipment shall be in accordance with local codes, but in all cases shall not exceed 150 degrees Fahrenheit and the pressure shall not exceed five pounds per square inch. The blowoff piping and fittings between the boiler and the blowoff tank shall comply with the ASME Code B31.1.

005. The discharge from safety valves, safety relief valves, blowoff pipes and other hazardous fluid outlets shall be so arranged that there will be no danger of injury to personnel. When the safety valve or temperature/pressure relief valve discharge is piped away from the boiler to the point of discharge, there shall be provisions made for properly draining the piping. The size and arrangement of discharge piping shall be such that any pressure that may exist or develop, will not reduce the relieving capacity of the relieving devices below that capacity required to protect the boiler or pressure vessel. Manifolding of discharges from multiple boilers or pressure vessels having different maximum allowable working pressures is not permitted unless verification, including design calculations and component specification, have been approved in advance by the person or entity who will perform the hydrostatic test and certification required in 229 NAC 2, §007. All safety or safety relief valves or pressure relief devices shall have a discharge pipe installed and is directed to a floor drain or other suitable and safe point of discharge. Such discharge piping shall be made of a metal or metal alloy that is capable of withstanding the forces, pressure, and temperature that exist when the valve to which it is attached is in operation.

006. For electric steam generators - a cable at least as large as one of the incoming power lines to the generator shall be permanently fastened to, and provide grounding of the generator shell.

A. A suitable screen or guard shall be provided around high tension electrical bushings and a sign shall be posted warning of high voltage. 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 voltage circuits.

B. All electrically heated boilers shall meet the applicable standards of, and be approved by, Underwriters' Laboratories, Inc.

007. All repairs and alterations must comply with the rules as defined in 229 NAC 15.

A. All welded repairs to jurisdictional boilers and pressure vessels shall be performed by an organization holding the applicable "R" stamp issued by the National Board, except that in the case of pressure vessels installed at an API-510 owner-user facility, the repair may be performed by a repair organization as defined in section 3.16 of API-510. All repairs require prior notification and approval of a commissioned inspector. The use of pre-approved routine repair procedures shall be handled as described in 229 NAC 15. All repairs shall conform to the edition of the NBIC or API-510 as required by 229 NAC 02.

B. The organization performing the repair or alteration shall be responsible for preparation, certification and distribution of the appropriate NBIC form or its equivalent under API-510. This form shall be filed with the Chief Boiler Inspector and with the National Board, if so required.

008. All boilers and pressure vessels shall be located so that adequate space is provided for the proper operation of the boiler or pressure vessel and its appurtenances, inspection, and necessary maintenance and repair.

009. Ladders and walkways or runways shall be provided between or over the top of boilers which are more than eight feet above the operating floor to afford accessibility for operation, maintenance and inspection.

A. All walkways, runways, and platforms shall be OSHA compliant and shall:

(1) Be of metal construction;
(2) Be constructed of safety treads, standard grating, or similar material and have a minimum width of 30 inches;

(3) Be of bolted, welded or riveted construction;
(4) Be equipped with handrails 42 inches high with an intermediate rail and 4 inch toe board; and
(5) Have gates or chains installed at entries and exits to the platform to reduce risk of falls.

B. Stairways which serve as a means of access to walkways, runways or platforms shall not exceed an angle of 45 degrees from the horizontal and be equipped with handrails 42 inches high with an intermediate rail.

C. Ladders which serve as a means of access to walkways, runways, or platforms shall:

(1) Be of metal construction and not less than 18 inches wide;
(2) Have rungs that extend through the side members and are permanently secured;
(3) Have a clearance of not less than 30 inches from the front of the rungs to the nearest permanent object on the climbing side of the ladder;
(4) Have a clearance of not less than 6-1/2 inches from the back of the rungs to the nearest permanent object; and
(5) Have a clearance width of at least 15 inches from the center of the ladder on either side across the front of the ladder.

D. There shall be at least two permanently installed means of egress from walkways, runways, or platforms that exceed six feet in length.

010. All boiler rooms exceeding five hundred square feet of floor area and containing one (1) or more gas fired objects having a fuel burning capacity in excess of 400,000 Btu/hr shall have two (2) means of exit.

011. A permanent source of outside air shall be provided for each boiler room to permit satisfactory combustion of the fuel as well as proper ventilation of the boiler room under normal operating conditions. The total air input required for all fuel burning equipment installed in the room, including non-jurisdictional, fired units, shall be used in determining the net intake area required. The requirements outlined in the following manuals or codes shall be used to determine the air and opening size required:

A. The boiler or water heater manufacturer's installation and operating manual;

B. NFPA-54, National Fuel Gas Code;

C. NFPA-85;

D. NFPA-58, LP-Gas Code; and

E. NFPA-31, Standard for the Installation of Oil Burning Equipment.

012. All boiler rooms exceeding five hundred square feet floor area and containing one (1) or more gas fired objects having a fuel burning capacity in excess of 400,000 Btu/hr shall have two (2) means of exit.

Condensate return tanks shall be equipped with at least two (2) vents or a vent and overflow pipe to protect against a loose float plugging a single connection.

013. If a boiler or pressure vessel has not been properly prepared for inspection as defined in 229 NAC 6 and/or as requested by the Inspector, the Inspector shall decline to make such inspection until the item has been properly prepared.

014. The applicable code of construction, or the appropriate API, ANSI, or NFPA code shall apply to all conditions not covered by these rules and regulations.

015. Whenever repairs are made to fittings and appliances or it becomes necessary to replace them, the work must comply with the requirements of the applicable construction code, the National Board Inspection Code and API-510 as appropriate for boilers and pressure vessels. For boilers that have control systems that are required to meet the rules of ASME CSD-1, when components of the control systems are repaired or replaced, the replacements and the affected part of the control system must meet the most current state adopted edition of ASME CSD-1 that is listed in 229 NAC 2 (010). For boilers that have control systems that were required to meet the rules of NFPA 8501, 8502, 8503, 8504, 8505, or 8506, when components of the control systems are repaired or replaced, the replacements and the affected part of the control system must meet the most current state adopted edition of NFPA 85 that is listed in 229 NAC 2 (010). If a part is replaced with a part that is like for like in make, model and specifications, an upgrade to the latest adopted edition/addenda of the applicable code is not required. If a part is replaced that is not like for like, that section of the control system shall be upgraded to the latest edition/addenda of the applicable code for the controls. When a fuel train is upgraded or replaced, the required emergency shutdown switch(s) shall be installed and the complete fuel train shall meet the latest adopted edition/addenda of the appropriate code. If there are any questions as to the need and extent of the upgrade, a detailed plan shall be submitted to the Chief Boiler Inspector outlining the make, model, and specifications of the component being removed and the make, model and specifications of the intended replacement part and any other necessary information to determine the need for an upgrade. This plan shall include which standards the component or portion of the system is designed and constructed to meet.

016. Special requirements for hydronic (glycol) heating systems.

A. Systems where there is a possibility of contamination between the potable water system and the heating system shall be protected in accordance with state and local codes. Where there are no local codes, the International Plumbing and Mechanical Codes should be used as a reference for the protection of the potable water system.

B. All boilers supplying the heating system shall have safety controls to protect against a low water condition. The controls shall shut down the boiler and require a manual restart. The controls shall be installed and meet the requirements of ASME CSD-1, Part CW for the specific type of boiler.

C. A means shall be provided to refill the hydronic heating system. This means can either fill the system while in operation or require a shutdown prior to filling.

D. The discharge from the boiler safety relief valve and the boiler drains shall be piped to an atmospheric collection tank. The ends of the piping shall be visible to determine if a safety relief valve or drain valve is leaking past the seat. Certain types of glycol require a special permit for discharge to a city sewer system.

The requirement for an atmospheric collection tank may be waived provided the owner or installer provides documentation to the Chief Boiler Inspector that the municipality has approved the discharge of the glycol mixture to the sewer system. This documentation shall include the type of glycol to be used, its concentration in the system, and a signature and title of the approving authority.

E. Hydronic piping systems shall be designed and installed to permit the system to be drained. Where the system drains to the plumbing drainage system, the installation shall conform to the local codes. Where there are no local codes the International Plumbing and Mechanical Codes should be used as a reference.

F. The boiler shall have isolation valves on the inlet and outlet piping.

G. All boilers used in hydronic heating systems shall meet the requirements of ASME Section IV, Part HG, and shall be stamped with the ASME Certification Mark with the "H" Designator. Units with the ASME Certification Mark with the "HLW" Designator or items certified as meeting the requirements of ANSI Z21.10.3 shall not be used in hydronic heating systems.

H. Records shall be maintained and available to the inspector that show the required glycol concentration, the results of all tests performed to ensure the concentration percentage is being maintained and the addition of glycol to the system.

NEBRASKA ADMINISTRATIVE CODE

TITLE 229 - DEPARTMENT OF LABOR

CHAPTER 5 - FREQUENCY OF INSPECTIONS OF BOILERS AND PRESSURE VESSELS

001. This chapter is adopted pursuant to *Neb. Rev. Stat.* §§48-726 and 48-727.

002. Unless otherwise noted, all jurisdictional boilers except hobby boilers, steam farm traction engines, portable and stationary show engines, and portable and stationary show boilers shall receive an annual certificate inspection. Hobby boilers, steam farm traction engines, portable and stationary show engines, and stationary and portable show boilers shall be inspected externally every two years and internally every four years.

A. Power boilers, waste heat recovery steam generators, and high-pressure, high-temperature water boilers shall receive an internal and external inspection annually where construction permits. The external inspection should be conducted while the unit is in operation if possible. If this is not possible, the external inspection shall be as complete an inspection as possible, and shall include a review of operating logs, maintenance records and other documentation in order to determine the safety of the unit.

B. With the chief boiler inspector's approval, the following shall receive an external inspection annually while in operation, in order to have their Certificates renewed, and shall also receive an internal inspection every two years:

(1) power boilers;

(2) waste heat recovery steam generators; and

(3) high-pressure, high-temperature water boilers that have internal continuous water treatment, under the direct supervision of a graduate chemical engineer, or under the direct supervision of a person having a minimum of five years supervisory experience and formal training in the treatment of boiler water.

Accurate records of boiler water chemistry shall be kept and made available for review by the inspector.

C. Low pressure boilers shall be inspected as follows:

(1) Steam or vapor boilers shall receive an external inspection annually in order to have their Certificates renewed. They shall also receive an internal inspection every two years, where construction permits.

(2) With the chief inspectors approval, steam or vapor boilers which have internal continuous water treatment under the direct supervision of a graduate chemical engineer or under the direct supervision of a person having a minimum of five years supervisory experience and formal training in the treatment of boiler water, shall receive an external inspection annually in order to have their Certificates renewed. They shall also receive an internal inspection every four years. Accurate records of boiler water chemistry shall be kept and made available for review by the inspector.

(3) Hot water heating boilers, and hot water supply boilers shall receive an external inspection annually in order to have their Certificate renewed. Boilers stamped with the ASME Certification Mark with the "H" designator shall receive an internal inspection every four (4) years from the date of manufacturer's completion. Existing units that are not ASME code symbol stamped but are listed as meeting ANSI Z21.10.13 standards shall receive an internal inspection every five years. Units listed as meeting ANSI Z21.13 standards shall receive an internal inspection every four years.

(4) Effective August 30, 2009, all newly installed Water Heaters stamped with the ASME Certification Mark with the "HLW" designator shall be inspected externally at least every 24 months while in operation, in order to have their Certificates renewed. Where construction permits, these units shall receive an internal inspection at the inspector’s discretion but not to exceed every six (6) years from the date of manufacturer's completion.

(5) All existing water heaters shall be inspected externally on an annual~~ly~~ basis in order to have their Certificates renewed. Where construction permits, they shall be inspected internally every five years from the date of manufacturer's completion. Existing water heaters may be placed on the inspection frequency noted in (3) above upon written request by the Commissioned Inspector responsible for the in-service inspection. This request shall be made on the Inspection Report submitted for renewal of the Certificate of Inspection for the object.

003. A. Except as provided in subsection (C) and (D) of this section and §005 of this chapter, pressure vessels subject to internal corrosion shall be inspected internally and externally every two years.

B. Except as provided in subsections (C) and (D) of this section and §005 of this chapter, pressure vessels not subject to corrosion shall receive an external inspection every two years.

C. Except as provided in subsection (D) of this section and §005 of this chapter, pressure vessels subject to internal corrosion or which contain hazardous or lethal fluids shall receive an internal inspection biennially where construction permits. Alternatively, meaningful and appropriate NDE may be performed at the inspector's discretion to determine the rate of deterioration. For those vessels whose deterioration rate has been determined, at the inspector's discretion, and with the approval of the Commissioner, the requirement for a biennial internal inspection may be extended, but in no case shall this period exceed 5 years. Pressure vessels not subject to internal corrosion shall be inspected internally, where construction permits, every 5 years. If the opening of the pressure vessel would damage internal catalysts or other devices, the inspector may, with the permission of the Commissioner, defer the internal inspection until the next date that the catalyst or other internal device is repaired or replaced, provided that no pressure vessel shall go more than fifteen years without an internal inspection.

D. Unfired pressure vessels under the supervision of an owner-user inspection organization shall be inspected at intervals required by these regulations and the National Board Inspection Code, or API-510, as applicable.

004. Deficiencies and conditions

A. Where, in the opinion of the inspector, as the result of condition disclosed at the time of inspection, it may be necessary to remove interior or exterior lining, covering or brickwork to expose certain parts of the boiler or pressure vessel not normally visible, the owner or user shall remove such material to permit proper inspection and to determine remaining thickness.

B. If, upon an external inspection, there is evidence of a leak or crack, sufficient covering of the boiler or pressure vessel shall be removed to permit the inspector to satisfactorily determine the safety of the boiler or pressure vessel.

C. Records shall be maintained by the boiler or pressure vessel owner and shall be available for review by the inspector. Records shall show the following:

(1) The dates and times that the boiler or pressure vessel has been taken out of service and the reasons therefore; and,

(2) Daily analysis of water samples that adequately shows the conditions of the water and elements or characteristics which are capable of producing corrosion or other deterioration to the boiler or pressure vessel, or its parts.

D. When as a result of external inspection or determination by other objective means, it is the inspector's opinion that continued operation of the boiler or pressure vessel constitutes a menace to public safety, the inspector may request an internal inspection or an appropriate pressure test or both to evaluate conditions. In such instances, the owner or user shall prepare the boiler or pressure vessel for such inspections or tests as the inspector may designate.

005. Waivers of Inspection

A. An owner or user of an unfired pressure vessel may apply for a waiver of inspection of unfired pressure vessels owned or used by such owner or user.

B. Such application shall be accompanied by a registration fee of $50.00 plus $30.00 per pressure vessel for which a waiver is sought, except that in the event that such pressure vessel has a current certificate of inspection on file with the chief inspector, no additional fee shall be required.

C. The commissioner may issue such a waiver upon a finding that:

(1) (a) the owner or user is an owner-user inspection organization,

(b) the pressure vessel will be inspected by an owner-user inspection organization in accordance with the National Board Inspection Code or API-510 as may be applicable; and

(c) all repairs on the pressure vessels for which a waiver is sought will be made in accordance with the National Board Inspection Code or API-510 as may be applicable; or

(2) upon a finding that nationally recognized inspection standards other than the National Board Inspection Code or API-510 are utilized in regard to said pressure vessels, so long as said national standards require that periodic inspection and maintenance of the pressure vessels in a manner which will protect the public safety to a degree substantially similar to that provided under the National Board Inspection Code or API-510.

D. Any organization applying for a waiver of inspection shall maintain records of inspections and repairs of pressure vessels for which a waiver is sought.

E. The owner-user shall notify the chief inspector of any unfired pressure vessels that have been purchased, sold, destroyed or removed from any further use by the owner-user.

F. The owner-user shall be subject to periodic audit by the chief inspector to ensure compliance with the Act and this title.

G. The chief inspector may revoke a waiver of inspection for all unfired pressure vessels owned or used by an owner or user upon a finding that the owner-user has failed to inspect and repair such unfired pressure vessels in accordance with the requirements of this title or to keep records sufficient to establish that said inspections and repairs were performed in accordance with this title.

H. The chief inspector may revoke the waiver of inspection for all unfired pressure vessels owned or used by an owner or user upon a finding that the owner-user has repeatedly failed to register new or used jurisdictional pressure vessels purchased or brought into the state of Nebraska or to notify the chief inspector of pressure vessels which have been sold, destroyed or removed from any further use by the owner-user.

006. Inspections shall be conducted in accordance with the requirements of these rules and the requirements of Part *2* of the National Board Inspection Code.

007. All personnel conducting internal inspections where entry into a boiler or pressure vessel is classified as entry into a confined space by OSHA 1910.146 shall follow the requirements outlined in OSHA 1910.146, the specific plant site confined space program and/or the inspector’s employer's confined space program, for entry into the boiler or pressure vessel. If no confined space entry programs or procedures are available, the inspector shall not enter into any confined space for the purpose of conducting internal inspections of boilers or pressure vessels. When this is the case, the internal inspection shall be as complete as possible, and the conditions prohibiting entry shall be noted on the inspection report submitted to the state.

NEBRASKA ADMINISTRATIVE CODE

TITLE 229 - DEPARTMENT OF LABOR

CHAPTER 6 - NOTIFICATION FOR INSPECTION

001. This chapter is adopted pursuant to *Neb. Rev. Stat.* §48-727.

002. An inspection required under the Act or this Title shall be carried out prior to the expiration date of the Certificate of Inspection, unless an extension is approved. The inspection shall be scheduled at a time mutually agreed upon by the Chief Boiler Inspector, the Special Inspector and owner or user. The required Certificate renewal inspection shall be made no earlier than sixty calendar days prior to the expiration date on the Certificate of Inspection. After the required Certificate inspection is performed, if an owner, user or inspector desires a change in the Certificate expiration date, either to have the certificate expire at an earlier or later date, the request shall be submitted in writing to the Chief Boiler Inspector. The written request may be either on the inspection form submitted by the inspector, by letter from the owner, user or inspector to the Chief Boiler Inspector, or by e-mail to the Chief Boiler Inspector from the owner or user. The Chief Boiler Inspector shall inform all parties concerned of the new Certificate expiration date, or, if the request has been denied, of the reason why the Certificate expiration date was not changed. The certificate fee will be charged as outlined in 229 NAC 7.

NEBRASKA ADMINISTRATIVE CODE

TITLE 229 - DEPARTMENT OF LABOR

CHAPTER 7 - INSPECTION AND CERTIFICATE FEES

001. This chapter is adopted pursuant to *Neb. Rev. Stat.* §§48-724, 48-727 and 48-733.

002. The fees for inspection and/or for Certificate of Inspection as required by *Neb. Rev. Stat.* §§48-724, and 48-733 and sections of this chapter shall be paid directly to the Department, by the owner or user before a Certificate of Inspection shall be issued.

003. If the owner or user of any boiler or pressure vessel required to be inspected under this Act by the Department refuses to allow a boiler or pressure vessel to be inspected, then such boiler or pressure vessel shall not be operated until after a valid inspection has been made by either the chief inspector, deputy inspector or special inspector.

004. If the owner or user of any boiler or pressure vessel required to be inspected under the Boiler Inspection Act by the Department refuses to pay the inspection fee or Certificate of Inspection fee provided for in *Neb. Rev. Stat.* §§48-724, and 48-733 and this title, then such boiler's or pressure vessel's Certificate of Inspection shall be revoked. Any boiler or pressure vessel that has had its Certificate of Inspection revoked for the reason described above, shall not be operated until after the fees have been paid.

005. A. Schedule of fees - The owner or user of a boiler required to be inspected under the Boiler Inspection Act shall pay for each boiler inspected by the chief boiler inspector, or a deputy boiler inspector in accordance with the following schedule:

(1) For all inspections performed on or before June 30, 2014 and on or after July 1, 2015 on boilers, high-temperature water boilers, low pressure steam boilers, hot water heating and supply boilers and hot water heaters:

Capacity	Internal fee	External fee
Objects of 800,000 btu/hr rated capacity or less	$25.00	$25.00
Objects over 800,000 btu/hr rated capacity and less 1,600,000 btu/hr rated capacity	$45.00	$45.00
Objects of 1,600,000 btu/hr rated capacity or more and less than 3,200,000 btu/hr rated capacity	$90.00	$45.00
Objects of 3,200,000 btu/hr rated capacity or more and less than 8,000,000 btu/hr rated capacity	$130.00	$65.00
Objects of 8.000,000 btu/hr rated capacity or more	$170.00	$85.00

(2) For all inspections performed on or between July 1, 2014 and June 30, 2015 on boilers, high-temperature water boilers, low pressure steam boilers, hot water heating and supply boilers and hot water heaters:

Capacity	Internal fee	External fee
Objects of 800,000 btu/hr rated capacity or less	$12.50	$12.50
Objects over 800,000 btu/hr rated capacity and less 1,600,000 btu/hr rated capacity	$22.50	$22.50
Objects of 1,600,000 btu/hr rated capacity or more and less than 3,200,000 btu/hr rated capacity	$45.00	$22.50
Objects of 3,200,000 btu/hr rated capacity or more and less than 8,000,000 btu/hr rated capacity	$65.00	$32.50
Objects of 8.000,000 btu/hr rated capacity or more	$85.00	$42.50

(3) All other inspections, including shop inspections, special inspections, inspections of secondhand or used boilers or pressure vessels for the purpose of determining the usability of a secondhand boiler or pressure vessel, or when it is necessary for the chief or deputy boiler inspector to make a special trip to witness the application of a pressure test, shall be charged for at the following rates:

- for inspections performed on or before June 30, 2014 and on or after July 1, 2015 - $200 for one half day of four hours or any portion thereof, or $400 for one full day at four to eight hours;

- for inspections performed on or between July 1, 2014 and June 30, 2015 - $100 for one half day of four hours or any portion thereof, or $200 for one full day at four to eight hours.

B. If, after inspection, a boiler or water heater is found to be suitable and to conform with Title 229, the owner or operator shall, upon payment of a Certificate of Inspection fee, be issued a Certificate of Inspection for such boiler or water heater.

- For inspections performed on or before June 30, 2014 and on or after July 1, 2015 - the Certificate of Inspection fee is charged, based upon $3.00 per month for the term of the Certificate of Inspection;

- for inspections performed on or between July 1, 2014 and June 30, 2015 - the Certificate of Inspection fee is charged, based upon $1.50 per month for the term of the Certificate of Inspection.

006. A. Fees for pressure vessels inspected by the Chief Boiler Inspector or a deputy boiler inspector shall be based on the maximum length of the vessel times the maximum width or diameter thereof in feet. (Example: LxW = 10 ft x 5 ft = 50 sq ft = $25.00). Formula taken from NB-132.

Certificate Inspections, Internal or External:

(1) Each pressure vessel subject to inspection having a product, as determined above, of 50 sq. ft. or less shall be charged at the following rates:

- for inspections performed on or before June 30, 2014 and on or after July 1, 2015 - $25.00 per vessel;

- for inspections performed on or between July 1, 2014 and June 30, 2015 - $12.50 per vessel.

(2) For each additional 100 sq. ft., or portions thereof, of an area in excess of 50 sq. ft. an additional inspection fee shall be charged as follows:

- for inspections performed on or before June 30, 2014 and on or after July 1, 2015 an additional $10.00 per 100 sq. ft., or portion thereof;

- for inspections performed on or between July 1, 2014 and June 30, 2015 an additional $5.00 per 100 sq. ft., or portion thereof.

(3) For inspections performed on or before June 30, 2014 and on or after July 1, 2015, the total inspection fee for any one pressure vessel shall not exceed $55.00. For inspections performed on or between July 1, 2014 and June 30, 2015, the total inspection fee for any one pressure vessel shall not exceed $27.50. A group of pressure vessels, such as the rolls of a paper machine or dryer operating as a single machine or unit, shall be considered as one pressure vessel. Not more than one fee shall be charged or collected for any and all inspections as above of any pressure vessels in any required inspection period except as provided in §005 A (2) of this chapter.

B. If, after inspection, a pressure vessel is found to be suitable and to conform with Title 229, the owner or operator shall, upon payment of a Certificate of Inspection fee, be issued a Certificate of Inspection for such pressure vessel. The Certificate of Inspection fee is charged based upon $1.50 per month for the term of the Certificate of Inspection.

007. If the commissioner grants a waiver of inspection of an unfired pressure vessel pursuant to 229 NAC 5 §005, and the owner or user thereof has obtained a valid Certificate of Inspection for said pressure vessel, a certificate of registration shall be issued without additional cost to the owner or user of such pressure vessel upon approval of the application for a waiver of inspection.

NEBRASKA ADMINISTRATIVE CODE

TITLE 229 - DEPARTMENT OF LABOR

CHAPTER 8 - VALIDITY OF INSPECTION CERTIFICATES

001. This chapter is adopted pursuant to *Neb. Rev. Stat.* §48-727.

002. Except as provided in §003 of this chapter, a Certificate of Inspection for a boiler or pressure vessel, for which a Certificate of Inspection has not been previously issued, shall be valid until the date of the next inspection required under 229 NAC 5. A Certificate of Inspection for a boiler or pressure vessel which has been previously inspected and registered with the state shall be valid until the date the next scheduled inspection is required under 229 NAC 5 or as noted on the Certificate of Inspection. For boilers or pressure vessels where only the ownership has changed or the owner-user has changed names the Certificate of Inspection shall be valid until the date of the next inspection required under 229 NAC 5.

003. A Certificate of Inspection issued in accordance with *Neb. Rev. Stat.* §48-722 and 229 NAC 7 shall be valid until expiration unless some defect or condition affecting the safety of the boiler or pressure vessel for which it was issued is discovered, and such defect or condition is not repaired. Failure to repair a defect or condition affecting the safety of the boiler or pressure vessel shall be cause for revocation of such boiler's or pressure vessel's Certificate of Inspection. Any boiler or pressure vessel that has had its Certificate of Inspection revoked for the reason described above shall not be operated until the boiler or pressure vessel has been repaired, inspected, and the Certificate of Inspection reissued.

NEBRASKA ADMINISTRATIVE CODE

TITLE 229 - DEPARTMENT OF LABOR

CHAPTER 9 - OWNER OR USER TO NOTIFY DEPARTMENT OF BOILER OR PRESSURE VESSEL ACCIDENTS

001. This chapter is adopted pursuant to *Neb. Rev. Stat.* §§48-727 and 48-728.

002. This chapter applies to an accident, as defined in NAC 1 §002 of these regulations, which causes any of the following:

A. Estimated damages of more than $1,000 to the boiler, pressure vessel, its appurtenances, or the building/structure in which the boiler or pressure vessel is housed;

B. Evacuation of the building or surrounding area; or,

C. Any personal injury,

003. In the event of an accident, as defined in § 002 of this chapter, notice shall be given by the owner/user immediately by telephone, fax, electronic mail, or messenger to the Department. Neither the boiler or pressure vessel, nor any parts thereof, shall be removed or disturbed before permission has been given by the Department, except for the purpose of saving human life and limiting consequential damage.

A. The phone numbers to call are: (402) 471-4721, Monday through Friday, between 7:00 a.m. and 5:00 p.m.; or (402) 429-5418 at any time of day or night.

B. The fax number is: (402) 471-5039 M-F 7:00 AM to 5:00 PM,

C. The e-mail address is: Christopher.Cantrell@nebraska.gov.

D. The office of the Boiler Inspection program is located at: 550 South 16th Street, Lincoln, NE 68509.

004. The Chief Boiler Inspector shall notify the State Fire Marshall of any boiler or pressure vessel explosions or accidents.

NEBRASKA ADMINISTRATIVE CODE

TITLE 229 - DEPARTMENT OF LABOR

CHAPTER 10 - QUALITY CONTROL REVIEWS

001. This chapter is adopted pursuant to *Neb. Rev. Stat.* §48-727.

002. At the request of a repair organization for boilers, pressure vessels, or component parts, the Department may conduct an inspection of the organization's quality control program and facilities. This inspection shall be for the purpose of renewal of authorization to use the National Board "R" symbol stamp. Such requests shall be submitted to the Department at least six (6) months prior the expiration date of such stamps. Initial quality control reviews shall be done by the National Board. If the chief boiler inspector is qualified as a National Board Team leader to conduct "R" stamp renewals, the Chief Boiler Inspector shall conduct all required reviews after the initial review for renewal of the National Board "R" symbol stamp.

003. At the request of the National Board, of ASME, or of a boiler, pressure vessel or component parts manufacturer, the Department may conduct an inspection of a manufacturer's quality control program and facilities. This inspection shall be for the purpose of renewal of authorization to use the applicable non-nuclear ASME Certification Marks. Such requests shall be submitted to the Department at least six (6) months prior the expiration date of such Certification Marks. Initial quality control reviews shall be done by the ASME or an ASME designee. If the Chief Boiler Inspector is qualified as an ASME Review Team Leader to conduct non-nuclear ASME Joint Reviews, the Chief Boiler Inspector shall conduct all required reviews after the initial review for renewal of the non-nuclear ASME Certification Marks.

004. At the request of the National Board, of ASME, of a repair organization, or of a boiler, pressure vessel or component parts manufacturer, the Department may participate as an observer in the inspection of their quality control program and facilities. This inspection shall be for the new issuance of authorization to use the applicable National Board stamps and/or ASME Certification Marks.

005. Owner-user repair organizations and owner-user inspection organizations shall be subject to an audit by the Chief Boiler Inspector, or his or her deputy, every third year after the initial review.

006. Quality control reviews and audits conducted by the Chief Boiler Inspector to meet the above requirements shall be charged at the pro-rate of $800.00 per day, $400.00 per one-half day, plus all reasonable and necessary expenses attributable to the quality control review.

NEBRASKA ADMINISTRATIVE CODE

TITLE 229 - DEPARTMENT OF LABOR

CHAPTER 11 - SPECIAL INSPECTORS - INSURANCE COMPANIES

001. This chapter is adopted pursuant to *Neb. Rev. Stat.* §48-727.

002. Upon application to the Commissioner by any insurance company authorized to insure boilers and pressure vessels in the State of Nebraska, inspectors whose qualifications are approved by the Commissioner may be granted a Nebraska commission authorizing them to inspect boilers and pressure vessels insured by the company. The fee for Nebraska commissions shall be charged at the following rates:

A. Initial application $20.00.

B. Annual renewal $20.00.

003. The Commissioner may issue a waiver of inspection by the Department for the period covered by said policy of insurance.

004. Each insurance company shall, within one year from the effective date of these rules, submit to the Department complete data on each boiler and pressure vessel insured by it in the State of Nebraska. Each subsequent annual certificate inspection shall be reported to the Department within fourteen (14) days after inspection. Inspections may be performed no earlier than sixty (60) calendar days prior to expiration date of the Certificate of Inspection.

005. All insurance companies and Authorized Inspection Agencies shall notify the Department within thirty (30) days of the issuance of any insurance policy on any boiler or pressure vessel located within the state. All insurance companies and Authorized Inspection Agencies shall also notify the Department within thirty (30) days of the cancelation, non-renewal or suspension of any policy.

006. In the event that an insurance company refuses to issue an insurance policy on any boiler or pressure vessel located within the state, due to the condition of the boiler or pressure vessel or any appurtenances thereof, the insurance company shall immediately notify the Department of this fact, and shall submit a report to the Department of such conditions.

007. If a Special Inspector, upon the inspection of a boiler or pressure vessel, for which an insurance company has denied issuing a policy of insurance, including a first inspection on a new risk, finds that the boiler or pressure vessel or any of the appurtenances thereof are in such condition that the

boiler or pressure vessel is unsafe for further operation, the Special Inspector shall promptly notify the owner or user and the Chief Boiler Inspector, stating what repairs or other corrective measures are required to bring the object into compliance with these regulations. Until such corrections have been made, no further operation of the boiler or pressure vessel involved shall be permitted. If a Certificate of Inspection for the object is required and is in force, it shall be suspended by the Chief Boiler Inspector. When reinspection establishes that the necessary repairs have been made or corrective actions have been taken, and that the boiler or pressure vessel is safe to operate, the Chief Boiler Inspector shall be notified. A Certificate of Inspection, where applicable, shall be issued upon completion of the required repairs.

008. Within 45 days after the expiration date of the Certificate of Inspection of a boiler or pressure vessel, if a required inspection is not performed by a Special Inspector upon a boiler or pressure vessel pursuant to a policy of insurance of an insurance company or an inspection contract with the AIA for which the inspector works, the Department may, perform a special inspection and charge the owner-user the special inspection fee set forth in 229 NAC 7 §005.

009. Inspection Reports to be Submitted by Inspectors:

A. Inspectors shall, within one year of the effective date of these regulations for boilers, and within two years of the effective date of these regulations for pressure vessels, submit to the Chief Boiler Inspector an inspection report in a format approved by the Chief Boiler Inspector for each boiler and pressure vessel subject to inspection in this state. Complete data shall be submitted for each nonstandard boiler or pressure vessel.

B. Subsequent inspections by Deputy and Special Inspectors, of both standard and nonstandard boilers and pressure vessels, shall be reported in a format approved by the Chief Boiler Inspector.

C. Inspection reports as required in subdivisions (A) and (B) of this section shall be submitted within 14 days from date of the completion of the inspection.

D. Owner-user inspection agencies shall submit reports in accordance with 229 NAC 12 §004(D).

010. If a Special Inspector, upon first inspection of a new risk, finds that a boiler or pressure vessel or any appurtenance thereof, is in such condition that the Special Inspector's company would refuse to insure or inspect the object, the company shall immediately notify the Chief Boiler Inspector and submit a report on such conditions. If, upon inspection, a Special Inspector finds a boiler or pressure vessel to be unsafe for further operation, the Special Inspector shall promptly notify the owner or user, stating what repairs or other corrective measures are required to bring the object into compliance with these rules and regulations. If the owner or user fails to make such repairs or adopt such other corrective measures promptly, the Special Inspector shall immediately notify the Chief Boiler Inspector. Until such corrections have been made, no further operation of the boiler or pressure vessel involved shall be permitted. If a Certificate of Inspection for the object is required and is in force, it shall be suspended by the Chief Boiler Inspector. When reinspection establishes that the necessary repairs have been made or corrective actions have been taken and that the boiler or pressure vessel is safe to operate, the Chief Boiler Inspector shall be notified. Then a Certificate of Inspection, where applicable, will be issued.

011. Special inspectors commissioned by the State of Nebraska under this chapter shall not be either directly or indirectly involved in the manufacture or ownership of the objects inspected, nor shall they act as the agent of the manufacturer or owner with respect to such objects.

NEBRASKA ADMINISTRATIVE CODE

TITLE 229 - DEPARTMENT OF LABOR

CHAPTER 12 - OWNER-USER INSPECTION ORGANIZATIONS

001. This chapter is adopted pursuant to *Neb. Rev. Stat.* §48-727.

002. Any person, firm, partnership or corporation operating unfired pressure vessels in this jurisdiction may seek approval and registration as an owner-user inspection organization by filing an application with the chief inspector on prescribed forms. Each such application shall be accompanied by a fee of fifty dollars plus twenty dollars for each special inspector employed by the owner-user inspection organization. Commissions issued to a special inspector employed by an owner-user organization shall be valid for a period of one year from the date of issuance. A fee of twenty dollars shall be charged for each annual renewal of the commission of a special inspector.

003. Application and registration shall show the name of such organization and its principal address in this state, and the name and address of the person or persons having supervision over inspections made by said organization. Changes in supervisory personnel shall be reported to the chief inspector within 30 days after any such change.

004. Each owner-user inspection organization as required by the provisions of the Act and these rules and regulations shall:

A. Be an accredited owner/user inspection organization under the National Board Inspection Code or be a state-approved owner-user inspection organization under API-510.

B. Conduct inspection of the pressure vessels, not exempt by the Act, utilizing only qualified inspection personnel. Such inspections shall be done to the same standards as those performed by the Chief Inspector, his or her deputy, or a Special Inspector;

C. Retain on file at the location where equipment is inspected a true record or copy of the report of each inspection signed by the inspector who made the inspection;

D. Promptly notify the Chief Inspector of any pressure vessel which does not meet requirements for safe operation;

E. Maintain inspection records which will include a list of pressure vessels covered by the Act, showing a serial number and such abbreviated description as may be necessary for identification, the date of the last inspection of each unit and the approximate date for the next inspection. Such inspection records shall be readily available for examination by the Chief Inspector or his or her authorized representative during business hours;

F. Transmit a statement of inspection to the Chief Inspector for each pressure vessel for which a certificate of inspection is sought. Such statement shall be signed by the individual having supervision over the inspection. The statement shall certify that each inspection was conducted in accordance with the inspection requirements provided for by the Act and Title 229. Such statement shall be accompanied by a certificate of inspection fee set forth in 229 NAC 7. Inspections may be performed within ninety days prior to the expiration date of the certificate of inspection.

005. Owner or User to Notify Chief Inspector of Accident.

When an accident involving the rupture or explosion of a pressure vessel occurs, the owner or user shall promptly notify the Chief Inspector and submit a detailed report of the accident. In the event of a personal injury or any explosion, notice shall be given immediately by telephone, telegraph, fax, electronic mail, or messenger and neither the pressure vessel, power piping, or process piping, nor any parts thereof, shall be removed or disturbed before permission has been given by the Chief Inspector, except for the purpose of saving human life and limiting consequential damage.

NEBRASKA ADMINISTRATIVE CODE

TITLE 229 - DEPARTMENT OF LABOR

CHAPTER 13 - PENALTY FOR OPERATION OF UNSAFE BOILERS AND PRESSURE VESSELS

001. This chapter is adopted pursuant to *Neb. Rev. Stat.* §§48-414, 48-727 and 48-737.

002. If, upon inspection, a boiler or pressure vessel is found to be in such condition that it is unsafe to operate, the certificate of inspection shall be suspended. If a Certificate of Inspection is suspended or revoked or otherwise cannot be issued, then the boiler or pressure vessel shall be considered to be unsafe.

003. The owner or user shall be notified by the Department that the boiler or pressure vessel is unsafe for operation.

004. A. Unsafe boilers or pressure vessels and boilers or pressure vessels otherwise not in compliance with the Act and 229 NAC 1, et seq., will be red-tagged by the Department for cease of operation as provided in *Neb. Rev. Stat.* §48-414 until such repair or replacement is completed.

B. In accordance with *Neb. Rev. Stat.* §§48-737 and 48-414, if the continued operation of a boiler or pressure vessel poses serious risk or harm to the general public, the Chief Inspector, or a deputy boiler inspector, may take those actions required to immediately shut down and cause to be inoperable any boiler or pressure vessel required to be inspected by the Act.

005. The owner or user of an unsafe boiler or pressure vessel who causes the same to be operated shall be subject to the penalty as provided in *Neb. Rev. Stat.* §§48-736 and 48-414.

NEBRASKA ADMINISTRATIVE CODE

TITLE 229 - DEPARTMENT OF LABOR

CHAPTER 14 - CONDEMNED BOILERS OR PRESSURE VESSELS

001. This chapter is adopted pursuant to *Neb. Rev. Stat.* §48-727.

002. Any boiler or pressure vessel that has been recommended for condemnation shall be immediately discontinued from service.

003. The Department shall be promptly notified of such action and the Chief Boiler Inspector or a Deputy Inspector shall inspect the boiler or pressure vessel for final action.

004. Boilers and pressure vessels that are condemned by the Chief Boiler Inspector or a Deputy Inspector shall have, distinctly stamped over the State of Nebraska serial number, the following symbol: "XXX". In addition to stamping the metal tag the inspector shall affix a label to the unit showing that the unit has been condemned. If the metal tag is not on the unit, a label showing the serial number shall be attached to the unit. In the case of boilers that have numbers that are not physically stamped but are identified by an alternative labeling, the Chief Boiler Inspector or Deputy Inspector shall remove or destroy the alternative labeling device and then write “Condemned” in a conspicuous place on the unit.

005. Any person, firm, partnership or corporation using or offering for sale a condemned boiler or pressure vessel for operation within this jurisdiction shall be subject to the penalties provided for in the Act.

006. Any unit that has been condemned, and then repaired, shall be inspected by the Chief Boiler Inspector or a Deputy Inspector prior to any operation of the unit. A copy of all of the repair forms shall be presented to the inspector prior to the inspection.

NEBRASKA ADMINISTRATIVE CODE

TITLE 229 - DEPARTMENT OF LABOR

CHAPTER 15 - REPAIRS OR ALTERATIONS

001. This chapter is adopted pursuant to the Boiler Inspection Act at *Neb. Rev. Stat.* §48-727.

002. Where repairs or alterations to jurisdictional boilers or pressure vessels are necessary, a Special Inspector shall be notified of the nature and extent of the repairs or alterations prior to any work being performed.

A. Routine Repairs, as identified in Part 3 of the National Board Inspection Code, are permissible in the State of Nebraska. In-process involvement of the Special Inspector in the repairs, as well as the requirements for ASME Code stamping, may be waived; however, all other requirements of the NBIC for performing repairs shall be completed;

B. No routine repair, including those performed to the requirements of a Pre-Approved Routine Repair Procedure, may be performed without first notifying the Special Inspector of the nature and scope of the repair;

C. Pre-Approved Routine Repair Procedures:

1. The Special Inspector may pre-approve procedures for routine repairs provided the “R” Certificate Holder procedures covering the nature and scope of the routine repair, and provided that the routine repair procedures have been demonstrated to, and accepted by, the Special Inspector prior to their use.

2. The Special Inspector’s acceptance of each Pre-Approved Routine Repair Procedure shall be noted by the Special Inspector’s signature and date on certifying documentation;

3. Pre-Approved Routine Repair Procedures that have not been used for a period of 12 months or more shall be considered unacceptable for continued use, and shall be re-demonstrated to the Special Inspector prior to their use;

4. When used, the Pre-Approved Routine Repair Procedure number shall be listed in the remarks section of the NBIC R-1 Form.

003. After repairs or alterations have been completed, they shall be subject to the acceptance of the Special Inspector.

004. Repairs of or alterations to all jurisdictional boilers and pressure vessels, and their appurtenances shall conform to the requirements of the National Board Inspection Code, and to the original Code of Construction, including the API-510 Pressure Vessel Inspection Code, if applicable. In the event that the requirements outlined in the NBIC, original Code of Construction or API-510 cannot be met, the Chief Boiler Inspector shall be contacted for resolution and approval of the repair or alteration plan. The Chief Boiler Inspector shall use the latest edition or any previous edition/addenda of the NBIC, the ASME code, the ANSI codes, or other such standards or publications for guidance in making a determination as to the acceptability of a repair or alteration plan. If a resolution cannot be found, the Boiler Safety Code Advisory Board shall be contacted for a final resolution.

005. Repairs or alterations of jurisdictional boilers and pressure vessels shall be performed by an organization in possession of a valid "R" stamp and Certificate of Authorization issued by the National Board of Boiler and Pressure Vessel Inspectors. The repair or alteration organization is responsible for arranging for the services of a Special Inspector prior to performing the repair or alteration. Repairs of pressure vessels may be performed by an owner-user repair organization that repairs its own equipment in accordance with API-510, or by an owner-user repair organization accredited in accordance with the National Board Inspection Code.

006. A. Except as provided in subsection (B) of this section, repairs to pressure relief valves shall be made only by an organization which holds a valid Certificate of Authorization for Use of the National Board Pressure Relief Valve Repair "VR" symbol stamp, except that in the case of pressure vessels, such repairs may be performed by an owner-user repair organization which repairs its own equipment in accordance with API-510 or the National Board Inspection Code. The initial installation testing and adjustments of a new pressure relief valve on a boiler or pressure vessel are not considered a repair, if made by the manufacturer or assembler of the valve.

B. The Chief Boiler Inspector may authorize properly trained and qualified employees of pressure vessel users, or their designees, to make adjustments to set pressure and/or blowdown for pressure relief valves owned or used by them, provided the adjusted settings arid/or capacities and the date of the adjustment are recorded on a metal tag secured to the seal wire. All external adjustments shall be resealed showing the identification of the organization making the adjustments. A record of all external adjustments shall be maintained and made available to the Special Inspector.

NEBRASKA ADMINISTRATIVE CODE

TITLE 229 - DEPARTMENT OF LABOR

CHAPTER 16 - INSTALLATION OF USED OR SECONDHAND BOILERS AND PRESSURE VESSELS

001. This Chapter is adopted pursuant to Neb. Rev. Stat. §48-727.

002. Before a used or secondhand boiler or pressure vessel can be installed or shipped into this state, an inspection must be made by the Chief Inspector or a Deputy Inspector or by an owner/user inspection organization inspector. This inspection shall consist of an internal, external and a hydrostatic test to 100% of maximum allowable working pressure (MAWP) as identified on the nameplate or design/data report. This inspection report shall be filed with the Chief Inspector. For secondhand or used boilers or pressure vessels that are to be shipped and installed into this state, if the boiler or pressure vessel has a current certificate of inspection from another state, a copy of that certificate and a copy of the last two inspections shall be supplied to the Chief Boiler Inspector to determine the installation inspection requirements.

003. When a stationary boiler is moved and reinstalled, the attached safety devices, fittings and appurtenances shall comply with the rules and regulations for installation of a new boiler, including but not limited to the regulations contained in 229 NAC 2.

004. The installation, operation, sale, or the offering for sale of non-standard boilers or pressure vessels in this jurisdiction is prohibited without permission from the Department. When approved, they shall be classified as "state specials."

005. Any inspector may decrease the working pressure on any installation if the condition of the boiler or pressure vessel warrants it. A detailed report stating the reasons for lowering the working pressure and supporting calculations, if required, shall be submitted to the Chief Inspector. If the owner or user does not concur with the inspector's decision, the owner or user may appeal to the Commissioner.

006. Used or secondhand boiler control systems shall be upgraded to meet the requirements of the current adopted edition and addenda of ASME CSD-l or the appropriate NFPA standard before they are operated. Reinstalled boilers, as defined in 229 NAC 1, are not required to have the controls upgraded when they are relocated, unless the controls have to be modified for the new location or the use of the boiler has changed.

007. Any portable boiler installed in the jurisdiction shall be inspected by the Chief inspector or a Deputy inspector prior to operation. Portable boilers shall meet the following requirements:

A. An external inspection of the pressure boundary and all associated piping shall be performed while the unit is under a hydrostatic test of at least 80% of the Maximum Allowable Working Pressure (MAWP) stamped on the ASME nameplate.

B. An external inspection to ensure that all operating controls and safety devices are installed and in good working condition. All seals on the safety relief valves shall be intact or the valve recertified or replaced. All boilers that fall under the requirements of ASME CSD-1 shall have the controls tested upon initial startup and a copy of the Installation report submitted to the Chief Boiler Inspector.

C. An internal inspection will be performed on all units brought into the state that do not have a current Certificate of Inspection or Operation from another National Board member jurisdiction.

D. All boilers rated for 12,500,000 BTU/hr or less shall have an emergency shutdown switch located no closer than 10 feet to the boiler and no more than 25 feet away from the boiler and be plainly marked as the Boiler Emergency Shutdown. This switch shall be wired to remove all power from the boiler controls.

E. If the unit is installed where it is exposed to the elements, all electrical components shall be rated for outdoor use and meet the requirements of NFPA-70.

F. All boiler external and non-external piping shall conform to ASME B31.1. The use of metallic flexible hoses is not allowed other than listed hoses in the fuel train.

G. All gas or oil piping shall meet the requirements of the appropriate code for the piping, NFPA-54, NFPA-58, NFPA-31 or any other adopted code as appropriate.

H. Portable boilers on enclosed trailers shall have the appropriate combustion air supply. If the doors are the only means of air infiltration, the doors shall have interlocks on them so that the boiler will not operate unless the doors are open. If a movable louvered system is installed, the louvers shall be interlocked with the boiler controls to prevent operation if the louvers are closed.

I. All portable boilers on trailers shall be stationed on a solid surface; they shall be supported so that the trailer and boiler are in a level position; and shall be anchored so that the trailer cannot move due to wind or other conditions.

J. Other tests or inspections may be required dependent upon the installation and the overall condition of the unit.

NEBRASKA ADMINISTRATIVE CODE

TITLE 229 - DEPARTMENT OF LABOR

CHAPTER 17 - APPLICATION OF STATE SERIAL NUMBERS

001. This chapter is adopted pursuant to *Neb. Rev. Stat.* §48- 727.

002. Upon completion of the installation of a boiler or pressure vessel, or at the time of the initial Certificate inspection of an existing installation, each boiler or pressure vessel shall be identified by a number unique to that item. Stamping of the state serial number in the base metal of the unit shall only be done if the original code of construction allows stamping of the base metal for the actual thickness or material of the metal used in the construction of the unit. As an alternative to stamping, boilers or pressure vessels may have a corrosion- resistant metal tag or some other type of labeling device acceptable to the Commissioner attached in the proximity of or by the original nameplate.

003. The stamping or tagging shall not be concealed by lagging or paint and shall be exposed at all times unless a suitable record is kept of the location of the stamping so that it may be readily uncovered at any time.

NEBRASKA ADMINISTRATIVE CODE

TITLE 229 - DEPARTMENT OF LABOR

CHAPTER 18 - SAFETY APPLIANCES

001. This chapter is adopted pursuant to *Neb. Rev. Stat.* §48-727.

002. No person shall attempt to remove or do any work on any safety device or appliance as prescribed by these rules and regulations while the device or appliance is subject to pressure, with the possible exception of online setting of safety valves relieving pressure, which shall be done by qualified personnel in accordance with ASME PTC-25.

003. Should any of these safety devices or appliances be removed for repair during an outage of a boiler or pressure vessel, they must be reinstalled and documented to be in proper working order before the object is again placed in service.

004. No person shall alter any safety or safety relief valves or pressure relief devices in any manner in order to maintain a working pressure in a boiler or pressure vessel that is in excess of that stated on the Certificate of Inspection.

005. Any and all repairs or maintenance performed on safety valves, relief valves or safety relief valves shall be performed by a National Board Accredited “VR” stamp holder and shall comply with the rules for repair as defined in 229 NAC 15.

006. All safety or safety relief valves or pressure relief devices shall have a discharge pipe installed and is directed to a floor drain or other suitable and safe point of discharge. Such discharge piping shall be made of a metal or metal alloy that is capable of withstanding the forces, pressure, and temperature that exist when the valve to which it is attached is open. There shall be no restriction in the discharge piping and the discharge piping shall be the same size or larger than the discharge opening of the valve to which it is attached. If there are more than 270 degrees of bends in the in the discharge piping the pipe size shall be increased by 50% to accommodate for such restriction.

007. When a remote, emergency shut-down switch (ESS) is required by ASME CSD-1 or the NBIC, it shall be located within 50 feet of the boiler. When more than one boiler is installed in a room, a single ESS shall be installed that, when activated, shall shut down the fuel or energy supply to each boiler installed in the room.

NEBRASKA ADMINISTRATIVE CODE

TITLE 229 - DEPARTMENT OF LABOR

CHAPTER 19 - PENALTIES AND VARIATIONS

001. This chapter is adopted pursuant to *Neb. Rev. Stat.* §48-727.

002. Any person who believes these rules and regulations are unreasonable or impose an undue burden upon the owner or user may request a variation from such rule or regulation. The request for variation shall be in writing to the Commissioner and shall specify how equivalent safety is to be maintained. The Commissioner, after investigation and such hearing as he or she may direct, may grant such variation from the terms of any rule or regulation provided such special conditions as may be specified are maintained in order to provide equivalent safety.

003. When there is a reason to believe, or upon receipt of a complaint, that a variation does not provide freedom from danger equivalent to the published rules or regulations, the Commissioner, after notice to the owner or user and complainant, and after such hearing and investigation as the Commissioner may direct, may continue to reaffirm, suspend, revoke or modify the conditions specified in any variation. No declaration, act or omission of the Commissioner, or of the Chief Inspector, Deputy Inspectors or Special Inspectors, other than a written order authorizing a variation as permitted above, shall be deemed to exempt, either wholly or in part, expressly or implied, any owner or user from full compliance with the terms of any rule or regulation.

NEBRASKA ADMINISTRATIVE CODE

TITLE 229 - DEPARTMENT OF LABOR

CHAPTER 20 - POWER BOILERS – NEW INSTALLATIONS

001. This chapter is adopted pursuant to *Neb. Rev. Stat.* §48-727.

002. A. No new power boiler shall hereafter be brought into this stale or installed in this state unless it has been constructed and inspected in accordance with the requirements of ASME Section I Rules for Construction of Power Boilers.

B. No new power boiler shall hereafter be brought into this stale or installed in this state unless it bears the ASME Certification Mark with the Section I Designator or is inspected and stamped in accordance with the requirements of the National Board of Boiler and Pressure Vessel Inspectors; or has been approved as a "state special."

C. All new power boilers installed in the state of Nebraska shall be registered with the National Board.

D. Upon completion of installation, all power boilers shall be inspected by the chief inspector or a deputy inspector and at least once each year thereafter shall be subjected to an inspection unless exempted by other provisions of this Title or the Act.

E. All power boilers shall be equipped with controls and safety devices based upon the BTU/hr burner input, as specified in the original code of construction, and in accordance with the following codes and standards:

1. Boilers with energy input ratings of less than 12,500,000 BTU/hr shall meet the requirements of ASME CSD-1, Controls and Safety Devices for Automatically Fired Boilers.

2. Boilers with energy input ratings of 12,500,000 BTU/hr and above shall meet the requirements of NFPA-85 Boiler and Combustion Systems Hazard Code.

3. All electric boilers, regardless of input, shall meet the requirements of ASME CSD-1 Controls and Safety Devices for Automatically Fired Boilers.

4. All atmospheric fluidized-bed boilers, boilers with pulverized fuel systems, and boilers that are stoker fired shall meet the requirements of NFPA-85 Boiler and Combustion Systems Hazard Code.

5. All heat recovery steam generators (HRSG's) shall meet the requirements of NFPA-85 Boiler and Combustion Systems Hazard Code.

6. For boilers that are fired by other types of fuel not covered in CSD-l or NFPA-85, the Chief Inspector shall be contacted to determine what types of fuel burning controls are to be acceptable to ensure the safety of the unit and personnel. The Chief Inspector shall use the requirements in ASME CSD-1, NFPA-85, ANSI Standards or Underwriters Laboratories Standards and the manufacturer's specifications to determine the appropriate fuel controls to be installed.

003. Each power boiler shall be protected from overpressure in accordance with the requirements of ASME Section I and shall have at least one (1) safety valve. All power boilers with more than five hundred square feet of water heating surface or an electric power input of more than eleven hundred kilowatts shall have two (2) or more safety valves.

004. The safety valve or valves shall be connected to the power boiler, independent of any other steam connection and attached as close as possible to the power boiler, without unnecessary intervening pipe or fittings.

005. No valves of any type shall be placed between the safety valve and the power boiler. If a discharge pipe is used, no valve shall be placed on the discharge pipe between the safety valve and the atmosphere. The discharge pipe shall be at least the full size of the safety valve discharge and fitted with an open drain to prevent water lodging in the upper part of the safety valve or discharge pipe. The discharge pipe shall be as short and straight as possible and so arranged as to avoid undue stress on the valve or valves. All safety valve discharges shall be so located or piped as to be carried away from walkways or platforms.

006. The safety valve capacity of each power boiler shall be such that the safety valve or valves will discharge all the steam that can be generated by the power boiler, without allowing the pressure to rise more than six percent above the highest pressure to which any valve is set, and in no case, to more than six percent above maximum allowable working pressure.

007. One or more safety valves on every power boiler shall be set at or below the maximum allowable working pressure. The remaining valves may be set within a range of three percent above the maximum allowable working pressure but, the range setting of all the safety valves on a power boiler shall not exceed ten percent of the highest pressure at which any valve is set.

008. When two (2) or more power boilers operating at different pressures and safety-valve settings are interconnected, the lowest pressure boilers or interconnected piping shall be equipped with safety valves of sufficient capacity to prevent over-pressure, considering the maximum generating capacity of all boilers.

009. The minimum safety valve or safety-relief valve relieving capacity for electric power boilers shall be three and one-half pounds per hour per kilowatt input.

010. Each power boiler shall have a feed supply that is in compliance with the requirements of ASME Section I and which will permit the boiler to be fed at any time while under pressure as follows:

A. A boiler having more than five hundred square feet of water-heating surface shall have at least two (2) means of feeding. Each source of feed water shall be capable of supplying water to the boiler at a pressure of three (3) percent higher than the highest setting of any safety valve on the boiler.

B. Boilers fired by gaseous, liquid, or solid fuel in suspension may be equipped with a single means of feeding water provided means are furnished for the immediate shutoff of heat input prior to the water level going below the lowest permissible level. The feed-water shall be introduced into the boiler in such a manner that it will not be discharged close to joints of furnace sheets, directly against surfaces exposed to products of combustion, or directed to surfaces subject to radiation from the fire.

C. The feed piping to the boiler shall be provided with a check valve near the boiler and a stop valve between the check valve and the boiler.

D. When two (2) or more boilers are fed from a common source, there shall also be a valve on the branch to each boiler between the check valve and source of supply. Whenever a globe valve is used on feed piping, the inlet shall be under the disk of the valve.

011. Power Boiler External Piping shall be designed, constructed, installed and inspected in accordance with the requirements of ASME B31.1, Power Piping, and bears the ASME Certification Mark with the appropriate Designator.

A. Each steam outlet from a boiler, except safety valve and water-column connections, shall be fitted with a stop valve located as close as practicable to the boiler. When a stop valve is so located that water can accumulate, ample drains shall be provided. The drainage shall be piped to a safe location and shall not be discharged on the top of the boiler or its setting.

B. When boilers provided with manholes are connected to a common steam main, the steam connection from each boiler shall be fitted with two (2) stop valves having an ample free-blowing drain between them. The discharge of the drain shall be piped clear of the boiler setting. The stop valve arrangement shall consist of one automatic non-return valve next to the boiler and second valve of the outside screw and yoke type.

C. All other Boiler Proper piping and/or External Piping, valves, gauges, and devices shall comply with the rules as stated in ASME B31.1 and ASME Section I.

NEBRASKA ADMINISTRATIVE CODE

TITLE 229 - DEPARTMENT OF LABOR

CHAPTER 21 - POWER BOILERS - EXISTING INSTALLATIONS

001. This chapter is adopted pursuant to *Neb. Rev. Stat.* §48-727 and applies to all existing installation power boilers.

002. The maximum allowable working pressure on the shell or drum of a power boiler shall be determined by the strength of the weakest area of the boiler as computed by the principles of the ASME code, Section I (1971 Edition).

A. Boilers which are reinstalled of lap riveted construction or seams of butt and double strap riveted construction shall use the ASME code, Section I (1971 Edition).

B. A boiler constructed with fusion-welded seams and not x-rayed and stress relieved during construction, shall not be operated at a pressure in excess of fifteen pounds per square inch.

C. The factor of safety shall be increased by the inspector if the conditions and safety of the boiler demand it.

003. The maximum allowable working pressure on a water tube boiler, the tubes of which are secured in cast iron or malleable iron headers or which have cast iron mud drums, shall not exceed one hundred sixty pounds per square inch gauge or a temperature of 250 degrees Fahrenheit.

004. Maximum steam pressure on any boiler in which steam is generated, if constructed of cast iron, shall be fifteen pounds per square inch gauge.

005. When the diameter of the rivet holes in the longitudinal joints of a boiler is not known, the diameter and cross-sectional area of rivets, after driving, shall be selected from the ASME code, Section I (1971 Edition).

006. The use of weighted-lever safety valves or safety valves having either the seat or disk made of cast iron is prohibited. All power boilers shall have direct spring-loaded, pop-type safety valves that conform to the requirements of the ASME code, Section I (1971 Edition).

007. Each power boiler shall have at least one (1) safety valve. All power boilers with more than five hundred square feet of water heating surface or an electric power input of more than eleven hundred kilowatts shall have two (2) or more safety valves.

008. The safety valve or valves shall be connected to the power boiler independent of any other steam connection and attached as close as possible to the boiler without unnecessary intervening pipe or fittings.

009. No valves of any type shall be placed between the safety valve and the boiler. If a discharge pipe is used, no valve shall be placed on the discharge pipe between the safety valve and the atmosphere. The discharge pipe shall be at least the full size of the safety-valve discharge and fitted with an open drain to prevent water lodging in the upper part of the safety valve or discharge pipe. The discharge pipe shall be as short and straight as possible and so arranged as to avoid undue stress on the valve or valves. All safety valve discharges shall be so located or piped as to be carried away from walkways or platforms.

010. The safety-valve capacity of each boiler shall be such that the safety valve or valves will discharge all the steam that can be generated by the boiler without allowing the pressure to rise more than six percent above the highest pressure to which any valve is set, and in no case, to more than six percent above maximum allowable working pressure.

011. One or more safety valves on every power boiler shall be set at or below the maximum allowable working pressure. The remaining valves may be set within a range of three percent above the maximum allowable working pressure but, the range setting of all the safety valves on a boiler shall not exceed ten percent of the highest pressure at which any valve is set.

012. When two (2) or more power boilers operating at different pressures and safety-valve settings are interconnected, the lowest pressure boilers or interconnected piping shall be equipped with safety valves of sufficient capacity to prevent over-pressure, considering the maximum generating capacity of all boilers.

013. The minimum safety valve or safety-relief relieving capacity shall be determined on the basis of maximum designed steaming capacity determined by the boiler manufacturer or by the pounds of steam generated per hour per square foot of boiler heating surface and water-wall heating surface as given in Table A. This method shall not be used on electric boilers, waste heat boilers, or forced-flow steam generators without a fixed steam and water line.

Minimum Pounds of Steam Per Hour,
Per Square Foot of Heating Surface

Boiler Heating Surfaces		
	Firetube Boilers:	Watertube Boilers:
Hand Fired	5	6
Stoker Fired	7	8
Oil, Gas or Pulverized Fuel Fired	8	10

Water Wall Heating Surfaces		
	Firetube Boilers:	Watertube Boilers:
Hand Fired	8	8
Stoker Fired	10	12
Oil, Gas or Pulverized Fuel Fired	14	16

ASME Boiler & Pressure Vessel Code

014. The minimum safety valve or safety-relief valve relieving capacity for electric power boilers shall be three and one-half pounds per hour per kilowatt input.

015. For heating surface determination, see ASME code, Section I (1971 Edition).

016. Each power boiler shall have a feed supply which will permit it to be fed at any time while under pressure.

017. A power boiler having more than five hundred square feet of water-heating surface shall have at least two (2) means of feeding. Each source of feed water shall be capable of supplying water to the boiler at a pressure of three (3) percent higher than the highest setting of any safety valve on the boiler.

018. Power boilers fired by gaseous, liquid, or solid fuel in suspension may be equipped with a single means of feeding water provided means are furnished for the immediate shutoff of heat input prior to the water level reaching the lowest permissible level. The feed-water shall be introduced into the boiler in such a manner that it will not be discharged close to riveted joints of furnace sheets directly against surfaces exposed to products of combustion, or directed to surfaces subject to radiation from the fire. The feed piping to the power boiler shall be provided with a check valve near the power boiler and a stop valve between the check valve and the boiler.

019. When two (2) or more power boilers are fed from a common source, there shall also be a valve on the branch to each boiler between the check valve and source of supply. Whenever a globe valve is used on feed piping, the inlet shall be under the disk of the valve.

020. In all cases where returns are fed back to the boiler by gravity, there shall be a check valve and stop valve in each return line, the stop valve be placed between the power boiler and the check valve, and both shall be located as close to the power boiler as is practicable.

021. Where deaerating heaters are net employed, it is recommended that the temperature of the feed_water be not less 120 degrees Fahrenheit to avoid the possibility of setting up localized stress. Where deaerating heaters are employed, it is recommended that the minimum feedwater temperature be not less than 215 degrees Fahrenheit so that dissolved gases may be thoroughly released.

022. Except for damper regulator, feed_water regulator, low-water fuel cutout, drains, steam gauges or such apparatus that does not permit the escape of an appreciable amount of steam or water therefrom, outlet connections shall not be placed on the piping that connects the water column to the power boiler. The water column shall be provided with a valved drain of at least three-fourths inch piping size. The drain shall be piped to a safe location.

023. Each power boiler shall have the required water level indicating devices of the original code of construction.

024. Each boiler shall have a pressure gauge so located that is readable. The pressure gauge shall be installed so that it shall at all times indicate the pressure in the boiler.

025. Each steam boiler shall have the pressure gauge connected to the steam space, or to the water column, or its steam connection. A valve or cock shall be placed in the gauge connection adjacent to the gauge. An additional valve or cock may be located near the boiler, provided it is locked or sealed in the open position. No other shut off valve shall be located between the gauge and the boiler.

026. The pipe connections shall be of ample size and arranged so that it may be cleared by blowing out. For a steam boiler, the gauge or connections shall contain a siphon or equivalent device which will develop and maintain a water seal that will prevent steam from entering the gauge tube.

027. Pressure gauge connections shall be suitable for the maximum allowable working pressure and temperature, but if the temperature exceeds 406 degrees Fahrenheit, brass or copper pipe or tubing shall not be used. The connection to the power boiler, except the siphon, if used, shall not be less than one-fourth inch NPS. Where steel or wrought iron pipe or tubing is used, they shall not be less than one-half inch inside diameter. The dial of the pressure 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 times this pressure.

028. Each steam outlet from a boiler, except safety valve and water column connections, shall be fitted with a stop valve located as close as practicable to the power boiler. When a stop valve is so located that water can accumulate, ample drains shall be provided. The drainage shall be piped to a safe location and shall not be discharged on the top of the power boiler or its setting.

029. When power boilers provided with manholes are connected to a common steam main, the steam connection from each boiler shall be fitted with two (2) stop valves having an ample free-blowing drain between them. The discharge of the drain shall be piped clear of the boiler setting. The stop valve shall consist of one automatic non-return valve next to the boiler and second valve of the outside screw and yoke type.

030. Each power boiler shall have a blow-off pipe fitted with valve or cock, in direct connection with the lowest water space practicable.

031. When the maximum allowable working pressure exceeds one hundred twenty-five pounds per square inch, the blow-off pipe shall be at least extra heavy from the boiler to the valve or valves, and shall run full size without reducers or bushings; and galvanized shall not be used.

032. All fittings between the power boiler and valve shall be steel or at least fittings of bronze, brass, malleable iron, or cast iron, all of which shall be suitable for the pressure and temperature. In case of replacement of pipe or fittings in the blow-off lines, as specified in this paragraph, they shall be installed in accordance with the rules of new installations given in 229 NAC 20, 229 NAC 22 and 229 NAC 24.

033. When the maximum allowable working pressure exceeds one hundred twenty-five psig, each bottom blow-off pipe shall be fitted with at least two (2) 150 psig standard valves or a valve cock and a valve.

034. A bottom blow-off pipe when exposed to direct furnace heat shall be protected by fire-brick or other heat resisting material so arranged that the pipe may be inspected.

035. An opening in the power boiler setting for a blow-off pipe shall be arranged to provide for free expansion and contraction.

036. Each steam boiler shall have a steam gauge connected to the steam space or to the steam connection to the water column. The steam gauge shall be connected to a siphon or equivalent device of sufficient capacity to keep the gauge tube filled with water. The gauge shall be arranged so that it cannot be shut off from the boiler except by a cock placed near the gauge. A tee or lever handle shall be parallel to the pipe in which it is located when the cock is open.

037. Each power boiler shall be provided with a valve connection at least ¼ inch NPS for exclusive purpose of attaching a test gauge when the power boiler is in service so that the accuracy of the boiler pressure gauge can be ascertained.

038. All repairs and alterations to power boilers must comply with the rules as defined in 229 NAC 15.

NEBRASKA ADMINISTRATIVE CODE

TITLE 229 - DEPARTMENT OF LABOR

CHAPTER 22 - MINIATURE BOILERS - NEW INSTALLATIONS

001. This chapter is adopted pursuant to *Neb. Rev. Stat.* §48-727.

002. No new miniature boiler shall be installed unless it has been constructed~~,~~ and inspected to ASME standards, bears the ASME Certification Mark with the "S," "M,", or "E" designator in accordance with the requirements of Part PMB of ASME Section I Rules for Construction of Power Boilers, and has controls and safety devices installed that are in accordance with ASME CSD-1.

NEBRASKA ADMINISTRATIVE CODE

TITLE 229 - DEPARTMENT OF LABOR

CHAPTER 23 - MINIATURE BOILERS - EXISTING INSTALLATIONS

001. This chapter is adopted pursuant to Neb. Rev. Stat. ' 48-727.

002. The maximum allowed working pressure in accordance with the ASME code, is 100 psi.

003. Each miniature boiler shall be equipped with a sealed spring-loaded pop safety valve of not less than one-half inch NPS. The minimum relieving capacity of the safety valve shall be determined in accordance with ASME code. In addition to these requirements, the safety valve shall have sufficient capacity to discharge all the steam that can be generated by the boiler without allowing the pressure to rise more than six percent above maximum allowable working pressure.

004. Each steam line from a miniature boiler shall be provided with a stop valve located as close to the boiler shell or drum as is practicable, except when the boiler and steam receiver are operated as a closed system.

005. Miniature boilers for operation with a definite water level shall be equipped with a glass water gage for determining the water level. The lowest permissible water level for vertical boilers shall be at a point one-third of the height of the shell above the bottom head or tube sheet.

006. Where the boiler is equipped with an internal furnace, the water level shall not be less than one-third of the length of the tubes above the top of the furnace tube sheet.

007. In the case of small boilers operated in a closed system where there is insufficient space for the usual glass water gage, water level indicators of the glass bull-s eye type may be used.

008. Miniature boilers shall have the lowest visible part of the water gage glass located at least one inch above the lowest possible permissible water level specified by the manufacturer.

009. Miniature boilers shall be provided with at least one feed pump or other feeding device, except where it is connected to a water main carrying sufficient pressure to feed the boiler or where it is operated with no extraction of steam (closed system). In the latter case, in lieu of a feeding device, a suitable connection or opening shall be provided to fill the boiler when cold. Such connection shall be no less than one-half inch NPS for iron or steel pipe and one-fourth inch for brass or copper pipe.

010. The feed pipe shall be provided with a check valve and a stop valve of a size not less than that of the pipe. The feedwater may be delivered through the blowoff opening if desired.

011. Miniature boilers shall be equipped with a blowoff connection, not less than one-half inch NPS, located to drain from the lowest water space practicable. The blowoff piping shall be equipped with a stop valve not less than one-half inch NPS.

012. Miniature boilers exceeding twelve inches internal diameter or having more than ten square feet of heating surface shall be fitted with not less than three (3) brass washout plugs of one-inch NPS which shall be screwed into openings in the shall near the bottom. In miniature boilers of the closed type system heated by removable internal electric heating elements, the openings for these elements when suitable for cleaning purposes may be substituted for washout openings.

013. Boilers not exceeding twelve inches internal diameter and having less than ten square feet of heating surface need not have more than two (2) one-inch openings for clean-outs, one of which may be used for the attachment of the blow-off valve. These openings shall be opposite to each other where possible.

014. All threaded openings shall be opposite to each other where possible.

015. All threaded openings in the boiler shall be provided with a riveted or welded reinforcement to give four (4) full threads therein.

016. Electric boilers of a design employing a removable top cover flange for inspection and cleaning need not be fitted with washout openings.

017. All valves, pipe fitting, and appliances connected to a miniature boiler shall be equal to at least the requirements of the American National Standards Institute for one hundred twenty-five pounds rating and conform to the general requirements as listed in the ASME code.

018. All repairs and alterations to miniature boilers must comply with the rules as defined in 229 NAC 15.

NEBRASKA ADMINISTRATIVE CODE

TITLE 229 - DEPARTMENT OF LABOR

CHAPTER 24 - LOW PRESSURE BOILERS, WATER HEATERS AND POOL HEATERS - NEW INSTALLATIONS

001. This chapter is adopted pursuant to *Neb. Rev. Stat.* § 48-727.

002. This chapter covers pool heaters, boilers and water heaters used exclusively for low pressure steam heating, hot water heating, and hot water supply.

003. All boilers, water heaters and pool heaters shall be constructed and certified in accordance to ASME Section IV Rules for Construction of Heating Boilers.

004. The maximum allowable working pressure for low-pressure heating boilers shall not exceed the following limitations: steam boilers - 15 pounds per square inch; hot water heating and hot water supply boilers -160 pounds per square inch, and temperatures not exceeding 250 degrees Fahrenheit~~,~~; potable water heaters - 160 pounds per square inch and temperatures not exceeding 210 degrees Fahrenheit.

005. Each steam boiler shall have one (1) or more officially rated safety valves of the spring-pop type adjusted and sealed to discharge at a pressure not to exceed 15 pounds per square inch. These relief valves shall be identified with the ASME Certification Mark and “V" designator.

006. Each hot-water heating boiler shall have at least one (1) officially rated pressure relief valve set to relieve at or below the maximum allowable working pressure of the boiler. These relief valves shall be identified with the ASME Certification Mark and "V" or "HV" designator.

007. Each hot-water supply boiler or water heater supplying potable water shall have at least one (1) officially rated pressure-temperature relief valve of the automatic resealing type, set to relieve at or below the maximum allowable working pressure of the boiler. Hot water supply boilers supplying non-potable water shall have at least: one (1) officially rated pressure temperature relief valve of the automatic resealing type, set to relieve at or below the maximum allowable working pressure of the boiler; or one (1) officially rated pressure relief valve of the automatic resealing type, set to relieve at or below the maximum allowable working pressure of the boiler. These relief valves shall be identified by the ASME Certification Mark and "V" or "HV" designator.

008. All boilers bearing the ASME Certification Mark and “H” designator shall have controls and safety devices installed in accordance with ASME Section IV, Rules for Construction of Heating Boilers and ASME CSD-1 Controls and Safety Devices for Automatically Fired Boilers or NFPA-85 Boiler and Combustion Systems Hazard Code as required.

009. All low pressure boilers that are used for building or space heat shall be built in accordance with ASME Section IV and shall bear the ASME Certification Mark and “H” designator. The use of hot water heaters, those with the ASME "HLW" designator or those listed as meeting the requirements of ANSI Z21.10.13 Gas-Fired Water Heaters, shall not be used for building or space heat. Dual purpose units shall be built in accordance with ASME Section IV and shall bear the ASME Certification Mark and “H” designator.

010. Units that bear the ASME Certification Mark and “H” designator that are listed as meeting the requirements of ANSI Z21.10.13 Gas-Fired Water Heaters shall have controls and safety devices installed in accordance with the requirements of ASME CSD-1.

011. All units that are listed by the manufacturer as meeting the requirements of ANSI Z21.13 Gas-Fired Low Pressure Steam and Hot Water Heating Boilers shall bear the ASME Certification Mark and “H” designator.

012. Effective January 1, 2006, all newly installed or replacement units used for pool heaters, spa heaters or objects of this nature shall comply with the following.

A. All gas-fired pool heaters shall be built and certified in accordance with ASME Section IV and be listed as meeting the requirements of ANSI Z21.56 Gas-Fired Pool Heaters. The unit shall be inspected annually If a pool heater is constructed or installed so that water will be retained in the installed appliance under static conditions, it shall be equipped with a drain valve that is piped to a safe point of discharge.

B. All pool heaters installed outdoors shall be certified for outdoor use by the manufacturer.

C. All pool heaters shall have at least one (1) officially rated pressure-temperature relief valve or one (1) officially rated pressure relief valve of the automatic resealing type, set to relieve at or below the maximum allowable working pressure of the lowest rated component in the system. These relief valves shall bear the ASME Certification Mark and "V" or "HV" designator

D. All electrically fired heaters shall comply with the requirement of UL 1261 Standard for Electric Water Heaters for Pools and Tubs and shall be inspected annually.

013. Owners or users of units installed in heating systems that use glycol in the system shall maintain records available for review by the inspector that show the type of glycol used, the concentration of glycol in the system, dates the system was tested and test results, the minimum and maximum allowable concentration allowed, the pH range of the solution and the dates and amounts of any addition of glycol. Should the system require cleansing after removing old or damaged anti-freeze, owners or users shall flush the system with a heated 1-2% solution of trisodium phosphate for 2 to 4 hours, or as the glycol manufacturer recommends, and then drain and rinse the system thoroughly. Any boiler with inspection openings used in a glycol system that has been flushed shall have an internal inspection performed by a state inspector or a special inspector before the system is refilled.

NEBRASKA ADMINISTRATIVE CODE

TITLE 229 - DEPARTMENT OF LABOR

CHAPTER 25 - LOW PRESSURE BOILERS - EXISTING INSTALLATIONS

001. This chapter is adopted pursuant to *Neb. Rev. Stat.* §48-727.

002. The maximum allowable working pressure shall not exceed the following limitations: steam boilers -- 15 pounds per square inch, hot water heating and hot water supply boilers -- 160 pounds per square inch, and temperatures not exceeding 250 degrees Fahrenheit, potable water heaters - 160 pounds per square inch and temperatures not exceeding 210 degrees Fahrenheit.

003. All repairs and alterations to a low-pressure boiler must comply with the rules as defined in 229 NAC 15.

004. Each steam boiler shall have one (1) or more officially rated safety valves of the spring-pop type adjusted and sealed to discharge at a pressure not to exceed 15 pounds per square inch. These relief valves shall be identified with the “V” symbol.

005. Each hot-water heating boiler shall have at least one (1) officially rated pressure relief valve set to relieve at or below the maximum allowable working pressure of the boiler. These relief valves shall be identified with the “V” or “HV” symbol.

006. Each hot-water supply boiler shall have at least one (1) officially rated pressure-temperature relief valve of the automatic resealing type set to relieve at or below the maximum allowable working pressure of the boiler. These relief valves shall be identified by the “V” or “HV” symbol.

007. All ASME “H” code stamped boilers installed after March 1, 1998 shall have controls and safety devices installed in accordance with ASME Section IV, Rules for Construction of Heating Boilers and ASME CSD-1 Controls and Safety Devices for Automatically Fired Boilers.

NEBRASKA ADMINISTRATIVE CODE

TITLE 229 - DEPARTMENT OF LABOR

CHAPTER 26 - HOBBY/ANTIQUE BOILERS

001. This chapter is adopted pursuant to *Neb. Rev. Stat*. §§48-722 and 48-727.

002. Hobby/antique boilers brought in from other states must be inspected and issued a certificate of operation.

003. Thirty (30) days before the public gathering or show, all promoters, managers, and/or fair board members shall report to the Department all hobby/antique boilers that do not have a current certificate of operation issued by the Department.

004. Upon request, the Department may request names and addresses of owners who have displayed their hobby/antique boiler at a public gathering or in a show.

005. All hobby boilers shall be equipped with ASME Standard fire-actuated fusible plugs adequate to protect the boiler from a low water level.

006. All hobby/antique boilers that require a certificate of operation shall be operated to protect the boiler from a low water level.

007. All repairs and alterations to a hobby/antique boiler must comply with the rules as defined in 229 NAC 15 and Appendix C of the National Board Inspection Code.

008. Hobby boilers may be viewed as meeting the requirements as a "State Special" provided that details in the English language and United States customary units of the construction, material specifications and calculations, approved by a registered professional engineer experienced in boiler design, are submitted to the Chief Inspector for review by the Boiler Safety Advisory Board. Approval of such a boiler as a "state special" may be given where the boiler is found to be in compliance with acceptable standards and approval is obtained from the Commissioner.

009. All hobby, antique and historical boilers shall be inspected using the guidelines in Part 2, Supplement 6 of the National Board Inspection Code.

NEBRASKA ADMINISTRATIVE CODE

TITLE 229 - DEPARTMENT OF LABOR

CHAPTER 27 - PRESSURE VESSELS - EXISTING INSTALLATIONS

001. This chapter is adopted pursuant to Neb. Rev. Stat. §48-727.

002. Maximum Allowable Working Pressure for Standard Pressure Vessels - The maximum allowable working pressure for standard pressure vessels shall be determined in accordance with the applicable provisions of the edition of the ASME code or the API-ASME code under which they were constructed and stamped.

003. Maximum Allowable Working Pressure for Nonstandard Pressure Vessels, except as provided in 004 of this chapter.

A. The maximum allowable working pressure of a nonstandard pressure vessel shall be determined by the strength of the weakest course computed from the thickness of the plate, the tensile strength of the plate, the efficiency of the longitudinal joint, the inside diameter of the course and the factor of safety set by these rules.

TStE ÷ RFS = maximum allowable working pressure (MAWP), psig where:

TS = specified minimum tensile strength of shell plate material, psi. (When the tensile strength of carbon steel plate is not known, it may be taken as 55,000 psi for temperatures not exceeding 650 degrees Fahrenheit. For other materials use the lowest stress values for that material from ASME Section VIII.)

t = minimum thickness of shell plate of weakest course, inches.

E = efficiency of longitudinal joint depending upon construction. Use the following values: for riveted joints - calculated riveted efficiency; for fusion-welded and brazed joints:

single lap weld	40%
double lap weld	50%
single butt weld	60%
double butt weld or forge weld	70%
brazed steel	80%

R = inside radius of weakest course of shell (inches) provided the thickness does not exceed 10 percent of the radius shall be used.

FS = factor of safety allowed by these rules.

B. The minimum factor of safety shall in no case be less than 5 for existing installations. The working pressure shall be decreased when deemed necessary by the inspector to insure the operation of the vessel within safe limits. The condition of the vessel and the particular service to which it is subject will be the determining factors.

C. The maximum allowable working pressure permitted for formed heads under pressure shall be determined by using the appropriate formulas from ASME code, and the tensile strength and factors of safety given in 002 and 003(A) of this Chapter.

D. The maximum allowable working pressure for nonstandard pressure vessels subjected to external pressure shall be determined by the rules of the appropriate ASME code.

004. Formulas - Pressure vessels that were not ASME code stamped but which were constructed of known materials and were designed and constructed in accordance with sound engineering standards, formulas and practices that provide safety equivalent to the intent of the code shall be calculated on the same basis as used in the original design.

005. Inspection of Inaccessible Parts - Where, in the opinion of the inspector, as the result of conditions disclosed at the time of inspection, it may be necessary to remove 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 determine remaining thickness.

006. Each pressure vessel shall be provided with pressure relief devices, indicating and controlling devices as necessary to protect against overpressure. The devices shall be so constructed, located and installed that they cannot readily be rendered inoperative. The relieving capacity of such pressure relief device shall be adequate to prevent a rise in pressure in the vessel of more than 10% or 3 psig, whichever is greater, above the maximum allowable working pressure except when multiple relieving devices are provided, they shall prevent the pressure from rising more than 16% or 4 psig, whichever is greater, above the maximum allowable working pressure. When multiple pressure relieving devices are provided, at least one device shall be set at or below the maximum allowable working pressure and the additional devices shall be set no higher than 105% of the maximum allowable working pressure. When an additional hazard is involved due to fire or other unexpected sources of external heat, the pressure relief devices shall meet the requirements of ASME code.

007. Whenever repairs are made to fittings and appliances or it becomes necessary to replace them, the work must comply with the requirements for new installations and 229 NAC 15.

NEBRASKA ADMINISTRATIVE CODE

TITLE 229 - DEPARTMENT OF LABOR

CHAPTER 28 - PRESSURE VESSELS - NEW INSTALLATIONS

001. This chapter is adopted pursuant to *Neb. Rev. Stat.* §48-727.

002. No new pressure vessel shall hereafter be brought into this state or installed in this state, unless it has been constructed and inspected in accordance with the requirements of ASME Section VIII Division 1, 2, or 3, Section X or Section XII, and is so stamped~~,~~ ; or has been approved as a "state special". All new pressure vessels shall bear the ASME Certification Mark with the appropriate designator as defined in the appropriate ASME Section above.

003. Each pressure vessel shall be provided with pressure relief devices, indicating and controlling devices as necessary to protect against overpressure. These pressure relief devices shall bear the ASME Certification Mark and the appropriate designator, as defined in the ASME Section that applies to the construction of the vessel. The pressure relief devices shall be so constructed, located and installed so that they cannot readily be rendered inoperative. The relieving capacity of such pressure relief device shall be adequate to prevent a rise in pressure in the vessel of more than 10% or 3 PSIG, whichever is greater, above the maximum allowable working pressure except when multiple relieving devices are provided, they shall prevent the pressure from rising more than 16% or 4 PSIG, whichever is greater, above the maximum allowable working pressure. When multiple pressure relieving devices are provided, at least one device shall be set at or below the maximum allowable working pressure and the additional devices shall be set no higher than 105% of the maximum allowable working pressure. When an additional hazard is involved due to fire or other unexpected sources of external heat, the pressure relief devices shall meet the requirements of ASME code.