PROPOSED REGULATION OF THE DIVISION OF INDUSTRIAL RELATIONS OF THE DEPARTMENT OF BUSINESS AND INDUSTRY

LCB File No. R101-02

October 18, 2002

EXPLANATION – Matter in ***italics*** is new; matter in brackets ~~[omitted material]~~ is material to be omitted.

AUTHORITY: §§1-128, 130-171 and 173-214, NRS 455C.110; §§129 and 172, NRS 455C.110 and 455C.120.

Section 1. Chapter 455C of NAC is hereby amended by adding thereto the provisions set forth as sections 2 to 194, inclusive, of this regulation.

Sec. 2. ***As used in this chapter, unless the context otherwise requires, the words and terms defined in sections 3 to 6, inclusive, of this regulation have the meanings ascribed to them in those sections.***

Sec. 3. ***"Administrator" means the administrator of the division.***

Sec. 4. ***"Chief" means the chief administrative officer of the enforcement section.***

Sec. 5. ***"Division" means the division of industrial relations of the department of business and industry.***

Sec. 6. ***"Enforcement section" means the occupational safety and health enforcement section of the division.***

Sec. 7. ***As used in sections 7 to 129, inclusive, of this regulation, unless the context otherwise requires, the words and terms defined in sections 8 to 49, inclusive, of this regulation have the meanings ascribed to them in those sections.***

Sec. 8. *"Alteration" means a change in any item described in the data report from the original manufacturer for a boiler or pressure vessel which affects the capability of the boiler or pressure vessel to contain pressure, and includes:*

1. Changes which do not physically alter the boiler or pressure vessel, including, without limitation, an increase in the maximum allowable internal or external working pressure in the boiler or pressure vessel or a change in the temperature at which a boiler or pressure vessel is designed to be operated; and

2. A reduction in the minimum temperature of a boiler or pressure vessel which requires additional mechanical tests.

Sec. 9. *"Authorized inspection entity" means:*

1. The enforcement section;

2. An insurance company that:

(a) Is licensed in this state to write insurance for a boiler or pressure vessel; and

(b) Employs a special inspector who has been issued a certificate; or

3. An inspection organization.

Sec. 10. *"Boiler" has the meaning ascribed to it in NRS 455C.020.*

Sec. 11. *"Boiler inspector" means a person who:*

1. Inspects boilers or pressure vessels;

2. Holds a commission; and

3. Is employed by an authorized inspection entity.

Sec. 12. *"Certificate" means a certificate as a special inspector that is issued by the enforcement section pursuant to section 55 of this regulation.*

Sec. 13. *"Code" means:*

1. Any provision of a code relating to the construction of boiler and pressure vessels that has been approved by the National Board; or

2. Any provision set forth in sections 7 to 129, inclusive, of this regulation, including, without limitation, any provision set forth in a publication adopted by reference in section 51 of this regulation.

Sec. 14. *"Commission" means the commission issued by the National Board to a person who is authorized to make inspections of boilers or pressure vessels.*

Sec. 15. *"Contractor" has the meaning ascribed to it in NRS 624.020.*

Sec. 16. *"Electric boiler" means a power boiler or heating boiler in which the source of heat is electricity.*

Sec. 17. *"Existing installation" means any boiler or pressure vessel constructed, installed, placed in operation or contracted for use in this state before the effective date of this regulation.*

Sec. 18. *"External inspection" means an inspection which is made when a boiler or pressure vessel is operating.*

Sec. 19. *"Factor of safety" means the figure arrived at by dividing the pressure which will burst a boiler or pressure vessel by the maximum allowable working pressure as determined by the formulas set forth in the code that was applicable when the boiler or pressure vessel was constructed.*

Sec. 20. *"Fired pressure vessel" means a vessel other than a boiler in which steam or vapor pressure is generated in excess of 15 pounds per square inch by direct firing with a solid, liquid or gaseous fuel or by an electric heating element.*

Sec. 21. ***"Heat exchanger" means a device for transferring energy in the form of heat from a warmer medium to a cooler medium. The term includes a radiator.***

Sec. 22. ***"High-pressure, high-temperature water boiler" means a water boiler that operates at pressures in excess of 160 PSIG and at temperatures in excess of 250 degrees Fahrenheit.***

Sec. 23. ***"Hot water supply boiler" means a boiler or water heater completely filled with water that furnishes hot water to be used outside the boiler at pressures not exceeding 160 PSIG or at temperatures not exceeding 250 degrees Fahrenheit at or near the boiler outlet or a boiler that is designated as a lined water heater by being stamped with the letters "HLW" which:***

1. Uses a storage tank to supply hot water to the system;

2. Fires on demand to heat water which is supplied directly into the system; or

3. Is fired at a rate of not less than 200,000 British thermal units per hour.

Sec. 24. ***"Inspection for an operating permit" means an inspection:***

1. That is used by the enforcement section as the basis for issuing, withholding or revoking an operating permit; and

2. For which a report of inspection is required to be issued.

Sec. 25. ***"Inspection organization" means an owner or user of boilers or pressure vessels who maintains an inspection program that includes inspection procedures which comply with the National Board Inspection Code and have been approved by the enforcement section.***

Sec. 26. ***"Inspector" means a boiler inspector employed by the enforcement section.***

Sec. 27. ***"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 not***

operating and all plates for a manhole or handhole or other closures of openings used for an inspection are removed.

Sec. 28. *"Lined potable water heater" means a fired heater for the storage of water which has a corrosion-resistant lining and is used to supply potable hot water.*

Sec. 29. *"Low-pressure heating boiler" means a:*

1. Steam or vapor boiler that operates at pressures not exceeding 15 PSIG; or

2. Hot water boiler that:

(a) Operates at pressures not exceeding 160 PSIG or temperatures of not more than 250 degrees Fahrenheit; and

(b) Is not used to heat potable water except through a heat exchanger.

Sec. 30. *"National Board" means the National Board of Boiler and Pressure Vessel Inspectors.*

Sec. 31. *"National Board Inspection Code" means the manual for boiler and pressure vessel inspectors published by the National Board and adopted by reference in section 51 of this regulation.*

Sec. 32. *"New boiler or pressure vessel" means a boiler or pressure vessel that is constructed, installed, placed into operation or contracted for use in this state on or after the effective date of this regulation.*

Sec. 33. *"Nonstandard boiler or pressure vessel" means a boiler or pressure vessel that:*

1. Does not bear a stamp of the American Society of Mechanical Engineers or of a standard of construction which is approved by the National Board; or

2. Is not registered with the National Board.

Sec. 34. ***"Operating permit" means a permit required by NRS 455C.100 and issued by the enforcement section for the operation of a boiler or pressure vessel.***

Sec. 35. ***"Person" means a natural person, any form of business organization and any other legal entity, including, but not limited to, a corporation, partnership, association, trust or unincorporated organization.***

Sec. 36. ***"Portable boiler" means a boiler that is intended primarily for temporary use and has a construction that allows it to be moved readily from one location to another.***

Sec. 37. ***"Power boiler" means a boiler in which steam or other vapor is generated at a pressure of more than 15 PSIG. The term includes a high-pressure, high-temperature water boiler.***

Sec. 38. ***"Pressure vessel" has the meaning ascribed to it in NRS 455C.080.***

Sec. 39. ***"PSIG" means pounds per square inch gauge.***

Sec. 40. ***"Reinstalled boiler or pressure vessel" means a boiler or pressure vessel removed from its original setting and reinstalled at the same location or at a new location without a change of ownership.***

Sec. 41. ***"Relief valve" means an automatic pressure-relieving device as described in section I, IV or VIII of the ASME Boiler and Pressure Vessel Code, as adopted by reference in section 51 of this regulation.***

Sec. 42. ***"Repair" means the work necessary to restore a boiler, pressure vessel or relief valve to a safe and satisfactory operating condition, without deviation from the original design.***

Sec. 43. ***"Safety relief valve" means a relieving device, which is:***

1. Automatically pressure actuated; and

2. Suitable for use either as a safety valve or relief valve, depending on the application.

Sec. 44. *"Safety valve" means an automatic pressure-relieving device, which is:*

1. Actuated by the static pressure upstream of the valve; and

2. A full-opening, spring-pop type used for gas or vapor service.

Sec. 45. *"Secondhand boiler or pressure vessel" means a boiler or pressure vessel which has changed ownership and has been moved since its original installation.*

Sec. 46. *"Special inspector" means a boiler inspector who holds a certificate and who is employed by:*

1. An insurance company that is licensed in this state to write insurance for a boiler or pressure vessel; or

2. An inspection organization.

Sec. 47. *"Standard boiler or pressure vessel" means a boiler or pressure vessel which:*

1. Bears the stamp of the American Society of Mechanical Engineers or of a standard of construction that is approved by the National Board; and

2. Is registered with the National Board.

Sec. 48. *"Structure" means a wall, column or any equipment located in the area of a boiler or pressure vessel that is being installed.*

Sec. 49. *"Unfired steam boiler" means an unfired pressure vessel or a system of unfired pressure vessels intended for operation at a pressure in excess of 15 PSIG to produce and control an output of thermal energy. The term includes boilers that heat water with waste heat.*

Sec. 50. *An insurance company shall notify the enforcement section within 30 days after the insurance company commences coverage of or cancels, refuses to renew or suspends the coverage of a boiler or pressure vessel.*

Sec. 51. ***The division hereby adopts by reference:***

1. The following sections of the ASME Boiler and Pressure Vessel Code, 2001 edition, published by the American Society of Mechanical Engineers. Those sections of the publication may be obtained from the American Society of Mechanical Engineers, 22 Law Drive, P.O. Box 2900, Fairfield, New Jersey 07007-2900, for the price indicated:

(a) Section I, Power Boilers $270

(b) Section II, Materials - Part A: Ferrous Material Specifications 425

(c) Section II, Materials - Part B: Nonferrous Material Specifications 405

(d) Section II, Materials - Part C: Specifications for Welding Rods, Electrodes, and Filler Metals 405

(e) Section II, Materials - Part D: Properties.....405

(f) Section IV, Rules for Construction of Heating Boilers 260

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(h) Section VI, Recommended Rules for the Care and Operation of Heating Boilers.....165

(i) Section VII, Recommended Guidelines for the Care of Power Boilers 170

(j) Section VIII, Pressure Vessels - Division 1 425

(k) Section VIII, Pressure Vessels - Division 2, Alternative Rules.....415

(l) Section VIII, Pressure Vessels - Division 3, Alternative Rules for Construction of High Pressure Vessels.....350

(m) Section IX, Welding and Brazing Qualifications.....305

(n) Section X, Fiber-Reinforced Plastic Pressure Vessels.....240

2. Controls and Safety Devices for Automatically Fired Boilers, CSD-1, 2002 edition, published by the American Society of Mechanical Engineers. This publication applies to automatically fired boilers which are directly fired with gas, oil, a combination of gas and oil, or electricity, and may be obtained from the American Society of Mechanical Engineers, 22 Law Drive, P.O. Box 2900, Fairfield, New Jersey 07007-2900, for the price of $58.

3. The Power Piping Code, B31.1, 2001 edition, published by the American Society of Mechanical Engineers. This publication may be obtained from the American Society of Mechanical Engineers, 22 Law Drive, P.O. Box 2900, Fairfield, New Jersey 07007-2900, for the price of $210.

4. The Standard for the Qualification and Certification of High Capacity Fossil Fuel Fired Plants, QFO-1, 1998 edition, published by the American Society of Mechanical Engineers. This publication may be obtained from the American Society of Mechanical Engineers, 22 Law Drive, P. O. Box 2900, Fairfield, New Jersey 07007-2900, for the price of $41.

5. The National Fuel Gas Code, ANSI Z223.1/NFPA 54, 1999 edition, published by the National Fire Protection Association. This publication may be obtained from Global Engineering Documents, 15 Inverness Way East, Englewood, Colorado 80112, for the price of $64.

6. The National Electrical Code, ANSI/NFPA 70, 2002 edition and 2002 handbook, published by the American National Standards Institute. Those publications may be obtained from Global Engineering Documents, 15 Inverness Way East, Englewood, Colorado 80112, for the price of $206.

7. The Uniform Building Code, 1997 edition, published by the International Conference of Building Officials. This publication may be obtained from the International Conference of Building Officials, 5360 South Workman Mill Road, Whittier, California 90601, for the price of $205.20.

8. The Uniform Mechanical Code, 2000 edition, published by the International Conference of Building Officials. This publication may be obtained from the International Conference of Building Officials, 5360 South Workman Mill Road, Whittier, California 90601, for the price of $90.

9. The Uniform Plumbing Code, 2000 edition, published by the International Association of Plumbing and Mechanical Officials. This publication may be obtained from the International Association of Plumbing and Mechanical Officials, 20001 Walnut Drive South, Walnut, California 91789-2825, for the price of $60.

10. The Uniform Fire Code, 2000 edition, published by the International Conference of Building Officials. This publication may be obtained from the International Conference of Building Officials, 5360 South Workman Mill Road, Whittier, California 90601, for the price of $94.95.

11. The National Board Inspection Code, 2001 edition and addenda, published by the National Board of Boiler and Pressure Vessel Inspectors. This publication and its addenda may be obtained from the National Board of Boiler and Pressure Vessel Inspectors, 1055 Crupper Avenue, Columbus, Ohio 43229, for the price of $85.

12. The Standard for Installation of Oil-Burning Equipment, ANSI/NFPA 31, 2001 edition, published by the National Fire Protection Association. This publication may be

obtained from Global Engineering Documents, 15 Inverness Way East, Englewood, Colorado 80112, for the price of $49.

13. The Safety Standard for Refrigeration Systems, ANSI/ASHRAE 15, 2001 edition, published by the American Society of Heating, Refrigeration and Air-Conditioning Engineers. This publication may be obtained from Global Engineering Documents, 15 Inverness Way East, Englewood, Colorado 80112, for the price of $46.

14. The National Liquefied Petroleum Gas Code, ANSI/NFPA 58, 2001 edition, published by the National Fire Protection Association. This publication may be obtained from Global Engineering Documents, 15 Inverness Way East, Englewood, Colorado 80112, for the price of $64.

Sec. 52. *If any publication adopted by reference in section 51 of this regulation is revised, the administrator shall review the revision to determine its suitability for this state. If the administrator determines that the revision is not suitable for this state, he will hold a public hearing to review his determination and give notice of that hearing within 6 months after the date of the publication of the revision. If, after the hearing, the administrator does not revise his determination, the administrator shall give notice that the revision is not suitable for this state within 30 days after the hearing. If the administrator does not give such notice, the revision becomes part of the publication adopted by reference in section 51 of this regulation.*

Sec. 53. *A new boiler or pressure vessel must not be operated in this state unless:*

1. The owner of the boiler or pressure vessel has complied with the requirements for an operating permit set forth in section 59 of this regulation; and

2. The boiler or pressure vessel is designed, constructed, inspected, stamped and installed in accordance with the code.

Sec. 54. ***The provisions of sections 7 to 129, inclusive, of this regulation do not apply to:***

1. Boilers and pressure vessels governed by the provisions of chapter 512 of NRS and chapter 512 of NAC.

2. Boilers and pressure vessels installed or used in a single-family residence unless the boiler or pressure vessel is a:

(a) Hot water supply boiler;

(b) Hot water supply tank that has a storage capacity which exceeds 120 gallons;

(c) Low-pressure heating boiler;

(d) Power boiler; or

(e) Pressure vessel that:

(1) Operates at pressures that exceed 15 PSIG; or

(2) Has a storage capacity of 5 cubic feet or more by volume.

3. Boilers and pressure vessels under the control of the Federal Government.

4. Unfired pressure vessels meeting the requirements of the United States Department of Transportation for the shipment of liquids or gases under pressure.

5. Unfired pressure vessels having an inside diameter not exceeding 6 inches (152 millimeters).

6. Unfired pressure vessels used for domestic purposes and containing cold water under pressure, including those containing air, the compression of which serves only as a cushion.

7. Pressure vessels containing water heated by steam or by any other indirect means if none of the following limitations is exceeded:

(a) An input of heat of 199,999 British thermal units per hour (58,600 watts).

(b) A water temperature of 210 degrees Fahrenheit (99 degrees Centigrade).

(c) A water capacity of 120 gallons (450 liters).

8. Unfired pressure vessels that do not exceed 5 cubic feet in volume and 15 PSIG.

9. An unfired pressure vessel that may be classified as a pressure container which is an integral part or component of a rotating or reciprocating mechanical device, including a pump, compressor, turbine, generator, engine and hydraulic or pneumatic cylinder where the primary considerations of or stresses in the design, or both, are derived from the functional requirements of the device.

10. Unfired pressure vessels used for the storage of compressed air only.

11. A hot water heater constructed of continuous coils, which is used only to produce steam vapor to clean machinery, equipment and buildings, if:

(a) The tubing or pipe size does not exceed three-fourths of an inch in diameter and drums and headers are not attached;

(b) The nominal water containing capacity does not exceed 6 gallons;

(c) The water temperatures do not exceed 350 degrees Fahrenheit; and

(d) Steam is not generated within the coil,

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except that the provisions of sections 7 to 129, inclusive, of this regulation, do apply to safety relief valves on a hot water heater constructed of continuous coils.

12. Unfired pressure vessels and piping containing liquid petroleum gas and liquid natural gas.

13. A boiler or heater for a pool, if:

(a) The supply or return line has no stop valves installed; and

(b) It is impossible for the unit to build pressure in excess of 15 pounds per square inch.

Sec. 55. *1. An applicant for a certificate as a special inspector must submit to the enforcement section:*

(a) An application on a form prescribed by the enforcement section;

(b) The fee for issuance of a certificate set forth in section 129 of this regulation; and

(c) Proof satisfactory to the enforcement section that he:

(1) Satisfies the requirements described in section 56 of this regulation;

(2) Passed the examination described in section 56 of this regulation; and

(3) Is employed full time by:

(I) An insurance company that is licensed in this state to write insurance for a boiler or pressure vessel; or

(II) An inspection organization as defined in section 25 of this regulation or NAC 512.528.

2. If an applicant satisfies the requirements set forth in subsection 1, the enforcement section may issue a certificate to the applicant.

3. The enforcement section may issue a card for identification to the applicant after the applicant receives a commission.

4. A certificate and a card for identification issued pursuant to this section expire at midnight on March 1 next following the date of issuance, unless the certificate and the card for identification are renewed.

Sec. 56. *1. An applicant for examination for a certificate must have the education and experience required by the code.*

2. The application for examination must be:

(a) Submitted to the enforcement section at least 45 days before the examination; and

(b) In writing on a form provided by the enforcement section, stating the education of the applicant and listing his employers, the length of time employed by each employer and the position held with each employer.

3. An application that contains a false statement will be rejected.

4. The examination will be conducted in accordance with the code.

5. An applicant who fails to pass the examination may not take another written examination within 90 days after the examination.

Sec. 57. *To renew a certificate and card for identification, a special inspector must, on or before March 1, submit to the enforcement section:*

1. An application on a form prescribed by the enforcement section; and

2. The fee for renewal of a certificate set forth in section 129 of this regulation.

Sec. 58. *An inspector or special inspector shall submit to the enforcement section within 30 days after the inspection, on a form prescribed by the enforcement section, a report of each inspection he is required to conduct.*

Sec. 59. *1. The owner of a boiler or pressure vessel must obtain an operating permit before the boiler or pressure vessel may be operated in this state unless the boiler or pressure vessel is exempted from that requirement pursuant to section 54 of this regulation.*

2. An operating permit is valid until the earliest date of the following:

(a) Its date of expiration;

(b) The date the boiler or pressure vessel for which the permit is issued is removed from the location in which it was installed;

(c) A defect or condition affecting the safety of the boiler or pressure vessel is discovered;

(d) It is revoked by the enforcement section for nonpayment of fees; or

(e) It is revoked by the enforcement section for any other reason.

3. The operating permit must be retained on the premises where the boiler or pressure vessel is installed.

4. A report of inspection made pursuant to section 63 of this regulation shall be deemed to be an operating permit and authorizes the operation of a boiler or pressure vessel until the operating permit is issued, if:

(a) The report of inspection recommends the issuance of an operating permit; and

(b) The equipment complies with the requirements of sections 7 to 129, inclusive, of this regulation.

Sec. 60. *The enforcement section shall cancel an operating permit for a boiler or pressure vessel if it is moved from the site at which the boiler or pressure vessel was inspected. If the boiler or pressure vessel is reinstalled, it must be inspected, and a new permit will be issued by the enforcement section.*

Sec. 61. *An inspection for an operating permit must be an internal inspection if required by the enforcement section. If the enforcement section does not require an internal inspection, the inspection for an operating permit must comply with the requirements set forth in section 63 of this regulation.*

Sec. 62. *1. The inspection for an operating permit must be conducted before the expiration date of the operating permit at a time agreed upon by the inspector or special inspector and the owner of the boiler or pressure vessel or his agent.*

2. An external inspection may be performed by the inspector or special inspector during reasonable hours without prior notification to the owner of the boiler or pressure vessel or his agent.

Sec. 63. *1. The enforcement section shall issue, renew or revoke an operating permit based on the report of an inspection by an inspector or special inspector. Unless the type of inspection is specified in section 64 of this regulation and except as otherwise provided in subsections 2 and 3, an inspection must be:*

(a) Internal; or

(b) If the inspection is of a pressure vessel and the determined thickness is included in the report, made by ultrasonic testing.

2. If the design or construction of a boiler or pressure vessel is such that an internal inspection is not possible, an external inspection is acceptable.

3. An internal inspection is not required to obtain an operating permit for a hot water heating boiler, hot water supply boiler or boiler made of cast iron.

4. If a boiler or pressure vessel is found to be unsafe to operate, the inspector or special inspector shall notify the enforcement section and the enforcement section shall suspend the operating permit.

5. If the owner of a boiler or pressure vessel which is required to be inspected or his agent refuses to allow an inspection to be made, the enforcement section shall suspend the operating permit until the owner or his agent allows the inspection.

6. The inspector or special inspector shall indicate in the report of inspection the type of inspection that was performed.

Sec. 64. *1. A power boiler or a high-pressure, high-temperature water boiler must be inspected upon installation and must have an internal inspection, if the construction and design of the boiler so allows, at least once each year thereafter, and an external inspection*

approximately 6 months after the date of the internal inspection. If an internal inspection is not possible, such a boiler must have an external inspection at least once every 6 months.

2. A low-pressure heating boiler must be inspected upon installation and at least once every 2 years thereafter. The inspection must be:

(a) An internal inspection, if the construction and design of the boiler so allows and the inspector or special inspector so requests; or

(b) An external inspection that includes operational testing of all controls and safety devices.

3. A hot water heating boiler and a hot water supply boiler must be inspected upon installation and at least once every 2 years thereafter. The inspection must be:

(a) An internal inspection, if the construction and design of the boiler so allows and the inspector or special inspector so requests; or

(b) An external inspection that includes operational testing of all controls and safety devices.

4. A lined potable water heater must have an external inspection at least once every 2 years. The external inspection must include operational testing of all controls and safety devices if the installation and construction of the lined potable water heater so allows.

5. Any other fired pressure vessel for which a frequency of inspection is not specified in subsections 1 to 4, inclusive, must be inspected upon installation and at least once each year thereafter. The inspection must be:

(a) An internal inspection, if the construction and design of the pressure vessel so allows;

(b) An external inspection that includes operational testing of all controls and safety devices, if the installation and construction of the pressure vessel so allows; or

(c) An external inspection that includes operational testing of each control and safety device that it is possible to test given the installation and construction of the pressure vessel.

6. An unfired pressure vessel must be inspected upon installation and at least once every 4 years thereafter. The inspection must be:

(a) An internal inspection, if the construction and design of the pressure vessel so allows; or

(b) An external inspection that includes operational testing of all controls and safety devices.

7. A refrigeration pressure vessel must be inspected upon installation and at least once every 4 years thereafter. The inspection must be:

(a) An internal inspection, if the construction and design of the pressure vessel so allows; or

(b) An external inspection that includes operational testing of all controls and safety devices.

8. A boiler or pressure vessel installed or used in a single-family residence must be inspected upon installation. The inspection must include a preliminary and a final inspection and must be an internal inspection, if the construction and design of the pressure vessel so allows, or an external inspection that includes operational testing of all controls and safety devices. If the owner of the boiler or pressure vessel wishes to have an inspector perform any subsequent inspections of the boiler or pressure vessel, he must submit a written request for such an inspection to the enforcement section.

9. An inspector or special inspector may require any boiler or pressure vessel to be prepared for inspection in the manner set forth in section 65 of this regulation if, in his

opinion, an inspection is necessary to determine whether the boiler or pressure vessel is operating in a safe manner.

10. An inspection organization that has been authorized by the enforcement section to inspect its boilers and pressure vessels may request approval from the enforcement section to inspect its boilers and pressure vessels at a different interval.

11. Upon application from a petroleum company, chemical plant, public utility or other employer considered by the enforcement section as having a program acceptable to the enforcement section for preventive maintenance and examination, an operating permit that allows an extension of time between required internal inspections may be granted if the power boilers are inspected by external inspections at intervals of approximately 6 months. The application for the operating permit that allows an extension of time must be submitted in writing at least 45 days before the required internal inspection. The application must include the history of the power boiler or, if the power boiler is newly installed, of a similar boiler, substantiating that there is no significant deterioration from scaling, corrosion, erosion or overheating. Points of reference established by the owner of the power boiler or an authorized inspection entity at the time of the first inspection must be used to determine the thickness of the walls of the power boiler. If the application is approved after the internal inspection of each power boiler, a record showing the total corrosion and any other conditions that need correction must be submitted to the enforcement section.

12. An operating permit issued pursuant to subsection 11 expires 1 year after the date of an internal inspection. Before the expiration of the permit, the boiler must be inspected by an external inspection conducted by an inspector or special inspector who will review the operation logs and records of water treatment. If the owner of the power boiler or his agent

applies for an extension of an operating permit issued pursuant to subsection 11, the inspector or special inspector shall submit a report of inspection and recommendations to the enforcement section. If the enforcement section approves the application, it may extend the operating permit for a period not to exceed 6 months. Before the expiration date of the extension, the owner or his agent must apply again for an extension and the boiler must again be inspected by an external inspection conducted by an inspector or special inspector. A second extension may be issued for an additional period of 6 months after which the boiler must be inspected by an internal inspection.

Sec. 65. *1. The owner of a boiler or pressure vessel or his agent shall prepare each boiler or pressure vessel for internal inspection and shall apply a hydrostatic or pressure test, whenever necessary, on the date specified by the inspector or special inspector. The date must not be less than 7 days after the date of notification by the authorized inspection entity that an inspection will be made.*

2. The owner of a boiler or pressure vessel or his agent shall prepare the boiler or pressure vessel for internal inspection as follows:

(a) Water must be drawn off and the boiler washed thoroughly.

(b) Plates for a manhole or handhole, washout plugs and inspection plugs in the connections of the water column must be removed. The furnace and combustion chambers must be thoroughly cooled and cleaned.

(c) All grates of internally fired boilers must be removed.

(d) Brickwork or insulation must be removed as required by the inspector or special inspector to determine the condition of the boiler or pressure vessel, headers, furnace, supports or other parts.

(e) The pressure gauge must be removed for testing.

(f) Any leakage of steam or hot water into the boiler or pressure vessel must be prevented by disconnecting the pipe or valve at the most convenient point or by any method approved by the inspector or special inspector.

(g) Before opening the cover for a manhole or handhole and entering any parts of the boiler or pressure vessel which connect to a common header with other boilers, the nonreturn valve, steam stop valves, blowoff valves and feed valves must be closed, tagged and padlocked, and the drain valves or cocks located between valves must be opened. Blowoff lines must be disconnected between pressure parts and valves where practicable. All drains and vent lines must be opened.

3. Pressure vessels must be prepared for inspection to the extent deemed necessary by the inspector or special inspector using the applicable procedures set forth in subsection 2.

Sec. 66. *If a boiler or pressure vessel has not been properly prepared for a required inspection, or if the owner of a boiler or pressure vessel or his agent fails to comply with the requirements for a hydrostatic or pressure test, the inspector or special inspector may decline to make the inspection or test and the operating permit will be withheld or revoked until the owner or his agent complies with the requirements.*

Sec. 67. *1. If a boiler or pressure vessel is covered so that the longitudinal seams of shells, drums or domes cannot be seen, sufficient covering, setting wall or other form of casing or housing must be removed to permit reasonable inspection of the seams, rivets and other areas necessary to determine the condition and safety of the boiler or pressure vessel if the information cannot be determined by other means.*

2. If the inspector or special inspector, as the result of conditions disclosed at the time of inspection, requires the removal of the interior or exterior lining, covering or brickwork to expose parts of the boiler or pressure vessel not normally visible, the owner of the boiler or pressure vessel or his agent shall remove such material to permit a proper inspection to ascertain the thickness and condition of the covered areas.

Sec. 68. *If, upon an external inspection of a boiler or pressure vessel, there is evidence of a leak or crack, sufficient covering of the boiler or pressure vessel must be removed to allow the inspector or special inspector to determine satisfactorily the safety of the boiler or pressure vessel. If the covering cannot be removed at that time, the inspector or special inspector may order the operation of the boiler or pressure vessel discontinued until the covering can be removed and a proper examination can be made.*

Sec. 69. *If an inspector or special inspector determines that there is a violation of the code, the inspector or special inspector shall notify the owner of the boiler or pressure vessel in writing and describe the nature of the violation, including a reference to the provision of the code that was violated. The enforcement section shall take such action as it determines is appropriate pursuant to section 180 of this regulation.*

Sec. 70. *1. If an inspector or special inspector, upon his first inspection of a boiler or pressure vessel, finds that the boiler or pressure vessel or any appurtenance thereof is in an unsafe condition, the inspector or special inspector shall immediately notify the enforcement section and submit a report of the defects.*

2. If, as the result of an external inspection, the inspector or special inspector determines that the continued operation of a boiler or pressure vessel constitutes an unsafe condition, the inspector or special inspector:

(a) Shall immediately notify the owner of the boiler or pressure vessel in writing, stating the repairs or other corrective measures that are required to be made. Unless the owner or his agent makes the repairs or institutes other corrective measures promptly, the inspector or special inspector shall immediately notify the enforcement section. Until the corrections have been made, the boiler or pressure vessel involved must not be operated and the operating permit shall be deemed to be revoked by the enforcement section.

(b) May require an internal inspection or a pressure test, or both, to evaluate the condition of the boiler or pressure vessel. The owner of the boiler or pressure vessel or his agent shall prepare the boiler or pressure vessel for the internal inspection or pressure test.

Sec. 71. *If an accident occurs which renders a boiler or pressure vessel inoperative, the owner of the boiler or pressure vessel or his agent shall immediately notify the enforcement section in writing and submit a detailed report of the accident. In the case of a serious accident, including an explosion, notice must be given to the enforcement section immediately by the most expeditious means. The boiler or pressure vessel and any parts thereof must not be removed or disturbed before an inspection has been made by an inspector or special inspector unless human life is endangered or except to limit further damage.*

Sec. 72. *1. An inspector or special inspector shall stamp a boiler or pressure vessel that he has inspected and declared unsafe with the letters "XXX" on each side of the number that indicates the registration of the boiler or pressure vessel with the National Board or the number designated by the enforcement section. Such a stamp indicates that the boiler or pressure vessel is condemned.*

2. A person shall not use or offer for sale in this state a boiler or pressure vessel that has been stamped pursuant to subsection 1.

Sec. 73. *A boiler or pressure vessel constructed in a manner which meets the standards of this state, having the standard stamping of another state that has adopted a standard of construction equivalent to the standard of this state, the American Society of Mechanical Engineers or the National Board, may be accepted for installation in this state by the enforcement section if the contractor installing the boiler or pressure vessel applies to the enforcement section for a permit for installation pursuant to section 74 of this regulation before the construction or installation begins. The application must include a data report from the manufacturer of the boiler or pressure vessel.*

Sec. 74. *1. Each boiler and pressure vessel must be installed and trimmed as required by the stamping of the original manufacturer of the boiler or pressure vessel and in accordance with the applicable provisions of the code.*

2. Except as otherwise provided in subsection 6, a contractor must obtain a permit for installation before installing or altering a boiler or pressure vessel, including, without limitation, a refrigeration pressure vessel, in this state. If installation is begun before the permit is issued, installation must be suspended until the permit is issued.

3. A request for a permit for installation must be submitted by the contractor to the enforcement section in writing not less than 10 days before the installation will begin and include:

(a) A data report from the manufacturer of the boiler or pressure vessel; and

(b) The plans and specifications of the boiler room in which the boiler or pressure vessel is being installed which designate the location of the boiler or pressure vessel and which comply with the requirements of sections 102 and 104 of this regulation.

4. Except for an existing installation or a reinstalled boiler or pressure vessel, a boiler or pressure vessel may not be installed in this state unless it has been registered with the National Board.

5. Before a secondhand boiler or pressure vessel, reinstalled boiler or pressure vessel, or portable boiler or pressure vessel may be installed or shipped for installation into this state, the owner of the boiler or pressure vessel or his agent or the contractor must apply to the enforcement section for approval to install it. The request for a permit for installation must include, without limitation, a report of inspection. The report of inspection must be prepared by a person who holds a commission and who inspected the boiler or pressure vessel. The fittings and appurtenances of the boiler or pressure vessel must comply with the requirements for the installation of a new boiler or pressure vessel.

6. In the case of an emergency, a contractor may install or alter a boiler or pressure vessel, including a refrigeration pressure vessel, in this state without first obtaining a permit from the enforcement section if he:

(a) Notifies the enforcement section as soon as practicable after the alteration or installation; and

(b) Obtains the permit required by subsection 2 at that time.

Sec. 75. *1. If a boiler or pressure vessel is removed from its original site and is to be reinstalled at the same location or reinstalled at a new location with or without a change of ownership, the contractor must apply to the enforcement section for a permit for installation before reinstalling the boiler or pressure vessel. The fittings and appurtenances must comply with the requirements for the installation of a new boiler or pressure vessel.*

2. If a standard boiler or pressure vessel is to be moved to another state for temporary use or repair, the owner of the boiler or pressure vessel or his agent must apply to the enforcement section for approval to reinstall the boiler or pressure vessel within this state.

Sec. 76. *1. Upon completion of the installation or at the time of an inspection, each boiler or pressure vessel must be stamped, tagged or numbered as close as practicable to the nameplate or stamping of the manufacturer with a number of the State of Nevada only after the controls and safety devices required for the boiler or pressure vessel have been tested and approved by an inspector or special inspector. The stamp, tag or number must consist of four digits at least 5/16 of an inch in height, preceded with the last two digits of the year in which the boiler or pressure vessel is stamped and followed by the letters "NV."*

2. The stamp, tag or number must be permanent in nature, must not be concealed by lagging or paint and must be exposed at all times unless a suitable record is kept of the location of the stamp, tag or number so that it may be readily uncovered at any time.

Sec. 77. *The stamping or restamping of a boiler or pressure vessel must comply with the applicable provisions of the code.*

Sec. 78. *A boiler or pressure vessel for which a manufacturer's data report is required must bear a number beginning with "NB" as registered with the National Board. A copy of the manufacturer's data report must be filed with the enforcement section. The copy of the manufacturer's data report that is filed with the enforcement section must be signed by:*

1. A representative of the manufacturer; and

2. A person who holds a commission and who inspected the boiler or pressure vessel during the manufacturing process.

Sec. 79. *1. An inspector or special inspector may require a decrease in the working pressure or temperature of a boiler or pressure vessel if he determines that the condition of the boiler or pressure vessel requires such a decrease. If the owner of the boiler or pressure vessel does not concur with the decision of the inspector or special inspector, the owner or his agent may contest the decision. The contest must be in writing, addressed to the enforcement section and state with particularity the basis for the contest.*

2. If contested, the person designated by the chief to review the contest may require a joint inspection by at least two inspectors or special inspectors. Each inspector or special inspector shall prepare and submit a report to the person designated by the chief. The person designated by the chief shall render a final decision based upon the data contained in the reports submitted by the inspectors or special inspectors.

Sec. 80. *1. A person shall not attempt to remove or do any work on any required appliance for safety while a boiler or pressure vessel is subject to pressure.*

2. If an appliance is removed for repair while a boiler or pressure vessel is out of service, it must be reinstalled and working properly before the boiler or pressure vessel is returned to service.

3. A person shall not alter any appliance for safety or any device or valve for the relief of pressure to maintain a working pressure in excess of that stated on the operating permit for the boiler or pressure vessel.

Sec. 81. *1. If valves and other appurtenances require frequent manipulation and are so located that they cannot be reached or operated from the floor, a platform or other safe means of operation must be provided. If a platform or runway is used, it must be at least 24 inches wide and be provided with standard handrails and toe boards and have at least 7 feet 6 inches*

of head room. All runways must have at least two means of exit remotely located from one another and connected to a permanent stairway or incline ladder leading to the floor.

2. When necessary for safety, a steel runway or platform of standard construction must be installed across the tops of adjacent boilers or pressure vessels or at some other convenient level to afford safe access. All runways must have at least two means of exit, remotely located from one another.

Sec. 82. *For installations which are gas-fired, the burners used must conform to the applicable requirements of the National Fuel Gas Code, as adopted by reference in section 51 of this regulation.*

Sec. 83. *Each boiler and pressure vessel must be supported by masonry or structural supports of sufficient strength and rigidity to support safely the boiler or pressure vessel and its contents. There must not be an excessive vibration in the boiler, pressure vessel or its connecting piping.*

Sec. 84. *All connective pipes that are subjected to pressure emanating from:*

1. A heating boiler;

2. A hot water supply boiler;

3. A fired storage water heater;

4. A power or process boiler; or

5. An unfired pressure vessel,

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are part of the installation of the boiler or pressure vessel and must comply with the requirements for the boiler or pressure vessel. The inspection of the initial installation of such pipes must be performed by an inspector or special inspector.

Sec. 85. *1. A watertube boiler must have firing doors which open inward, unless the doors are provided with substantial and effective latching or fastening devices or are so constructed as to prevent them from being blown open by pressure on the furnace side.*

2. Latches or fastenings must be of the positive self-locking type. Friction contacts, latches or bolts actuated by springs must not be used. The requirements for latches or fastenings do not apply to coal openings of down-draft or similar furnaces.

3. All other doors except explosion doors not used in the firing of the boiler may be provided with bolts or fastenings in lieu of self-locking latching devices. Explosion doors, if used and if located in the setting walls within 7 feet of the firing floor or operating platform, must be provided with substantial deflectors to divert the blast.

Sec. 86. *Except as otherwise provided in this section, the pipe that is used to feed water into a boiler or pressure vessel must not be installed or connected to any domestic water supply unless a backflow prevention device that is certified by the manufacturer as being approved pursuant to the code is installed to prevent contamination or pollution of the water supply. A backflow prevention device is not required to be installed on a hot water supply boiler that is used only for domestic water use. The certification for the backflow prevention device must be available to the inspector or special inspector, upon request, at the time of installation and annually thereafter.*

Sec. 87. *1. Repairs and alterations to all boilers and pressure vessels must conform to the applicable provisions of the code.*

2. If a repair or alteration to a boiler or pressure vessel is necessary, an inspector or special inspector must be consulted about the appropriate method of making the repair or alteration. After the repair or alteration is made, the inspector or special inspector shall

inspect the boiler or pressure vessel in the manner set forth in the code. The person who makes the repairs or alterations shall submit the "R" form, prescribed by the National Board, to the enforcement section within 30 days after completion of the repair or alteration.

3. The person who makes repairs or alterations must be qualified pursuant to the applicable provisions of the code.

Sec. 88. *A person who is in the business of repairing safety valves must hold a certificate of authorization from the National Board for the use of a National Board Pressure Relief Valve Repair stamp, designated by the National Board as a "VR" stamp.*

Sec. 89. *1. The shell or drum of a boiler or pressure vessel with a lap-seam crack along a longitudinal riveted joint must be immediately discontinued from use. The crack may not be repaired.*

2. As used in this section, "lap-seam crack" means a crack found in lap seams, extending parallel to the longitudinal joint and located between or adjacent to rivet holes.

Sec. 90. *1. Each automatically controlled boiler must be provided with a control for water level that automatically maintains the water level in the boiler within the range designated by the applicable provisions of the code.*

2. Whenever repairs are made to fittings or appliances or it becomes necessary to replace them, the replacement or repairs must comply with the applicable provisions of the code.

Sec. 91. *The replacement or repair of a fitting or appliance must be made in compliance with the requirements for the initial installation of a fitting or appliance.*

Sec. 92. *The capacity rating of:*

1. A safety valve that is designed primarily for use in steam or vapor service must be rated in pounds per hour.

2. A relief valve that is designed primarily for use in liquid service must be rated in British thermal units per hour.

3. A safety relief valve that is designed primarily for use in:

(a) Steam or vapor service must be rated in pounds per hour.

(b) Heated liquid service must be rated in British thermal units per hour.

4. A cold water relief valve may be rated in gallons per hour.

Sec. 93. *1. The use of weighted-lever safety valves or safety valves having the seat or disc of cast iron is prohibited. Valves of this type or construction must be replaced by direct spring-loaded, pop-type valves that conform to the requirements of section I of the ASME Boiler and Pressure Vessel Code, as adopted by reference in section 51 of this regulation.*

2. Each boiler must have at least one safety valve certified by the American Society of Mechanical Engineers or the National Board and, if it has more than 500 square feet of water-heating surface or an input of electric power of more than 1,100 kilowatts, it must have two or more such safety valves.

3. The valve must be connected to the boiler independent of any other connection and attached as close as possible to the boiler, without unnecessary intervening pipes or fittings.

4. A valve of any description must not be placed between the safety valve and the boiler, or on the discharge pipe between the safety valve discharge and the atmosphere. A discharge pipe must be at least the full size of the discharge of the safety valve and fitted with an open drain to prevent water from lodging in the upper part of the safety valve or discharge pipe. If an elbow is placed on a safety valve or discharge pipe, it must be located close to the outlet of the safety valve or discharge pipe and must be anchored and supported securely. All safety discharges must be so located or piped as to be carried clear of walkways or platforms.

5. The capacity of the safety valve of each boiler must be such that the safety valve will discharge all the steam which can be generated by the boiler without allowing the pressure to which any valve is set to rise more than 6 percent above the working pressure if the steam is discharged or 6 percent above the maximum allowable working pressure of the boiler, whichever is less.

6. One or more safety valves on every boiler must be set at or below the maximum allowable working pressure. The remaining valves may be set within a range of 3 percent above the maximum allowable working pressure, but the range of the setting of all the safety valves on a boiler may not exceed 10 percent of the highest pressure to which any valve is set.

7. If two or more boilers operating at different pressures and settings of the safety valve are interconnected, the lower pressure boilers or interconnected piping must be equipped with safety valves of sufficient capacity to prevent overpressure, considering the maximum generating capacity of all boilers.

8. In those cases where the boiler is supplied with feed water directly from water mains without the use of feeding apparatus other than return traps, a safety valve must not be set at a pressure greater than 94 percent of the lowest pressure obtained in the supply main that feeds the boiler.

9. The relieving capacity of the safety valves on any boiler must be checked by one of the following methods, and if found to be insufficient, additional valves must be provided:

(a) By making an accumulation test, which consists of shutting off all other steam discharge outlets from the boiler and forcing the fires to the maximum. The safety valve capacity must be sufficient to discharge all the steam that can be generated by the boiler without allowing the pressure to rise more than 6 percent above the highest pressure at which

any valve is set and in no case to rise more than 6 percent above the maximum allowable working pressure of the boiler. This method must not be used on a boiler with a superheater or reheater or on a high-pressure, high-temperature water boiler.

(b) By measuring the maximum amount of fuel that can be burned and computing the corresponding capacity for evaporation or generation of steam upon the basis of the heating value of this fuel. These computations must be made as set forth in the appendix of section I of the ASME Boiler and Pressure Vessel Code, as adopted by reference in section 51 of this regulation.

(c) By measuring the maximum amount of feed water that can be evaporated.

10. If either of the methods outlined in paragraph (b) or (c) of subsection 9 is employed, the sum of the safety valve capacities must be equal to or greater than the maximum evaporative capacity or the maximum steam generating capacity of the boiler.

11. The capacity rating of a:

(a) Safety valve must be expressed in pounds per hour.

(b) Relief valve must be expressed in British thermal units per hour.

Sec. 94. *1. Each low-pressure steam boiler must have one or more safety valves certified by the American Society of Mechanical Engineers or the National Board which is of the spring-pop type, adjusted and sealed to discharge at a pressure not to exceed 15 PSIG. Seals must be attached in a manner to prevent the valve from being taken apart without breaking the seal. The safety valves must be arranged so that they cannot be reset to relieve at a higher pressure than the maximum allowable working pressure of the low-pressure steam boiler. A connection for the body drain below seat level must be provided by the manufacturer, which must not be plugged during or after field installation. For valves exceeding 2-inch pipe*

size, the drain hole must be tapped not less than 3/8-inch pipe size. For valves which are less than 2 inches, the drain hole may not be less than one-quarter of an inch in diameter.

2. A safety valve for a low-pressure steam boiler must not be smaller than three-quarters of an inch. A safety valve must not be larger than 4 1/2 inches. The inlet opening must have an inside diameter equal to or greater than the seat diameter.

3. The minimum relieving capacity of the valve must be determined by the marking of the capacity on the boiler.

4. The minimum valve capacity in pounds per hour must be the greater figure determined:

(a) By dividing the maximum output in British thermal units at the boiler nozzle obtained by the firing of any fuel for which the unit is installed by 1,000; or

(b) On the basis of the pounds of steam generated per hour per square foot of heating surface as given in the following table:

Minimum Pounds of Steam Per Hour

Per Square Foot of Heating Surface

Boiler Heating Surface:	*Firetube Boilers*	*Watertube Boilers*
Hand fired	*5*	*6*
Stoker fired	*7*	*8*
Oil, gas or pulverized fuel fired	*8*	*10*

Waterwall Heating Surface:

Hand fired	*8*	*8*
Stoker fired	*10*	*12*
Oil, gas or pulverized fuel fired	*14*	*16*

5. For the purposes of the table set forth in subsection 4:

(a) If a boiler is fired only by a gas that gives a heat value not in excess of 200 British thermal units per cubic foot, the minimum safety valve or safety relief valve relieving capacity may be based on the value given for hand fired boilers in the table set forth in subsection 4.

(b) The minimum safety valve or safety relief valve relieving capacity for electric boilers must be 3 1/2 pounds per hour per kilowatt input.

6. The safety valve capacity for each steam boiler must be such that, if the fuel-burning equipment is installed and operated at maximum capacity, the pressure cannot rise more than 6 PSIG above the maximum allowable working pressure.

7. If operating conditions are changed or an additional boiler heating surface is installed, the valve capacity must be increased, if necessary, to meet the new conditions as set forth in the code. The additional valves required may be installed on the outlet piping if there is no intervening valve.

8. If there is any doubt as to the capacity of the safety valve, an accumulation test must be run as provided in section IV of the ASME Boiler and Pressure Vessel Code, as adopted by reference in section 51 of this regulation.

9. A valve of any description must not be placed between the safety valve and the boiler, or on the discharge pipe between the safety valve and the atmosphere. The discharge pipe must be at least full size and be fitted with an open drain to prevent water from lodging in the upper part of the safety valve or in the discharge pipe. If an elbow is placed on the outlet for the safety valve or the discharge pipe, it must be located close to the outlet or the discharge pipe and must be securely anchored and supported. All discharges from safety valves must be so located or piped as not to endanger any person in the area.

Sec. 95. *1. Each hot water heating boiler must have at least one safety relief valve, certified by the American Society of Mechanical Engineers or the National Board, set to relieve pressure at or below the maximum allowable working pressure of the boiler. Each hot water supply boiler must have at least one safety relief valve of the automatic reseating type, certified by the American Society of Mechanical Engineers or the National Board, set to relieve at or below the maximum allowable working pressure of the boiler. Safety relief valves must have a capacity certified by the American Society of Mechanical Engineers or the National Board and must have pop action if tested by steam. If more than one safety relief valve is used on hot water heating or hot water supply boilers, the additional valve must be rated by the American Society of Mechanical Engineers or the National Board and set within a range not to exceed 6 PSIG above the maximum allowable working pressure of the boiler up to and including 60 PSIG and 10 percent if the maximum allowable working pressure exceeds 60 PSIG. Safety relief valves must be spring loaded. Safety relief valves must be arranged so that they cannot be reset at a higher pressure than the maximum permitted by this subsection.*

2. Material that is likely to fail because of deterioration or vulcanization if it is subjected to a saturated steam temperature which corresponds to test pressure for capacity must not be used for any part of the safety relief valve.

3. A safety relief valve must not be smaller than three-quarters of an inch or larger than 4 1/2 inches in a standard pipe size, except that boilers having a input of heat of not more than 15,000 British thermal units per hour may be equipped with a safety relief valve of one-half of an inch in diameter or its equivalent area. The opening for the inlet must have an inside diameter approximately equal to, or greater than, the diameter of the seat. The minimum opening through any part of the valve must not be less than one-fourth of an inch in diameter or an equivalent area.

4. The capacity of the safety relief valve for each boiler must be such that, with the fuel-burning equipment installed and operated at maximum capacity, the pressure cannot exceed 6 PSIG above the maximum allowable working pressure of the boiler up to and including 60 PSIG and 10 percent if the maximum allowable working pressure exceeds 60 PSIG.

5. If operating conditions are changed or additional boiler heating surface is installed, the capacity of the valve must be increased, if necessary, to meet the new conditions as set forth in the code and must be in accordance with subsection 4. The additional valves required because of changed conditions may be installed on the outlet piping if there is no intervening valve.

6. If there is any doubt as to the capacity of the safety relief valve, an accumulation test must be run as provided in section IV of the ASME Boiler and Pressure Vessel Code, as adopted by reference in section 51 of this regulation.

7. A valve of any description must not be placed between the safety relief valve and the boiler, or on the discharge pipe between the safety relief valve and the atmosphere. The discharge pipe must be at least full size and fitted with an open drain to prevent water from lodging in the upper part of the safety relief valve or in the discharge pipe. If an elbow is placed on the discharge pipe, it must be located close to the safety relief valve outlet or the discharge pipe must be securely anchored and supported. All discharges from the safety relief valve must be so located or piped as not to endanger any person in the area.

8. A pressure and temperature relief valve must be installed on all water heaters and hot water supply boilers to which the provisions of sections 7 to 129, inclusive, of this regulation apply.

Sec. 96. *1. A lined potable water heater must have at least one pressure and temperature relief valve that is:*

(a) Not smaller than three-fourths of an inch standard pipe size; and

(b) Marked with the symbol V or HV to ensure compliance with the construction and rating requirements of the code.

2. The pressure setting of the relief valve must be less than or equal to the maximum allowable working pressure of the lined potable water heater. The temperature setting of the relief valve must not exceed 210 degrees Fahrenheit. If any other components of the hot water supply system, such as a valve, pump, expansion or storage tank or piping, have a working pressure rating that is less than the lined potable water heater, the pressure setting for the relief valve must be based upon the component with the lowest maximum allowable working pressure rating. If there is more than one safety relief valve on a lined potable water heater,

the pressure of the additional valve must not exceed the pressure of the first valve by more than 10 percent.

3. The relieving capacity for the safety relief valve of an electrically powered lined potable water heater must be greater than 3,500 British thermal units per hour per kilowatt of input. The required relieving capacity for the safety relief valve on any other lined potable water heater must be in British thermal units per hour and must not be less than the maximum allowable input.

4. A lined potable water heater must have a safety relief valve capacity such that when the fuel-burning equipment is installed and operated at maximum capacity, the pressure cannot rise more than 10 percent of maximum allowable working pressures.

5. If operating conditions change or additional heating surface is installed, the capacity of the safety relief valve on a lined potable water heater must be increased to meet the requirements of this section. If any additional valves are required because of a change in operating conditions, the valves may be installed on the outlet piping if there is not an intervening valve.

Sec. 97. *1. A boiler having a longitudinal joint that is other than lap-riveted may be continued in operation beyond 30 years at the working pressure determined by section 98 of this regulation if it is thoroughly inspected, by an internal inspection and an external inspection, and is given a hydrostatic pressure test of 1 1/2 times the maximum allowable working pressure and held for at least 30 minutes, during which no distress or leakage develops.*

2. The maximum age at which any nonstandard boiler having longitudinal joints that are lap-riveted and operating at a pressure in excess of 50 PSIG may be operated is 20 years. If

such a boiler is removed from its existing setting, it may not be reinstalled for a pressure that is in excess of 15 PSIG.

Sec. 98. *1. Except as otherwise provided in this section, the maximum allowable working pressure of a nonstandard boiler is determined by the following formula:*

$$\frac{TStE}{RFS} = \text{maximum allowable working pressure, in PSIG}$$

where:

TS = *ultimate tensile strength of shell plate, in PSIG. If the tensile strength is not known, it shall be deemed to be 55,000 PSIG for steel and 45,000 PSIG for wrought iron.*

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

E = *efficiency of longitudinal joint:*

For tube ligaments, E is determined by the appropriate provisions of section I of the ASME Boiler and Pressure Vessel Code, as adopted by reference in section 51 of this regulation.

For riveted construction, E is determined by the appropriate provisions of the National Board Inspection Code.

For seamless construction, E must be 100 percent.

R = *inside radius of weakest course of shell, in inches.*

FS = *factor of safety permitted by this chapter.*

2. The resistance of mild steel to crushing shall be deemed to be 95,000 PSIG.

3. If computing the ultimate strength of rivets in shear, the following values in pounds per square inch of the cross-sectioned area of the shank of the rivet must be used:

	PSIG
Iron rivets in single shear	*38,000*
Iron rivets in double shear	*76,000*
Steel rivets in single shear	*44,000*
Steel rivets in double shear	*88,000*

4. If the diameter of the rivet holes in the longitudinal joints of a boiler is not known, the diameter and cross-sectioned area of rivets, after driving, may be selected from the following table or ascertained by cutting out one rivet in the body of the joint.

Sizes of Rivets Based on Plate Thickness

Thickness of plate, in inches	*1/4*	*9/32*	*5/16*	*11/32*	*3/8*	*13/32*
Diameter of rivet after driving, in inches	*11/16*	*11/16*	*3/4*	*3/4*	*13/16*	*13/16*
Thickness of plate, in inches	*7/16*	*15/32*	*1/2*	*9/16*	*5/8*	
Diameter of rivet after driving, in inches	*15/16*	*15/16*	*15/16*	*1-1/16*	*1-1/16*	

5. A nonstandard boiler with welded seams may not be operated at pressures exceeding 15 PSIG for steam and 30 PSIG for water.

6. The maximum allowable working pressure may be decreased by the inspector or special inspector if the condition and safety of the boiler warrant it.

7. Except as otherwise provided in this subsection, the lowest factor of safety permissible on existing installations is 4.5 or as set forth in the edition of the code that was applicable at the time of construction. The lowest factor of safety permissible on existing installations is 8 feet for horizontal-return tubular boilers having continuous longitudinal lap seams more than 12 feet in length. If such a horizontal-return tubular boiler is removed from its existing setting, it must not be reinstalled for pressures in excess of 15 PSIG.

8. Reinstalled or secondhand boilers must have a minimum factor of safety of 6 if the longitudinal seams are of lap-riveted construction, and a minimum factor of safety of 5 if the longitudinal seams are of butt- and double-strap construction.

Sec. 99. *The maximum allowable working pressure for any boiler made of cast iron, except a hot water boiler, is 15 PSIG.*

Sec. 100. *The maximum allowable working pressure on a watertube boiler which has:*

1. Tubes secured in headers made of cast iron or malleable iron; or

2. Mud drums made of cast iron,

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must not exceed 160 PSIG.

Sec. 101. *The maximum age at which a standard boiler may be operated is the age determined pursuant to the code in effect when the boiler was constructed and stamped, if it is thoroughly inspected, by an internal inspection and an external inspection, and is given a*

hydrostatic pressure test of 1 1/2 times the maximum allowable working pressure with water that is at a temperature of at least 70 degrees Fahrenheit but not more than 120 degrees Fahrenheit.

Sec. 102. *Except as otherwise provided in sections 103 and 104 of this regulation, if boilers are replaced or new boilers are installed in existing or new buildings, a minimum height of at least 3 feet must be provided between the top of the boiler, excluding appurtenances, and the ceiling and at least 3 feet between any side of the boiler and any adjacent wall or other structure. Boilers and pressure vessels having manholes must have a 5-foot clearance from the opening of the manhole to any wall, ceiling or piping that will prevent a person from entering the boiler or pressure vessel. All boilers and pressure vessels must be located so that adequate space will be provided for the proper operation of the boilers and pressure vessels and their appurtenances, for the inspection of all surfaces, tubes, waterwalls, economizers, piping, valves and other equipment, and for the necessary maintenance and repair and the replacement of tubes. If pressure vessels are installed or replaced, there must be an area of unobstructed clearance which is at least 18 inches wide and provides access for inspection, maintenance and repair. Clearance for repairs and cleaning may be provided through a door or access panel into another area if the door or access panel is large enough to allow the repairs and cleaning to be performed adequately.*

Sec. 103. *The clearance between a wall or other structure and a fired storage and fired coil water heater must be not less than the clearance specified by the manufacturer.*

Sec. 104. *1. A copper watertube boiler that is used for domestic hot water or comfort heating must have a clearance of not less than the clearance recommended by the manufacturer of the boiler between each side or end of the boiler from which maintenance,*

operation of the controls, or repairs may be required, and any wall, column, equipment or other structure.

2. Each side or end of a copper watertube boiler that is used for domestic hot water or comfort heating must have a clearance of not less than 6 inches or the clearance recommended by the manufacturer of the boiler, whichever is greater, between each side or end of the boiler from which maintenance, operation of the controls, or repairs will not be required, and any wall, column, equipment or other structure.

3. A copper watertube boiler must be installed in a manner that allows a person access to the boiler to maintain, repair or operate the boiler.

Sec. 105. *1. Each boiler must have a supply of feed water that will allow it to be fed at any time while under pressure.*

2. A boiler having more than 500 square feet of water heating surface must have at least two means of feeding water, one of which must be a feed pump. A source of feed directly from water mains at a pressure of 6 percent greater than the set pressure of the safety valve with the highest setting may be used as one of the means of feeding water. Boilers fired by gaseous, liquid or solid fuel in suspension may be equipped with a single means of feeding water if means are furnished for the shutoff of heat before the level of water reaches the lowest safe level.

3. The feed water must be introduced into the boiler in such a manner that it will not be discharged close to riveted joints of the shell or furnace sheets, directly against the surfaces exposed to products of combustion or to direct radiation from the fire. The feed piping to the boiler must be provided with a check valve near the boiler and a stop valve or cock between the check valve and the boiler. If two or more boilers are fed from a common source, there must

also be a stop valve on the branch to each boiler between the check valve and source of supply. If a globe valve is used on feed piping, the inlet must be under the disc of the valve.

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

Sec. 106. *1. Feed water, make-up water or water treatment must be introduced into a boiler through the return piping system or through an independent feed water connection which does not discharge against the parts of the boiler exposed to direct radiant heat from the fire. Feed water, make-up water or water treatment must not be introduced through openings or connections provided for inspection or cleaning, a safety valve, safety relief valve, surface blowoff, water column, water gauge glass, pressure gauge or temperature gauge.*

2. The feed water pipe must be provided with a check valve near the boiler and a stop valve or cock between the check valve and the boiler or return pipe system.

Sec. 107. *The return water connections to all low-pressure steam heating boilers supplying a gravity return heating system must be arranged to form what is known as the "return pipe loop connection," so that the water cannot be forced out of the boiler below the safe water level. This connection is illustrated in section IV of the ASME Boiler and Pressure Vessel Code, as adopted by reference in section 51 of this regulation.*

Sec. 108. *1. Each steam boiler must have a steam gauge connected to the steam space or to the steam connection to the water column. The steam gauge must have a dial range that is graduated to approximately double the pressure at which the safety valve is set, but in no case to less than 1 1/2 times this pressure. The steam gauge must be connected to a siphon or equivalent device of sufficient capacity to keep the gauge tube filled with water and arranged*

so that the gauge cannot be shut off from the boiler except by a cock placed near the gauge and provided with a tee or lever handle arranged to be parallel to the pipe in which it is located when the cock is open.

2. If a steam gauge connection which is longer than 8 feet is necessary, a shutoff valve may be used near the boiler if the valve is of the outside-screw-and-yoke type and is locked open. The line must be of ample size with provision for free blowing. Each boiler must be provided with a 1/4-inch nipple and globe valve connected to the steam space for the exclusive purpose of attaching a test gauge when the boiler is in service so that the accuracy of the boiler steam gauge may be determined.

Sec. 109. *1. Each outlet for steam from a boiler, except connections for a safety valve and water column, must be fitted with a stop valve that is located as close as practicable to the boiler.*

2. If a stop valve is so located that water can accumulate, ample drains must be provided. The drainage must be piped to a safe location and must not be discharged on the top of the boiler or its setting.

3. If boilers provided with manholes are connected to a common steam main, the connection for steam from each boiler must be fitted with two stop valves having an ample free-blow drain between them. The discharge of the drain must be visible to the operator while manipulating the valves and must be piped clear of the boiler setting. The stop valves must consist of one automatic nonreturn valve set next to the boiler and a second valve of the outside-screw-and-yoke type.

4. If any part of a heating system may be closed off from the remainder of the system by closing a steam stop valve, there must be a check valve in the condensate return line from that part of the system.

Sec. 110. *1. Outlet connections, except for damper regulators, feed water regulators, low-water fuel cutouts, drains, steam gauges or such apparatus that does not permit the escape of an appreciable amount of steam or water therefrom, must not be placed on the piping that connects the water column to the boiler. The water column must be provided with a valved drain of at least 3/4-inch pipe size, the drain to be piped to a safe location.*

2. A boiler is not required to be installed with a gauge cock.

3. For all installations where the water gauge glass or glasses are more than 30 feet above the boiler operating floor, remote water level indicating or recording gauges must be installed at eye level above the operating floor.

4. Each steam boiler must have one or more water gauge glasses attached to the water column or boiler by means of valved fittings. The lower fitting must be provided with a drain valve of the straightway type with an opening not less than 1/4-inch diameter to facilitate cleaning. The replacement of the gauge glass must be possible while the boiler is under pressure.

5. Transparent materials other than glass may be used for the water gauge if the material has proved suitable for the pressure, temperature and corrosive conditions encountered in service.

Sec. 111. *A person is qualified to attend a power boiler or a high-pressure, high-temperature water boiler, where such attendance is required pursuant to section 114 of this regulation, if he has:*

1. The technical training, experience and knowledge necessary to start, operate and shut down the boiler; and

2. A high school diploma or the equivalent and at least the following number of days or equivalent hours of documented experience in the operation of boilers for the size of the boiler being operated:

(a) For up to 299 boiler horsepower, 182 days.

(b) For 300 to 499, inclusive, boiler horsepower, 365 days.

(c) For 500 to 1,000, inclusive, boiler horsepower, 547 days.

(d) For more than 1,000 boiler horsepower, 1,095 days.

Sec. 112. *1. A permanent source of outside air must be provided for the room in which the boiler is located to allow satisfactory combustion of the fuel as well as proper ventilation of the room under normal operating conditions. Air used for combustion must not be taken from a room that contains equipment for refrigeration.*

2. The total input of British thermal units of the burners for all fired pressure vessels in the room for the boiler must be used to determine the size of the louver, whether the boilers are fired by coal, oil or gas in compliance with the applicable provisions of Controls and Safety Devices for Automatically Fired Boilers, as adopted by reference in section 51 of this regulation.

Sec. 113. *Any room for a boiler exceeding 500 square feet in floor area and containing one or more boilers having a capacity to burn fuel of 1,000,000 British thermal units per hour, or the equivalent electrical input of heat, must have at least two means of exit, remotely located from one another. If such a room has more than one elevation, each elevation must have two means of exit, remotely located from one another.*

Sec. 114. *1. Except as otherwise provided in subsection 5, a high-pressure, high-temperature water boiler and a power boiler must be attended by an operator who meets the qualifications set forth in section 111 of this regulation.*

2. A low-pressure steam boiler or hot water heating boiler must be attended by an operator, unless the boiler is equipped with each of the following functioning safety devices:

(a) A low water fuel cutoff;

(b) An automatic feed water regulator;

(c) Fireside regulators and controls;

(d) An audible alarm to indicate low water; and

(e) A pressure control.

3. The operator shall personally check the operation of the boiler, the necessary auxiliaries and the level of water in the boiler at intervals necessary to ensure the boiler's safe operation. The boiler and its auxiliaries must be checked at least once every 60 minutes and must not be left unattended for periods in excess of the time required to evaporate the water from the normal operating level to the lowest water level permissible if the feed water is shut off or the boiler is forced to its maximum capacity. A log noting the time of all checks and observations must be kept in the boiler room.

4. If the attendance of the boiler is required pursuant to this section, a clock to start or stop automatically the operation of the boiler must not be used, unless the timing mechanism is a device or system which has been approved by the enforcement section.

5. High-pressure, high-temperature water boilers and power boilers do not need to be attended, if the boiler is equipped with the following functioning protective devices, as

required by the applicable provisions of Controls and Safety Devices for Automatically Fired Boilers, as adopted by reference in section 51 of this regulation:

(a) If the boiler is operated at less than supercritical pressure:

(1) A low water fuel cutoff;

(2) An automatic feed regulator;

(3) Fireside regulators and controls;

(4) An audible alarm to indicate low water;

(5) A pressure control; and

(6) A programmed flame safeguard system with an audible alarm on burners equipped with spark ignition.

(b) If the boiler is operated at supercritical pressure, it must include all the devices described in paragraph (a) and:

(1) A cutoff device for high temperature or fuel; and

(2) An audible alarm to indicate high temperature.

6. As used in this section, "supercritical pressure" means 3,206 pounds of pressure per square inch at 705 degrees Fahrenheit.

Sec. 115. *1. Each hot water heating boiler must have a pressure or altitude gauge connected to it or to its flow connection in such a manner that it cannot be shut off from the boiler except by a cock with a tee or lever handle, placed on the pipe near the gauge. The handle of the cock must be parallel to the pipe in which it is located when the cock is open.*

2. The scale on the dial of the pressure or altitude gauge must be graduated to not less than 1 1/2 or more than 3 times the pressure at which the safety valve is set.

3. Piping or tubing for pressure or altitude gauge connections must be made of nonferrous metal if the pipe size is smaller than 1 inch.

Sec. 116. *1. Each hot water boiler must have a thermometer so located and connected that it is easily readable when observing the burner of the boiler. The thermometer must be so located and connected that it will at all times indicate the temperature in degrees Fahrenheit of the water in the boiler at or near the outlet.*

2. In addition to satisfying the requirements set forth in subsection 1, each hot water boiler must be equipped with:

(a) An operating control and a secondary hi-limit control that automatically interrupts the fuel supply to the boiler if the boiler reaches its designed maximum operating temperature; and

(b) A stop valve that has been installed in accordance with:

(1) The applicable construction code, if any; or

(2) Controls and Safety Devices for Automatically Fired Boilers, as adopted by reference in section 51 of this regulation.

Sec. 117. *1. Except as otherwise provided in subsections 4 and 5, each automatically fired steam, vapor system or hot water heating boiler with an input of fuel in excess of 199,999 British thermal units per hour must be equipped with an automatic cutoff for fuel if water is low that is located in such a manner as to cut off automatically the supply of fuel when the surface of the water falls to the lowest safe water line. If a device for feeding water is installed, it must be so constructed that the inlet valve for water cannot feed water into the boiler through the float chamber and so located as to supply requisite water for feeding. For steam*

boilers, the lowest safe water line must be not lower than the lowest visible part of the water glass.

2. A device for controlling the feeding of water or fuel may be attached directly to a boiler or for low-pressure steam and hot water boilers, to the tapped opening provided for attaching a water glass directly to the boiler. The water glass must be attached as close as possible to the boiler. The ends of the nipples must be reamed to full-size diameter. The connection from the boiler must be a nonferrous "T" or "Y" joint at least 1/2-inch pipe size between the boiler and the water glass. The straightway tapping of the "T" or "Y" must take the fittings for the water glass. The side outlet of the "T" or "Y" must take the fittings for the fuel cutoff or device for feeding water.

3. Designs embodying a float and float bowl must have a vertical drain pipe and adequate valving for the straightway valve at the lowest point in the water-equalizing pipe connections by which the bowl and the equalizing pipe can be flushed and the device tested. The straightway valve must be at least 3/4-inch national pipe size.

4. The cutoff for fuel, if water is low on a hot water heating boiler, may be located anywhere above the lowest safe permissible water level established by the manufacturer of the boiler.

5. A coil-type or a watertube boiler for hot water with a input of heat of more than 199,999 British thermal units per hour and which requires forced circulation of water to prevent overheating of the coils or tubes must have a device to sense the flow of water installed in the outlet pipes in place of the cutoff for fuel if water is low. The device must automatically cut off the supply of fuel if the circulating flow of water is interrupted. If the input of heat is 199,999 British thermal units per hour or less, a flow safety switch must be installed.

Sec. 118. *1. Where pressure-reducing valves are used, at least one relief or safety valve must be provided on the low-pressure side of the reducing valve if the piping or equipment on the low-pressure side does not meet the requirements for the full initial pressure. The relief or safety valve must be located downstream and as close as possible to the reducing valve. Proper protection must be provided to prevent injury or damage caused by any fluid escaping from the discharge or relief or safety valve if vented to the atmosphere. The combined discharged capacity of the relief or safety valve must be such that the pressure rating of the lower pressure piping or equipment is not exceeded if the reducing valve fails when it is in the open position.*

2. Hand-controlled bypasses around reducing valves may be used. If a bypass is used around the reducing valve, the safety valve on the low-pressure side must be of sufficient capacity to relieve all the fluid that can pass through the bypass without overpressuring the low-pressure side. A pressure gauge must be installed on the low-pressure side of a reducing valve downstream of the safety relief valve.

Sec. 119. *1. The construction of the setting around each blowoff pipe must allow free expansion and contraction. The openings for the setting must be sealed without restricting the movement of the blowoff piping.*

2. All blowoff piping, when exposed to heat from a furnace, must be protected by firebrick or other heat-resisting material so constructed that the piping may be inspected readily. Each boiler must have a blowoff pipe, fitted with a valve or cock, in direct connection with the lowest water space. Cocks must be of the gland or guard type and suitable for the pressure allowed. The use of globe valves must meet the requirements established by the American Society of Mechanical Engineers. If the maximum allowable working pressure exceeds 100 PSIG:

(a) Each blowoff pipe must be provided with two valves or a valve and cock, and the valves and cocks must be made of extra-heavy steel, or bronze when listed as acceptable in table 126.1 of the Power Piping Code, as adopted by reference in section 51 of this regulation, and must not be galvanized; and

(b) The blowoff piping must be at least extra-heavy steel from the boiler to each valve and must be run full size without reducers or bushings.

3. All fittings between the boiler and blowoff valve must be made of steel. In case of the renewal of the blowoff pipe or fittings, they must be installed in accordance with the requirements for new installations set forth in the Power Piping Code, as adopted by reference in section 51 of this regulation.

Sec. 120. *1. A blowdown from a boiler that enters a sanitary sewer system or a blowdown which is considered a hazard to life or property must pass through blowoff equipment that will reduce pressure and temperature.*

2. The temperature of the water leaving the blowoff equipment must not exceed 140 degrees Fahrenheit.

3. The pressure of the blowdown leaving any type of blowoff equipment must not exceed 5 PSIG.

4. The blowoff piping and fittings between the boiler and the blowoff tank must comply with the applicable provisions of the code.

5. All blowoff equipment must be fitted with openings to facilitate cleaning and inspection.

6. Blowoff equipment must conform to the applicable provisions of the code.

7. A blowoff tank, when required pursuant to the code, must:

(a) Be constructed in accordance with section VIII of the ASME Boiler and Pressure Vessel Code, as adopted by reference in section 51 of this regulation; and

(b) Have a minimum design pressure of 50 pounds per square inch or the maximum allowable working pressure of the boiler, whichever is greater.

Sec. 121. *The discharge of safety valves, blowoff pipes and other outlets of a boiler or pressure vessel must be full sized to the point of discharge and be piped to a safe point of discharge.*

Sec. 122. *The maximum allowable working pressure allowed for:*

1. Formed heads and their tensile strength and factors of safety; and

2. Nonstandard pressure vessels subjected to external pressure,

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must be determined by the applicable provisions set forth in division 1 of section VIII of the ASME Boiler and Pressure Vessel Code, as adopted by reference in section 51 of this regulation.

Sec. 123. *If a pressure vessel is not stamped with a symbol of the American Society of Mechanical Engineers but the pressure vessel satisfies the requirements of the code, the maximum allowable working pressure of the pressure vessel is the maximum allowable working pressure as determined by the designer of the pressure vessel and stamped on the pressure vessel.*

Sec. 124. *1. The maximum allowable working pressure for standard pressure vessels must be determined in accordance with the applicable provisions of the edition of the code under which they were constructed and stamped.*

2. The maximum allowable working pressure on the shell of a nonstandard pressure vessel must be determined by the following formula:

$$\frac{TStE}{RFS} = \text{maximum allowable working pressure, in PSIG}$$

where:

TS = ultimate tensile strength of shell plate, in PSIG. If the tensile strength of a carbon steel plate is not known, it shall be deemed to be 55,000 PSIG for temperatures not exceeding 650 degrees Fahrenheit. For all other materials, the lowest stress values for that material designated in section VIII of the ASME Boiler and Pressure Vessel Code, as adopted by reference in section 51 of this regulation, must be used.

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

E = efficiency of longitudinal joint, depending upon construction. The following values must be used:

For riveted joints, calculated riveted efficiency.

For fusion-welded and brazed joints:

Single lap weld	*40 percent*
Double lap weld	*50 percent*
Single butt weld	*60 percent*
Double butt weld	*70 percent*
Forge weld	*70 percent*

Brazed steel *80 percent*

R = *inside radius of weakest course of shell, in inches, if the thickness does not exceed 10 percent of the radius. If the thickness is more than 10 percent of the radius, the outer radius must be used.*

FS = *factor of safety.*

3. The maximum allowable working pressure for nonstandard pressure vessels subjected to external pressure will be determined by the applicable provisions in division 1 of section VIII of the ASME Boiler and Pressure Vessel Code, as adopted by reference in section 51 of this regulation.

4. The minimum factor of safety may not be less than the factor set forth in the edition of the code that was applicable at the time of construction. The maximum allowable working pressure may be decreased if deemed necessary by the inspector or special inspector to ensure the operation of the vessel within safe limits. The inspector or special inspector shall consider the condition of the vessel and the particular service to which it is subjected.

5. The maximum allowable working pressure permitted for formed heads under pressure will be determined by using the appropriate formulas set forth in:

(a) Division 1 of section VIII of the ASME Boiler and Pressure Vessel Code, as adopted by reference in section 51 of this regulation; and

(b) Subsections 3 and 4.

Sec. 125. *Each pressure vessel must be protected by safety or relief valves and indicating and controlling devices which will ensure its safe operation. These valves and devices must be*

so constructed, located and installed that they cannot readily be rendered inoperative. The relieving capacity of safety valves must be sufficient to prevent a rise of pressure in the vessel of more than 10 percent above the highest pressure to which any device to relieve pressure is set but in no case more than 6 percent above the maximum allowable working pressure. The opening pressure of the device to relieve pressure must not be greater than the maximum allowable working pressure of the vessel.

Sec. 126. *1. A hydrostatic pressure test, when applied to pressure vessels, must not exceed 1 1/2 times the maximum allowable working pressure. The pressure must be under proper control so that the required test pressure will not be exceeded by more than 2 percent.*

2. During a hydrostatic test, the safety valve must be removed or each valve disc must be held to its seat by means of a testing clamp or plugging device and not by screwing down the compression screw upon the spring.

3. The temperature of the water used to apply a hydrostatic test must be not less than 70 degrees Fahrenheit or more than 120 degrees Fahrenheit.

4. When a hydrostatic test is applied, the pressure must be equal to:

(a) The normal operating pressure of the pressure vessel but need not exceed the release pressure of the safety valve having the lowest release setting if tightness is in question.

(b) One and one-half times the maximum allowable working pressure if safety is in question.

5. If the contents of the vessel prohibit contamination by any other medium or if a hydrostatic test is not possible, other testing media may be used if the requirements of the applicable sections of the code are satisfied.

Sec. 127. *1. Except as otherwise provided in subsections 2 and 3, a person shall not undertake to, or offer to undertake to, install, construct, add to, subtract from, improve or move any boiler or pressure vessel unless he holds a contractor's license issued pursuant to chapter 624 of NRS which authorizes him to install boilers or pressure vessels.*

2. A person who performs an act described in subsection 1 as the employee of another is not required to hold a contractor's license that meets the requirements of subsection 1 if:

(a) The person's only compensation for the act is wages paid by his employer; and

(b) The person's employer holds a license that meets the requirements of subsection 1.

3. The provisions of this section do not apply to a person who merely furnishes materials or supplies without fabricating them into, or using them in the performance of work on, a boiler or pressure vessel.

Sec. 128. *1. An owner of a boiler or pressure vessel who wishes to obtain an exemption from a requirement set forth in sections 7 to 129, inclusive, of this regulation for a condition or practice that is not consistent with the requirement must submit an application for an exemption to the enforcement section on a form prescribed by the enforcement section.*

2. If a condition or practice for which the person requests an exemption does not affect the safe operation of a boiler, pressure vessel or related system, an inspector or special inspector employed by the enforcement section may approve the exemption from the requirement if:

(a) Such an exemption is necessary to allow the operation of the boiler or pressure vessel; and

(b) Compliance with the requirement is not practicable.

3. If an inspector or special inspector approves the exemption:

(a) The approval must be noted on the application for an exemption; and

(b) The application for an exemption must be reviewed by a person designated by the chief within 5 working days after the exemption is approved by the inspector or special inspector.

4. If the person designated by the chief grants the exemption, he shall:

(a) Note that he has granted the exemption on the application for an exemption; and

(b) Forward the application for an exemption to the chief within 15 days after he grants the exemption.

5. If the person designated by the chief denies the exemption and the person requesting the exemption contests the denial, the person designated by the chief shall have the boiler or pressure vessel jointly inspected by at least two inspectors or special inspectors. Each inspector or special inspector shall prepare and submit a report of inspection to the person designated by the chief. The person designated by the chief shall reconsider the application for exemption and render a final decision based on the information contained in the reports of inspection submitted by the inspectors or special inspectors pursuant to this section.

6. In addition to an exemption that may be granted pursuant to subsections 1 to 5, inclusive, the chief may grant an exemption from a requirement set forth in sections 7 to 129, inclusive, of this regulation for a boiler or pressure vessel in the case of an emergency or if he determines that such an exemption is in the best interests of the general public. If the chief grants an exemption pursuant to this subsection, he shall notify the administrator of the exemption. If the exemption is granted because the chief determined that the exemption is in the best interests of the general public, the notice to the administrator must be in writing.

Sec. 129. *The enforcement section shall charge and collect the following fees:*

Certificates ***Fees***

For the issuance of a certificate $100

For the renewal of a certificate 50

Power Boilers ***Fees***

If the power boiler has less than 250 square feet of heating surface:

For the issuance of an initial operating permit, based on a preliminary and final inspection by an inspector $160

For the annual renewal of an operating permit, based on one internal inspection and one external inspection or two external inspections 110

If the power boiler has at least 250 square feet but not more than 750 square feet of heating surface:

For the issuance of an initial operating permit, based on a preliminary and final inspection by an inspector 160

For the annual renewal of an operating permit, based on one internal inspection and one external inspection or two external inspections 120

If the power boiler has more than 750 square feet of heating surface:

For the issuance of an initial operating permit, based on a preliminary and final inspection by an inspector 160

For the annual renewal of an operating permit, based on one internal inspection and one external inspection or two external inspections 140

Low-Pressure Heating Boilers	*Fees*

If the low-pressure heating boiler has less than 500 square feet of heating surface:

For the issuance of an initial operating permit, based on a preliminary and final inspection by an inspector $160

For the biennial renewal of an operating permit, based on one internal inspection or one external inspection 60

If the low-pressure heating boiler has 500 square feet or more of heating surface:

For the issuance of an initial operating permit, based on a preliminary and final inspection by an inspector 160

For the biennial renewal of an operating permit, based on one internal inspection or one external inspection 65

Hot Water Supply Boilers	*Fees*

For the issuance of an initial operating permit for a hot water supply boiler, based on a preliminary and final inspection by an inspector $110

For the biennial renewal of an operating permit for a hot water supply boiler, based on one internal inspection or one external inspection 50

Unfired Pressure Vessels	*Fees*

For the issuance of an initial operating permit for an unfired pressure vessel, based on a preliminary and final inspection by an inspector $90

For the renewal of an operating permit for an unfired pressure vessel, based on one internal inspection or one external inspection 40

Refrigeration Pressure Vessels	*Fees*

If the output capacity of the system of refrigeration is less than 100 tons:

For the issuance of an initial operating permit for the refrigeration pressure vessel, based on a preliminary and final inspection by an inspector $80

For the renewal of an operating permit for the refrigeration pressure vessel, based on one internal inspection or one external inspection 50

If the output capacity of the system of refrigeration is 100 tons or more:

For the issuance of an initial operating permit for the refrigeration pressure vessel, based on a preliminary and final inspection by an inspector 90

For the renewal of an operating permit for the refrigeration pressure vessel, based on one internal inspection or one external inspection..... 60

Boilers or Pressure Vessels Installed or Used in Single-Family Residences Fees

For the preliminary and final inspections of a boiler or pressure vessel that is installed or used in a single-family residence that are required to be made at the time of installation pursuant to section 64 of this regulation..... $80

For each subsequent inspection of the boiler or pressure vessel that is requested by the owner of the boiler or pressure vessel..... 40

Boilers or Pressure Vessels Inspected by Special Inspectors Fees

For the issuance or renewal of an operating permit for a boiler or pressure vessel if the operating permit is issued or renewed based on an inspection and a report of that inspection made by a special inspector..... $20

Other Services Fees

For any services rendered by the enforcement section to assist a person in complying with the provisions of this chapter, including, without limitation, an inspection other than an inspection required by section 64

of this regulation and the review of plans and specifications before those plans and specifications are submitted to the enforcement section pursuant to section 74 of this regulation:

Per hour charge for those services provided during the first 8 hours of a day $40

Per hour charge for those services provided after the first 8 hours of the day..... 60

Sec. 130. *As used in sections 130 to 172, inclusive, of this regulation, unless the context otherwise requires, the words and terms defined in sections 131 to 147, inclusive, of this regulation have the meanings ascribed to them in those sections.*

Sec. 131. *"Alteration" means any change, other than maintenance, repair or replacement to the equipment of an elevator, including its parts, components and subsystems.*

Sec. 132. *"Certificate" means a certificate as an elevator mechanic that is issued by the enforcement section pursuant to section 156 of this regulation.*

Sec. 133. *"Certificate of competency" means a certificate of competency as a special inspector issued by the enforcement section pursuant to section 152 of this regulation.*

Sec. 134. *"Contractor" has the meaning ascribed to it in NRS 624.020.*

Sec. 135. *1. "Elevator" includes, without limitation, an elevator, dumbwaiter, escalator, moving walk, wheelchair lift and related equipment. The term also includes the hoistway and hoistway enclosure of the elevator, dumbwaiter, escalator, moving walk, wheelchair lift and related equipment, and all the machinery and equipment necessary for the operation of the elevator, dumbwaiter, escalator, moving walk, wheelchair lift or related equipment.*

2. As used in this section, "hoistway enclosure" means a fixed structure, consisting of vertical walls or partitions, that isolates the hoistway from all other areas or from an adjacent hoistway and in which entrances are installed.

Sec. 136. *"Elevator mechanic" has the meaning ascribed to it in NRS 455C.070.*

Sec. 137. *"Existing installation" means an elevator that was installed before the effective date of this regulation.*

Sec. 138. *1. "Hoistway" means an opening through a building or structure for the travel of an elevator, dumbwaiter, or manlift that extends from the floor of the pit to the roof or floor above.*

2. As used in this section, "pit" means:

(a) With regard to an elevator, the portion of a hoistway extending from the sill level of the bottom terminal landing to the floor at the bottom of the hoistway; and

(b) With regard to a dumbwaiter or manlift, the portion of a hoistway extending from the floor level of the bottom terminal landing to the floor at the bottom of the hoistway.

Sec. 139. *"Inspector" means an elevator inspector employed by the enforcement section.*

Sec. 140. *"Maintenance" means a process of routine examination, lubrication, cleaning and adjustment of parts, components and subsystems of an elevator to ensure that the elevator satisfies the requirements set forth in sections 130 to 172, inclusive, of this regulation.*

Sec. 141. *"New elevator" means an elevator for which the application for installing or relocating the elevator is filed with the enforcement section on or after the effective date of this regulation.*

Sec. 142. *"Operating permit" means a permit required by NRS 455C.100 and issued by the enforcement section for the operation of an elevator.*

Sec. 143. ***"Private residence elevator" means an elevator that is installed in a private residence or in a multiple-family dwelling or apartment complex as a means of access to a private residence.***

Sec. 144. ***"Related equipment" means a manlift, personnel hoist or any other related equipment designated by the enforcement section.***

Sec. 145. ***"Repair" means the reconditioning of a part, component or subsystem of an elevator which is necessary to ensure that the equipment of the elevator satisfies the requirements set forth in sections 130 to 172, inclusive, of this regulation.***

Sec. 146. ***"Replacement" means the substitution of a device, component or subsystem of an elevator, in its entirety, with another device, component or subsystem that is substantially the same as the original device, component or subsystem to ensure that the elevator satisfies the requirements set forth in sections 130 to 172, inclusive, of this regulation.***

Sec. 147. ***"Special inspector" means an elevator inspector who holds a certificate of competency and who is employed or retained as an independent contractor by an insurance company authorized to insure elevators in this state.***

Sec. 148. ***1. The requirements of sections 130 to 172, inclusive, of this regulation apply to the installation, relocation, use, maintenance, alteration or repair of an elevator as specified in this section.***

2. All new elevators must be designed and installed in accordance with the requirements of sections 130 to 172, inclusive, of this regulation.

3. All relocations of elevators made on or after the effective date of this regulation must satisfy the requirements of sections 130 to 172, inclusive, of this regulation.

4. An existing installation may be used without being reconstructed to comply with the requirements of sections 130 to 172, inclusive, of this regulation, except for those sections which specifically refer to such existing installations. Every existing installation must be maintained in a safe operating condition and must comply with the applicable provisions of the edition of each publication adopted by reference in section 159 of this regulation that was in effect at the time the elevator was installed.

5. Except as otherwise provided in this subsection, an alteration or repair to an existing installation must satisfy the requirements set forth in sections 130 to 172, inclusive, of this regulation. If the enforcement section determines that it is not practicable to satisfy any of those requirements, the alteration or repair must satisfy the requirements of the applicable provisions of the edition of each publication adopted by reference in section 159 of this regulation that was in effect at the time the elevator was installed.

Sec. 149. *1. An applicant for the issuance or renewal of a certificate of competency must submit to the enforcement section the statement prescribed by the welfare division of the department of human resources pursuant to NRS 425.520. The statement must be completed and signed by the applicant.*

2. The enforcement section shall include the statement required pursuant to subsection 1 in:

(a) The application or any other forms that must be submitted for the issuance or renewal of the certificate of competency; or

(b) A separate form prescribed by the enforcement section.

3. A certificate of competency may not be issued or renewed by the enforcement section if the applicant:

(a) Fails to submit the statement required pursuant to subsection 1; or

(b) Indicates on the statement submitted pursuant to subsection 1 that he is subject to a court order for the support of a child and is not in compliance with the order or a plan approved by the district attorney or other public agency enforcing the order for the repayment of the amount owed pursuant to the order.

4. If an applicant indicates on the statement submitted pursuant to subsection 1 that he is subject to a court order for the support of a child and is not in compliance with the order or a plan approved by the district attorney or other public agency enforcing the order for the repayment of the amount owed pursuant to the order, the enforcement section shall advise the applicant to contact the district attorney or other public agency enforcing the order to determine the actions that the applicant may take to satisfy the arrearage.

Sec. 150. *An application for the issuance of a certificate of competency must include the social security number of the applicant.*

Sec. 151. *1. If the enforcement section receives a copy of a court order issued pursuant to NRS 425.540 that provides for the suspension of all professional, occupational and recreational licenses, certificates and permits issued to the holder of a certificate, the enforcement section shall deem the certificate of competency to be suspended at the end of the 30th day after the date on which the court order was issued unless the enforcement section receives a letter issued to the holder of the certificate of competency by the district attorney or other public agency pursuant to NRS 425.550 stating that the holder of the certificate of competency has complied with the subpoena or warrant or has satisfied the arrearage pursuant to NRS 425.560.*

2. The enforcement section shall reinstate a certificate of competency that has been suspended by a district court pursuant to NRS 425.540 if the enforcement section receives a letter issued by the district attorney or other public agency pursuant to NRS 425.550 to the person whose certificate of competency was suspended stating that the person whose certificate of competency was suspended has complied with the subpoena or warrant or has satisfied the arrearage pursuant to NRS 425.560.

FIRST PARALLEL SECTION

Sec. 152. ***1. An applicant for a certificate of competency as a special inspector must:***

(a) Submit to the enforcement section:

(1) An application on a form prescribed by the enforcement section;

(2) The fee for issuance of a certificate set forth in section 172 of this regulation; and

(3) The statement required by section 149 of this regulation; and

(b) Hold a current QEI certification issued by the National Association of Elevator Safety Authorities International or another organization that holds a QEI Certificate of Accreditation.

2. A certificate issued pursuant to this section expires at midnight on September 1 next following the date of issuance, unless the certificate is renewed.

3. If an applicant satisfies the requirements set forth in this section, the enforcement section may issue a certificate to the applicant.

SECOND PARALLEL SECTION

Sec. 153. 1. An applicant for a certificate of competency as a special inspector must:

(a) Submit to the enforcement section:

(1) An application on a form prescribed by the enforcement section; ***and***

(2) The fee for issuance of a certificate set forth in section 172 of this regulation; and

~~[(3) The statement required by section 149 of this regulation; and]~~

(b) Hold a current QEI certification issued by the National Association of Elevator Safety Authorities International or another organization that holds a QEI Certificate of Accreditation.

2. A certificate issued pursuant to this section expires at midnight on September 1 next following the date of issuance, unless the certificate is renewed.

3. If an applicant satisfies the requirements set forth in this section, the enforcement section may issue a certificate to the applicant.

Sec. 154. ***To renew a certificate of competency, a special inspector must, on or before September 1, submit to the enforcement section:***

1. An application on a form prescribed by the enforcement section; and

2. The fee for renewal of a certificate set forth in section 172 of this regulation.

Sec. 155. ***A special inspector who inspects or tests an elevator as required by sections 130 to 172, inclusive, of this regulation must not be the same person as the elevator mechanic who performed the construction, installation, maintenance, relocation, alteration or repair of the elevator or the replacement of a device, component or subsystem of the elevator that necessitated the inspection or test.***

Sec. 156. ***1. An applicant for a certificate must submit to the enforcement section:***

(a) An application on a form prescribed by the enforcement section;

(b) The fee for issuance of a certificate set forth in section 172 of this regulation; and

(c) Proof satisfactory to the enforcement section that he:

(1) Has successfully completed an apprenticeship, recognized by a state or federal apprenticeship program, in the construction, installation, alteration and repair of elevators;

(2) Has at least 8 years of working experience in the construction, installation, alteration and repair of elevators;

(3) Has at least 6 years of working experience in the construction, installation, alteration and repair of elevators and holds a current QEI certification issued by the National Association of Elevator Safety Authorities International or another organization that holds a QEI Certificate of Accreditation; or

(4) Has at least 4 years of working experience in the construction, installation, alteration and repair of elevators, has successfully completed at least 30 semester hours or 45 quarter hours of course work from an accredited college or university in an engineering field relating to the construction, installation, alteration and repair of elevators and holds a current QEI certification issued by the National Association of Elevator Safety Authorities International or another organization that holds a QEI Certificate of Accreditation.

2. If the enforcement section has reason to believe that the conduct of an applicant for a certificate has raised a reasonable question as to his competence to practice as an elevator mechanic with reasonable skill and safety, the enforcement section may require an examination of the applicant to determine his fitness to practice as an elevator mechanic. If such action is taken, the reasons for the action must be documented and must be available to the applicant being examined.

3. A certificate issued pursuant to this section expires at midnight on September 1 next following the date of issuance, unless the certificate is renewed.

4. If an applicant satisfies the requirements set forth in this section, the enforcement section may issue a certificate to the applicant.

Sec. 157. *To renew a certificate, an elevator mechanic must, on or before September 1, submit to the enforcement section:*

1. An application on a form prescribed by the enforcement section; and

2. The fee for renewal of a certificate set forth in section 172 of this regulation.

Sec. 158. *Except as otherwise provided in section 148 of this regulation, an elevator in this state must be designed, constructed, installed, operated, inspected, tested, maintained, altered and repaired in a manner that satisfies the requirements set forth in the publications adopted by reference in section 159 of this regulation.*

Sec. 159. *1. The following codes, manuals and standards are hereby adopted by reference by the division and may be obtained for the price listed:*

(a) Safety Code for Elevators and Escalators, A17.1, 2000 edition, including appendices, published by the American Society of Mechanical Engineers, for the price of $175, except that rule 2.12.5 - Restricted Opening of Hoistway or Car Doors, is deleted.

(b) Guide for Inspection of Elevators, Escalators, and Moving Walks, A17.2, 2001 edition and addenda, published by the American Society of Mechanical Engineers, for the price of $110.

(c) Safety Requirements for Personnel Hoists and Employee Elevators for Construction and Demolition Operations, A10.4, 1990 edition, published by the American National Standards Institute, for the price of $48.

(d) Safety Standard for Belt Manlifts, A90.1, 1997 edition, published by the American Society of Mechanical Engineers, for the price of $45.

(e) Safety Code for Existing Elevators and Escalators, A17.3, 2002 edition, published by the American Society of Mechanical Engineers, for the price of $69.

(f) Guidelines for Accessible and Usable Buildings and Facilities, A117.1, sections 4.10 and 4.11, 1992 edition, published by the American National Standards Institute, for the price of $37.

(g) Guide for Emergency Personnel, A17.4, 1999 edition, published by the American Society of Mechanical Engineers, for the price of $36.

(h) Safety Standard for Platform Lifts and Stairway Chairlifts, A18.1, 1999 edition and addenda, published by the American Society of Mechanical Engineers, for the price of $58.

(i) Standard for the Qualification of Elevator Inspectors, QEI-1, 2001 edition, published by the American Society of Mechanical Engineers, for the price of $58.

2. The codes, manuals and standards set forth in subsection 1 which are published by the American Society of Mechanical Engineers may be obtained from the American Society of Mechanical Engineers, 22 Law Drive, P.O. Box 2900, Fairfield, New Jersey 07007-2900.

3. The codes, manuals and standards set forth in subsection 1 which are published by the American National Standards Institute may be obtained from Global Engineering Documents, 15 Inverness Way East, Englewood, Colorado 80112.

4. If any publication adopted by reference in this section is revised, the administrator shall review the revision to determine its suitability for this state. If the administrator determines that the revision is not suitable for this state, he will hold a public hearing to review his determination and give notice of that hearing within 6 months after the date of the publication of the revision. If, after the hearing, the administrator does not revise his determination, the administrator shall give notice that the revision is not suitable for this state within 30 days after the hearing. If the administrator does not give such notice, the revision becomes part of the publication adopted by reference in this section.

Sec. 160. *1. For an escalator or moving walk for which the application for installing or relocating the escalator or moving walk is filed with the enforcement section on or after the effective date of this regulation:*

(a) As required by the Safety Code for Elevators and Escalators, as adopted by reference in section 159 of this regulation, the tests relating to the step and skirt performance index as set forth in rule 8.11.4.2.19 of that code must be performed at the time of manufacture or installation of the escalator or moving walk; and

(b) Subsequent tests relating to the step and skirt performance index as set forth in rule 8.11.4.2.19 of the Safety Code for Elevators and Escalators, as adopted by reference in section 159 of this regulation, must be performed on those escalators or moving walks when an inspector or special inspector requires the tests to be performed.

2. For escalators or moving walks that are existing installations, tests relating to the step and skirt performance index as set forth in rule 8.11.4.2.19 of the Safety Code for Elevators and Escalators, as adopted by reference in section 159 of this regulation, must be performed when an inspector or special inspector requires the tests to be performed.

Sec. 161. *1. An elevator mechanic who installs, relocates or alters an elevator, or the contractor if the elevator mechanic is employed or retained as an independent contractor by a contractor, is responsible for the operation, maintenance and all required tests of the equipment of the elevator until an operating permit has been issued.*

2. The owner of an elevator or his agent is responsible for the safe operation and proper maintenance of the elevator after the operating permit has been issued.

Sec. 162. *1. Except as otherwise provided in subsection 3, an elevator mechanic, or the contractor if the elevator mechanic is employed or retained as an independent contractor by a contractor, must obtain a permit from the enforcement section for construction, installation, alteration or repair of an elevator before such work is begun.*

2. An elevator mechanic or contractor who is required to obtain a permit pursuant to subsection 1 must submit to the enforcement section a request for the permit that is accompanied by plans and specifications in the form prescribed by the enforcement section. Except as otherwise provided in subsection 3, if the plans and specifications indicate the construction, installation, alteration or repair will comply with the provisions of sections 130 to 172, inclusive, of this regulation, the enforcement section shall issue a permit to the elevator mechanic or contractor.

3. A permit is not required for repairs and replacement that are necessary for the maintenance of an elevator if parts of equivalent materials, strength and design as that used in the original construction are used.

4. An elevator for which a permit for construction, installation, alteration or repair is required must not be constructed, installed, altered or repaired unless a permit has been issued. If any such work is started before the permit is obtained, the work must be suspended until a permit is issued.

5. Except as otherwise provided in subsection 3 of section 163 of this regulation, an operating permit is void upon the issuance of a permit for construction, installation, alteration or repair of an elevator. A permit for construction, installation, alteration or repair of an elevator does not authorize the operation of an elevator for which an operating permit is required.

6. As required by NRS 455C.160, the person who constructs, installs, alters or repairs a new elevator or existing installation must be certified as an elevator mechanic pursuant to NRS 455C.110 and section 156 of this regulation.

Sec. 163. *1. The enforcement section shall issue an operating permit to the owner of an elevator if the report of inspection indicates the elevator is in compliance with sections 130 to 172, inclusive, of this regulation. The operating permit must set forth the number assigned by the enforcement section and the serial number assigned by the manufacturer of the elevator. The operating permit must be kept at the same location as the elevator.*

2. The enforcement section shall issue an operating permit within:

(a) Thirty days for existing installations; and

(b) Fifteen days for new elevators,

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after the date of the inspection, unless the time is extended by the enforcement section. An elevator for which a permit is required must not be operated unless the operating permit has been issued.

3. The enforcement section may issue a limited operating permit to allow an elevator to be used during construction.

4. The enforcement section shall not issue an operating permit for a period that exceeds:

(a) One year for elevators, dumbwaiters and wheelchair lifts.

(b) Six months for escalators or moving walks.

(c) The period designated by the enforcement section for related equipment.

(d) Ninety days if the operating permit is a limited operating permit issued to allow an elevator to be used during construction.

5. If the report of an inspection of an elevator indicates a violation of sections 130 to 172, inclusive, of this regulation, or of the detailed plans and specifications approved by the enforcement section pursuant to section 162 of this regulation, the enforcement section shall give notice to the owner of the elevator and may give notice to any other appropriate person of

the changes necessary for compliance. If the owner makes the changes required by the enforcement section, the enforcement section shall issue an operating permit to the owner.

6. If the report of an inspection of an elevator indicates that the elevator is unsafe and that its continued operation may be dangerous, the enforcement section shall refuse to issue, or shall suspend or revoke, the operating permit and shall require the owner of the elevator to ensure that the elevator will not be used until the elevator has been made safe and is in compliance with the requirements of sections 130 to 172, inclusive, of this regulation.

7. A report of inspection shall be deemed to be an operating permit and authorizes the operation of an elevator until the operating permit is issued, if:

(a) The report of inspection recommends the issuance of an operating permit; and

(b) The elevator complies with the requirements of sections 130 to 172, inclusive, of this regulation.

Sec. 164. *1. An elevator mechanic who installs, relocates or alters an elevator, or the contractor if the elevator mechanic is employed or retained as an independent contractor by a contractor, shall notify the enforcement section, in writing or by telephone, at least 7 days before completion of the work, and the elevator mechanic shall test the new, moved or altered portions of the elevator as required by sections 130 to 172, inclusive, of this regulation.*

2. All new, altered and relocated elevators must be inspected for compliance with the requirements of sections 130 to 172, inclusive, of this regulation by an inspector. The inspector shall witness the tests required by sections 130 to 172, inclusive, of this regulation.

Sec. 165. *In addition to those inspections of an elevator that are required to be made pursuant to section 171 of this regulation, an inspector or a special inspector may require an*

inspection to be made of any elevator if, in his opinion, an inspection is necessary to determine the safety of the elevator.

Sec. 166. *1. A report of every required inspection or test must be filed with the enforcement section by the inspector or special inspector making the inspection, on a form prescribed by the enforcement section, within 30 days after the inspection or test has been completed. The report must describe the nature of any violation including a reference to any provision of sections 130 to 172, inclusive, of this regulation or set forth in a publication adopted by reference in section 159 of this regulation that was violated.*

2. Each test required by sections 130 to 172, inclusive, of this regulation must be performed by a person who is certified as an elevator mechanic pursuant to section 156 of this regulation. The owner of the elevator or his agent shall notify the enforcement section of the time and location that each test required by sections 130 to 172, inclusive, of this regulation will take place. The enforcement section may require an inspector or special inspector to witness any such test.

Sec. 167. *1. Before an operating permit has been issued for an elevator, the elevator mechanic who installs, relocates or alters the elevator, or the contractor if the elevator mechanic is employed or retained as an independent contractor by a contractor, shall promptly notify the enforcement section of every injury to any person involving the elevator.*

2. After an operating permit has been issued for an elevator, the owner of the elevator or his agent shall promptly notify the enforcement section of every injury to any person involving the elevator.

3. The elevator mechanic, contractor or owner of the elevator or his agent shall provide any assistance required by the enforcement section for the investigation or inspection of any accident or damage.

4. The enforcement section shall, as soon as practical after receiving notification of an accident, make an inspection and keep in its files a complete report of its findings, including a detailed list of all material facts and information available and the cause, as far as it can be determined, for the accident.

5. If an accident involves the failure or destruction of any part of the construction or the operating mechanism of an elevator, the use of the elevator is prohibited until:

(a) The enforcement section has been notified;

(b) The elevator has been made safe;

(c) The elevator has been reinspected; and

(d) Any repairs, changes or alterations have been approved by the enforcement section.

6. If an accident involves the failure of an elevator, no part of the elevator may be removed from the premises until the enforcement section authorizes that removal.

Sec. 168. *All new elevators and existing installations must be assigned a number by an inspector. The number must be painted on or attached to the elevator car or to the balustrade of an escalator or moving walk, in plain view, and to the driving mechanism. The number must be shown on all required permits.*

Sec. 169. *If, at the time of an inspection or test of any elevator, the inspector or special inspector determines that a violation of a requirement of sections 130 to 172, inclusive, of this regulation exists, he shall provide a written report to the person responsible for the operation of the elevator pursuant to section 161 of this regulation. The report must describe the nature*

of the violation, including a reference to any provision of sections 130 to 172, inclusive, of this regulation or set forth in a publication adopted by reference in section 159 of this regulation that was violated. The enforcement section shall:

1. Fix a reasonable time for the abatement of the violation; and

2. Take any action authorized by section 180 of this regulation that it determines is appropriate.

Sec. 170. *1. A person responsible for the operation of an elevator pursuant to section 161 of this regulation who wishes to obtain an exemption from a requirement set forth in sections 130 to 172, inclusive, of this regulation for a condition or practice that is not consistent with the requirement must submit an application for an exemption to the enforcement section on a form prescribed by the enforcement section.*

2. If a condition or practice for which the person requests an exemption does not affect the safe operation of an elevator or related system, an inspector may approve the exemption from the requirement if:

(a) Such an exemption is necessary to allow the operation of the elevator or related system; and

(b) Compliance with the requirement is not practicable.

3. If an inspector approves the exemption:

(a) The approval must be noted on the application for an exemption; and

(b) The application for an exemption must be reviewed by a person designated by the chief within 5 working days after the exemption is approved by the inspector.

4. If the person designated by the chief grants the exemption, he shall:

(a) Note that he has granted the exemption on the application for an exemption; and

(b) Forward the application for an exemption to the chief within 15 days after he grants the exemption.

5. If the person designated by the chief denies the exemption and the person requesting the exemption contests the denial, the person designated by the chief shall have the elevator jointly inspected by at least two inspectors. Each inspector shall prepare and submit a report of inspection to the person designated by the chief. The person designated by the chief shall reconsider the application for exemption and render a final decision based on the information contained in the reports of inspection submitted by the inspectors pursuant to this section.

6. In addition to an exemption that may be granted pursuant to subsections 1 to 5, inclusive, the chief may grant an exemption from a requirement set forth in sections 130 to 172, inclusive, of this regulation for an elevator in the case of an emergency or if he determines that such an exemption is in the best interests of the general public. If the chief grants an exemption pursuant to this subsection, he shall notify the administrator of the exemption. If the exemption is granted because the chief determined that the exemption is in the best interests of the general public, the notice to the administrator must be in writing.

Sec. 171. *An elevator located in this state must be inspected by an inspector or a special inspector:*

1. Upon installation and annually thereafter for a:

(a) Passenger elevator;

(b) Freight elevator; or

(c) Wheelchair lift, other than a wheelchair lift installed in a private residence.

2. Upon installation and every 6 months thereafter for an escalator, moving walk or manlift.

3. Upon installation and every 3 months thereafter for a personnel elevator and personnel hoist that is used during construction.

4. Upon installation, and the inspection must include a preliminary and a final inspection for a private residence elevator. If the owner of the private residence elevator wishes to have an inspector perform any subsequent inspections of the private residence elevator, he must submit a written request for such an inspection to the enforcement section.

Sec. 172. *The enforcement section shall charge and collect the following fees:*

Certificates	*Fees*
For the issuance of a certificate	*$100*
For the renewal of a certificate	*50*

Certificates of Competency	*Fees*
For the issuance of a certificate of competency	*$100*
For the renewal of a certificate of competency	*50*

Passenger Elevators	*Fees*
If the passenger elevator has at least one but not more than three landings:	
For the issuance of an initial operating permit, based on a preliminary and final inspection by an inspector	*$120*

For the annual renewal of an operating permit, based on one inspection and the witnessing of one annual test by an inspector..... 120

If the passenger elevator has at least 4 but not more than 10 landings:

For the issuance of an initial operating permit, based on a preliminary and final inspection by an inspector..... 140

For the annual renewal of an operating permit, based on one inspection and the witnessing of one annual test by an inspector..... 130

If the passenger elevator has at least 11 but not more than 20 landings:

For the issuance of an initial operating permit, based on a preliminary and final inspection by an inspector..... 150

For the annual renewal of an operating permit, based on one inspection and the witnessing of one annual test by an inspector..... 140

If the passenger elevator has at least 21 but not more than 30 landings:

For the issuance of an initial operating permit, based on a preliminary and final inspection by an inspector..... 160

For the annual renewal of an operating permit, based on one inspection and the witnessing of one annual test by an inspector..... 150

If the passenger elevator has more than 30 landings:

For the issuance of an initial operating permit, based on a preliminary and final inspection by an inspector, for each landing in excess of 30 landings..... 30

Plus the fee set forth for the issuance of an initial operating permit for a passenger elevator that has at least 21 but not more than 30 landings.

For the annual renewal of an operating permit, based on one inspection and the witnessing of one annual test by an inspector, for each landing in excess of 30 landings..... 10

Plus the fee set forth for the annual renewal of an operating permit for a passenger elevator that has at least 21 but not more than 30 landings.

Freight Elevators	*Fees*

If the freight elevator has a capacity of 5,000 pounds or less:

For the issuance of an initial operating permit, based on a preliminary and final inspection by an inspector..... $150

For the annual renewal of an operating permit, based on one inspection and the witnessing of one annual test by an inspector..... 80

If the freight elevator has a capacity of at least 5,001 pounds but not more than 10,000 pounds:

For the issuance of an initial operating permit, based on a preliminary and final inspection by an inspector..... 150

For the annual renewal of an operating permit, based on one inspection and the witnessing of one annual test by an inspector..... 100

If the freight elevator has a capacity of 10,001 pounds or more:

For the issuance of an initial operating permit, based on a preliminary

and final inspection by an inspector 150

For the annual renewal of an operating permit, based on one inspection and the witnessing of one annual test by an inspector..... 120

Escalators, Moving Walks and Manlifts	*Fees*

For the issuance of an initial operating permit for an escalator, moving walk or manlift, based on a preliminary and final inspection by an inspector $100

For the renewal of an operating permit for an escalator, moving walk or manlift, based on an inspection and appropriate testing by an inspector..... 80

Personnel Elevators and Personnel Hoists Used During Construction	*Fees*

For the issuance of an initial limited operating permit for a personnel elevator or personnel hoist that is used during construction, based on a preliminary and final inspection by an inspector..... $80

For the renewal of an operating permit for a personnel elevator or personnel hoist, based on an inspection and appropriate testing by an inspector..... 50

Certain Wheelchair Lifts	*Fees*

For the issuance of an initial operating permit for a wheelchair lift other than a wheelchair lift installed in a private residence, based on a preliminary and final inspection by an inspector..... $80

For the renewal of an operating permit for a wheelchair lift other than a wheelchair lift installed in a private residence, based on one inspection and the witnessing of one annual test by an inspector 80

Private Residence Elevators	*Fees*

For the preliminary and final inspections of a private residence elevator that are required to be made at the time of installation pursuant to section 171 of this regulation $80

For each subsequent inspection of a private residence elevator that is requested by the owner of the private residence elevator..... 40

Elevators Inspected by Special Inspectors	*Fees*

For the issuance or renewal of an operating permit for an elevator if the operating permit is issued or renewed based on an inspection and a report of that inspection made by a special inspector $20

Other Services *Fees*

For any services rendered by the enforcement section to assist a person in complying with the provisions of this chapter, including, without limitation, an inspection other than an inspection required by section 171 of this regulation and the review of plans and specifications before those plans and specifications are submitted to the enforcement section pursuant to section 162 of this regulation:

Per hour charge for those services provided during the first 8 hours of a day $40

Per hour charge for those services provided after the first 8 hours of the day 60

Sec. 173. *As used in sections 173 to 194, inclusive, of this regulation, unless the context otherwise requires, the words and terms defined in sections 174 to 179, inclusive, of this regulation have the meanings ascribed to them in those sections.*

Sec. 174. *"Boiler" has the meaning ascribed to it in NRS 455C.020.*

Sec. 175. *"Certificate" means a certificate as a special inspector as defined in section 46 of this regulation or as an elevator mechanic that is issued by the enforcement section pursuant to section 55 or 156 of this regulation, respectively.*

Sec. 176. *"Certificate of competency" means a certificate of competency as a special inspector as defined in section 147 of this regulation that is issued by the enforcement section pursuant to section 152 of this regulation.*

Sec. 177. *"Elevator" has the meaning ascribed to it in section 135 of this regulation.*

Sec. 178. *"Operating permit" means a permit required by NRS 455C.100 and issued by the enforcement section for the operation of a boiler, elevator or pressure vessel.*

Sec. 179. *"Pressure vessel" has the meaning ascribed to it in NRS 455C.080.*

Sec. 180. *1. The enforcement section may take any action described in subsection 2 if it determines that:*

(a) A holder of an operating permit for a boiler or pressure vessel has violated any of the provisions set forth in sections 7 to 129, inclusive, of this regulation;

(b) A holder of an operating permit for an elevator has violated any of the provisions set forth in sections 130 to 172, inclusive, of this regulation;

(c) A holder of a certificate as a special inspector has violated any of the provisions set forth in sections 7 to 129, inclusive, of this regulation or NAC 512.500 to 512.594, inclusive;

(d) A holder of a certificate as an elevator mechanic has violated any of the provisions set forth in sections 130 to 172, inclusive, of this regulation; or

(e) A holder of a certificate of competency has violated any of the provisions set forth in sections 130 to 172, inclusive, of this regulation.

2. After determining a violation described in subsection 1 has occurred, the enforcement section may:

(a) Issue a notice of violation which requires the holder of the operating permit, certificate or certificate of competency to correct the violation;

(b) Impose an administrative fine of not more than $5,000 and revoke the operating permit, certificate or certificate of competency, as applicable; or

(c) For a second or subsequent violation:

(1) Impose an administrative fine of not more than $10,000;

(2) Revoke the operating permit, certificate or certificate of competency, as applicable; and

(3) Require the holder of the operating permit, certificate or certificate of competency to fulfill certain training or educational requirements.

Sec. 181. *If the enforcement section intends to impose an administrative fine pursuant to section 180 of this regulation, the enforcement section shall notify the holder of an operating permit, certificate or certificate of competency of its intention by:*

1. Delivering a notice of violation to the holder of the operating permit, certificate or certificate of competency by certified mail;

2. Enclosing with the notice of violation:

(a) A statement indicating the enforcement section's legal authority and jurisdiction to issue an administrative fine; and

(b) A statement of the reasons for the proposed action, including a citation of the applicable regulations supporting the action and the proposed administrative fine; and

3. Stating the effective date of the imposition of the proposed administrative fine upon failure to contest, the procedures for bringing a contest and the procedures for an appeal.

Sec. 182. *1. A holder of an operating permit, certificate or certificate of competency may appeal the imposition of an administrative fine by filing a contest with the chief within 30 days after the receipt of the notice of violation.*

2. Any contest filed pursuant to this section stays the imposition of the administrative fine.

3. A contest filed pursuant to this section must be made in writing and describe in particular the matters to be contested. The contest must be accompanied by:

(a) Any documents applicable to the contest;

(b) The names of any witnesses who may be called at the hearing; and

(c) The expected time needed to present the contest.

FLUSH *If any person alleges that the division does not have the jurisdiction or legal authority to act with regard to the imposition of an administrative fine, it must be indicated in the contest documents.*

4. The chief shall set a date for hearing within 30 days after the receipt of any written contest. A holder may request that the hearing be held on an earlier date by submitting a written request to the chief. The request must show that the holder of the operating permit, certificate or certificate of competency will suffer a substantial hardship if the date of the hearing is not changed and offer a proposed date for the hearing. The holder of the operating permit, certificate or certificate of competency has the burden of establishing a substantial hardship.

5. The chief shall hear all contests made pursuant to this section and give all parties thereto notice of the hearing and a fair opportunity to participate at the hearing. The chief shall issue his decision within a reasonable time after the conclusion of the hearing.

Sec. 183. *1. Any decision of the chief rendered pursuant to section 182 of this regulation may be appealed to the administrator within 30 days after the issuance of the chief's decision. If a decision is not appealed to the administrator within 30 days, it becomes final.*

2. Any review of the chief's decision must be summary in nature, limited to the record and without hearing, unless a request for a hearing is granted by the administrator. If the administrator grants a request for a hearing, the hearing must be confined to the issues raised and facts asserted during the hearing before the chief. A hearing may be granted only to consider new evidence.

3. The administrator may affirm, reverse or modify the decision of the chief or remand the matter to the chief for further consideration.

4. The decision of the administrator is a final decision for the purposes of judicial review.

Sec. 184. *1. The enforcement section may suspend, modify or revoke an operating permit, certificate or certificate of competency issued pursuant to this chapter if it finds that for any reason the protection of the general public requires such action.*

2. For the purposes of this section, a violation of any provision of this chapter, or if the inspector or special inspector is inspecting a boiler or pressure vessel governed by the provisions of chapter 512 of NRS and chapter 512 of NAC, a violation of any provision set forth in NAC 512.500 to 512.594, inclusive, may constitute a danger to the general public requiring immediate action if so determined by the enforcement section.

Sec. 185. *If the enforcement section intends to suspend, modify or revoke an operating permit, certificate or certificate of competency issued pursuant to the provisions of this chapter, the enforcement section shall notify the holder of the operating permit, certificate or certificate of competency of the suspension, modification or revocation by:*

1. Delivering a notice of suspension, modification or revocation to the holder of the operating permit, certificate or certificate of competency by certified mail;

2. Enclosing with the notice of suspension, modification or revocation:

(a) A statement indicating the enforcement section's legal authority and jurisdiction to issue the suspension, modification or revocation; and

(b) A statement of the reasons for the proposed action, including a citation of the applicable regulations supporting the action; and

3. Stating the effective date of the suspension, modification or revocation, the procedures for bringing a contest and the procedures for an appeal.

Sec. 186. *1. A holder of an operating permit, certificate or certificate of competency may appeal the suspension, modification or revocation of his operating permit, certificate or certificate of competency by filing a contest with the chief within 15 days after the effective date of the suspension, modification or revocation.*

2. Any contest filed pursuant to this section does not stay the suspension, modification or revocation. A stay may be requested from the chief, but will not be granted if the holder of the certificate or certificate of competency or the boiler, elevator or pressure vessel for which the operating permit was obtained, constitutes an immediate threat to the health or safety of the general public. The holder of the operating permit, certificate or certificate of competency has the burden of showing that there is not a threat to the health or safety of the general public if a stay is granted.

3. A contest filed pursuant to this section must be made in writing and describe in particular the matters to be contested. The contest must be accompanied by:

(a) Any documents applicable to the contest;

(b) The names of any witnesses who may be called at the hearing; and

(c) The expected time needed to present the contest.

FLUSH *If any person alleges that the division does not have the jurisdiction or legal authority to act with regard to any suspension, modification or revocation, it must be indicated in the contest documents.*

4. The chief shall set a date for hearing within 30 days after the receipt of any written contest. A holder of an operating permit, certificate or certificate of competency may request that the hearing be held on an earlier date by submitting a written request to the chief. The request must show that the holder of the operating permit, certificate or certificate of competency will suffer a substantial hardship if the date of the hearing is not changed and offer a proposed date for hearing. The holder of the operating permit, certificate or certificate of competency has the burden of establishing a substantial hardship.

5. The chief shall hear all contests filed pursuant to this section and give all parties thereto notice of the hearing and a fair opportunity to participate at the hearing. The chief shall issue his decision within a reasonable time after the conclusion of the hearing.

Sec. 187. *1. Any decision of the chief rendered pursuant to section 186 of this regulation may be appealed to the administrator within 30 days after the issuance of the chief's decision. If a decision is not appealed to the administrator within 30 days, it becomes final.*

2. Any review of the chief's decision must be summary in nature, limited to the record and without hearing, unless a request for a hearing is granted by the administrator. If the administrator grants a request for a hearing, the hearing must be confined to the issues raised and facts asserted during the hearing before the chief. A hearing may be granted only to consider new evidence.

3. The administrator may affirm, reverse or modify the decision of the chief or remand the matter to the chief for further consideration.

4. The decision of the administrator is a final decision for the purposes of judicial review.

Sec. 188. *1. The enforcement section may suspend summarily an operating permit, certificate or certificate of competency issued pursuant to the provisions of this chapter if it finds that for any reason the protection of the general public requires such action.*

2. For the purposes of this section, a violation of any provision of this chapter, or if the inspector or special inspector is inspecting a boiler or pressure vessel governed by the provisions of chapter 512 of NRS and chapter 512 of NAC, a violation of any provision set forth in NAC 512.500 to 512.594, inclusive, may constitute a danger to the general public requiring immediate action if so determined by the enforcement section.

Sec. 189. *1. If the enforcement section intends to suspend summarily an operating permit, certificate or certificate of competency issued pursuant to this chapter, the enforcement section shall notify the holder of the operating permit, certificate or certificate of competency of the summary suspension by:*

(a) Delivering a notice of the summary suspension to the holder of the operating permit, certificate or certificate of competency by certified mail; and

(b) Enclosing with the notice of summary suspension:

(1) A statement indicating the enforcement section's legal authority and jurisdiction to issue the summary suspension; and

(2) A statement of the reasons for the proposed action, including a citation of the applicable regulations supporting the action or the effect on the general public necessitating the action, or both.

2. The notice of the summary suspension must:

(a) State the effective date of the summary suspension;

(b) Inform the holder of the operating permit, certificate or certificate of competency that he is entitled to contest the summary suspension; and

(c) State that the enforcement section will hold a hearing within 10 days after the receipt of any contest.

3. Upon the receipt of a notice of summary suspension, the holder of the operating permit, certificate or certificate of competency shall immediately cease all operations that are the subject of the suspension.

Sec. 190. *1. A holder of an operating permit, certificate or certificate of competency may appeal a summary suspension by filing a contest with the chief within 15 days after the issuance of the summary suspension.*

2. Any contest filed pursuant to this section does not stay the summary suspension.

3. A contest filed pursuant to this section must be made in writing and describe in particular the matters to be contested. The contest must be accompanied by:

(a) Any documents applicable to the contest;

(b) The names of any witnesses who may be called at the hearing; and

(c) The expected time needed to present the contest.

FLUSH *If any person alleges that the enforcement section does not have the jurisdiction or legal authority to act with regard to any summary suspension, it must be indicated in the contest documents.*

4. The chief shall set a date for hearing within 10 days after the receipt of any written contest.

5. The chief shall hear all contests filed pursuant to this section and issue his decision within 10 days after the conclusion of the hearing.

Sec. 191. *1. Any decision of the chief rendered pursuant to section 190 of this regulation may be appealed to the administrator within 30 days after the issuance of the chief's decision.*

2. Any review of the chief's decision must be summary in nature, limited to the record and without hearing, unless a request for a hearing is granted by the administrator. If the administrator grants a request for a hearing, the hearing must be confined to the issues raised and facts asserted during the hearing before the chief. A hearing may be granted only to consider new evidence.

3. The administrator may affirm, reverse or modify the decision of the chief or remand the matter to the chief for further consideration. If the matter is remanded, the chief shall set a date for a new hearing within 10 days.

4. The decision of the administrator is a final decision for the purposes of judicial review.

Sec. 192. *A summary suspension becomes a permanent suspension if the holder of an operating permit, certificate or certificate of competency:*

1. Does not contest the summary suspension; or

2. Fails to appeal the decision of the chief or the administrator pursuant to the provisions of this chapter.

Sec. 193. *A summary suspension may be modified or revoked upon written notice to the holder of the operating permit, certificate or certificate of competency given pursuant to the provisions of section 181 of this regulation.*

Sec. 194. ***The chief or the administrator may withdraw a summary suspension upon giving written notice to the holder of the operating permit, certificate or certificate of competency.***

Sec. 195. Chapter 512 of NAC is hereby amended by adding thereto the provisions set forth as sections 196 and 197 of this regulation.

Sec. 196. ***"Inspector" means a boiler inspector employed by the enforcement section.***

Sec. 197. ***"Special inspector" means a boiler inspector who holds a certificate and who is employed by:***

1. An insurance company that is licensed in this state to write insurance for a boiler or pressure vessel; or

2. An inspection organization.

Sec. 198. NAC 512.500 is hereby amended to read as follows:

512.500 As used in NAC 512.500 to 512.594, inclusive, ***and sections 196 and 197 of this regulation,*** unless the context otherwise requires, the words and terms defined in NAC 512.502 to 512.558, inclusive, ***and sections 196 and 197 of this regulation*** have the meanings ascribed to them in those sections.

Sec. 199. NAC 512.502 is hereby amended to read as follows:

512.502 "Authorized inspection entity" means:

1. The ~~[division;]~~ ***enforcement section;***

2. An insurance company that:

(a) Is licensed in this state to write insurance for a boiler or pressure vessel; and

(b) Employs ~~[boiler inspectors who have]~~ ***a special inspector who has*** been issued ~~[certificates of competency by the division;]~~ ***a certificate;*** or

3. An inspection organization.

Sec. 200. NAC 512.506 is hereby amended to read as follows:

512.506 "Boiler inspector" means ~~[an inspector of]~~ ***a person who:***

1. Inspects boilers or pressure vessels ~~[who holds a current]~~ ***;***

2. Holds a commission ***;*** and ~~[who is]~~

3. Is employed by an authorized inspection entity.

Sec. 201. NAC 512.508 is hereby amended to read as follows:

512.508 "Certificate ***"*** ~~[of competency"]~~ means a certificate ~~[issued to a person who has passed an examination that is prescribed by the division for qualification as a boiler inspector.]~~ ***as a special inspector that is issued by the occupational safety and health enforcement section of the division pursuant to section 55 of this regulation.***

Sec. 202. NAC 512.512 is hereby amended to read as follows:

512.512 "Commission" means the commission issued by the ~~[national board]~~ ***National Board*** to a ~~[holder of a certificate of competency]~~ ***person*** who is authorized to inspect boilers or pressure vessels.

Sec. 203. NAC 512.528 is hereby amended to read as follows:

512.528 "Inspection organization" means an owner or user of pressure-retaining items ~~[that]~~ ***who*** maintains an established inspection program and whose organization and inspection procedures comply with the ~~[national board inspection code,]~~ ***National Board Inspection Code*** and have been approved by the ~~[division.]~~ ***enforcement section.***

Sec. 204. NAC 512.532 is hereby amended to read as follows:

512.532 "National ~~[board"]~~ ***Board"*** means the National Board of Boiler and Pressure Vessel Inspectors ***.*** ~~[, 1055 Crupper Avenue, Columbus, Ohio 43229.]~~

Sec. 205. NAC 512.534 is hereby amended to read as follows:

512.534 ~~[~~"National board inspection code"~~]~~ ***"National Board Inspection Code"*** means the ~~[~~code contained in the National Board Inspection Code~~]~~ ***manual for boiler and pressure vessel inspectors*** published by the ~~[~~national board.~~]~~ ***National Board and adopted by reference in NAC 512.562.***

Sec. 206. NAC 512.562 is hereby amended to read as follows:

512.562 1. The administrator hereby adopts by reference the *National Board Inspection Code*, ~~[~~1998~~]~~ ***2001*** edition and addenda, and any subsequent edition and addenda issued by the National Board of Boiler and Pressure Vessel Inspectors, unless the edition or addenda is disapproved by the administrator within 60 days after the date the edition is published by the National Board of Boiler and Pressure Vessel Inspectors. The most current edition that has been approved by the administrator may be determined by contacting the office of the administrator. A copy of the ~~[~~1998~~]~~ ***2001*** edition may be obtained from the National Board of Boiler and Pressure Vessel Inspectors, 1055 Crupper Avenue, Columbus, Ohio 43229, for the price of ~~[~~$70.~~]~~ ***$85.***

2. The administrator hereby adopts by reference the following sections of the ~~[~~American Society of Mechanical Engineers~~]~~ ***ASME*** *Boiler and Pressure Vessel Code*, ~~[~~1998 edition and addenda,~~]~~ ***2001 edition,*** and of any subsequent edition ~~[~~and addenda~~]~~ issued by the American Society of Mechanical Engineers, unless the edition ~~[~~or addenda~~]~~ is disapproved by the administrator within 60 days after the date the edition is published by the American Society of Mechanical Engineers. The most current edition that has been approved by the administrator may be determined by contacting the office of the administrator. A copy of the ~~[~~1998~~]~~ ***sections of the 2001*** edition ***adopted by reference in this subsection*** may be obtained from the American

Society of Mechanical Engineers, ***22 Law Drive,*** P.O. Box 2900, Fairfield, New Jersey 07007-2900, for the price indicated:

Cost

(a) Section I, Power Boilers ..... ~~[$210]~~ ***$270***

(b) Section II, ***Materials - Part A: Ferrous Material Specifications***

~~[Material Specifications ..... 1,400]~~ ***425***

(c) ***Section II, Materials - Part B: Nonferrous Material Specifications 405***

(d) Section II, Materials - Part C: Specifications for Welding Rods, Electrodes, and Filler Metals..... 405

(e) Section II, Materials - Part D: Properties..... 405

(f) Section IV, ***Rules for Construction of*** Heating Boilers ..... ~~[195]~~ ***260***

~~[(d)]~~ ***(g)*** Section V, Nondestructive ***Examination*** ~~[Testing ..... 215]~~ ***290***

~~[(e)]~~ ***(h)*** Section VI, Recommended Rules for the Care and Operation of Heating Boilers ..... ~~[125]~~ ***165***

~~[(f)]~~ ***(i)*** Section VII, Recommended Guidelines for the Care of Power Boilers ..... ~~[145]~~ ***170***

~~[(g)]~~ ***(j)*** Section VIII, Pressure Vessels ***- Division 1*** ..... ~~[1,065]~~ ***425***

(k) Section VIII, Pressure Vessels - Division 2, Alternative Rules 415

(l) Section VIII, Pressure Vessels - Division 3, Alternative Rules for Construction of High Pressure Vessels..... 350

~~[(h)]~~ ***(m)*** Section IX, Welding and Brazing Qualifications..... ~~[215]~~ ***305***

~~[(i)]~~ ***(n)*** Section X, ~~[Fiberglass Reinforced]~~ ***Fiber-Reinforced*** Plastic Pressure Vessels.....~~[185]~~ ***240***

3. The administrator hereby adopts by reference ~~[Control]~~ ***Controls*** *and Safety Devices for Automatically Fired Boilers*, CSD-1, ~~[1998 edition and addenda,]~~ ***2002 edition,*** and any subsequent edition ~~[and addenda]~~ issued by the American Society of Mechanical Engineers, unless the edition ~~[or addenda]~~ is disapproved by the administrator within 60 days after the date the edition is published by the American Society of Mechanical Engineers. The most current edition that has been approved by the administrator may be determined by contacting the office of the administrator. This publication applies to automatically fired boilers which are directly fired with gas, oil, a combination of gas and oil or electricity. The ~~[1998]~~ ***2002*** edition may be obtained from the American Society of Mechanical Engineers, ***22 Law Drive,*** P.O. Box 2900, Fairfield, New Jersey 07007-2900, for the price of ~~[$52.]~~ ***$58.***

4. The administrator hereby adopts by reference the *Power Piping Code*, B31.1, ~~[1998 edition and addenda,]~~ ***2001 edition,*** and any subsequent edition ~~[and addenda]~~ issued by the American Society of Mechanical Engineers, unless the edition is disapproved by the administrator within 60 days after the date the edition is published by the American Society of Mechanical Engineers. The most current edition that has been approved by the administrator may be determined by contacting the office of the administrator. The ~~[1998]~~ ***2001*** edition may be obtained from the American Society of Mechanical Engineers, ***22 Law Drive,*** P.O. Box 2900, Fairfield, New Jersey 07007-2900, for the price of ~~[$164.]~~ ***$210.***

5. The administrator hereby adopts by reference the *National Fuel Gas Code*, ~~[ANSI/NFPA 54, Z223.1, 1996]~~ ***ANSI Z223.1/NFPA 54, 1999*** edition, and any subsequent edition issued by

the National Fire Protection Association, unless the edition is disapproved by the administrator within 60 days after the date the edition is published by the National Fire Protection Association. The most current edition that has been approved by the administrator may be determined by contacting the office of the administrator. The ~~[1996]~~ ***1999*** edition may be obtained from Global Engineering Documents, 15 Inverness Way East, Englewood, Colorado ~~[80012,]~~ ***80112,*** for the price of $64.

6. The administrator hereby adopts by reference the *National Electrical Code*, ANSI/NFPA 70, ~~[1999 edition,]~~ ***2002 edition and 2002 handbook*** and any subsequent edition ***and handbook*** issued by the American National Standards Institute, unless the edition ***or handbook*** is disapproved by the administrator within 60 days after the date the edition is published by the American National Standards Institute. The most current edition ***or handbook*** that has been approved by the administrator may be determined by contacting the office of the administrator. The ~~[1999]~~ ***2002*** edition ***and 2002 handbook*** may be obtained from Global Engineering Documents, 15 Inverness Way East, Englewood, Colorado ~~[80012,]~~ ***80112,*** for the price of ~~[$96.]~~ ***$206.***

7. The administrator hereby adopts by reference the ~~["Uniform Building Code,"]~~ ***Uniform Building Code,*** 1997 edition, and any subsequent editions issued by the International Conference of Building Officials, unless the edition is disapproved by the administrator within 60 days after the date the edition is published by the International Conference of Building Officials. The most current edition that has been approved by the administrator may be determined by contacting the office of the administrator. The 1997 edition may be obtained from the International Conference of Building Officials, 5360 South Workman Mill Road, Whittier, California 90601, for the price of ~~[$180.70.]~~ ***$205.20.***

8. The administrator hereby adopts by reference the *Uniform Mechanical Code*, ~~[1997]~~ ***2000*** edition, and any subsequent edition issued by the International Conference of Building Officials, unless the edition is disapproved by the administrator within 60 days after the date the edition is published by the International Conference of Building Officials. The most current edition that has been approved by the administrator may be determined by contacting the office of the administrator. The ~~[1997]~~ ***2000*** edition may be obtained from the International Conference of Building Officials, 5360 South Workman Mill Road, Whittier, California 90601, for a cost of ~~[$48.30.]~~ ***$90.***

9. The administrator hereby adopts by reference the *Uniform Fire Code*, ~~[1997]~~ ***2000*** edition, and any subsequent editions issued by the International Conference of Building Officials, unless an edition is disapproved by the administrator within 60 days after the date the edition is published by the International Conference of Building Officials. The most current ~~[editions that have]~~ ***edition that has*** been approved by the administrator may be determined by contacting the office of the administrator. The ~~[1997]~~ ***2000*** edition may be obtained from the International Conference of Building Officials, 5360 South Workman Mill Road, Whittier, California 90601, for the price of ~~[$136.15.]~~ ***$94.95.***

10. The administrator hereby adopts by reference the *Uniform Plumbing Code*, ~~[1997]~~ ***2000*** edition, and any subsequent edition issued by the International Association of Plumbing and Mechanical Officials, unless the edition is disapproved by the administrator within 60 days after the date the edition is published by the International Association of Plumbing and Mechanical Officials. The most current edition that has been approved by the administrator may be determined by contacting the office of the administrator. The ~~[1997]~~ ***2000*** edition may be

obtained from the International Association of Plumbing and Mechanical Officials, 20001 Walnut Drive South, Walnut, California 91789-2825, for the price of ~~[$45.45.]~~ ***$60.***

11. The administrator hereby adopts by reference the ~~[Standard for Installation of Oil-Burning Equipment,]~~ ***Standard for Installation of Oil-Burning Equipment,*** ANSI/NFPA 31, ~~[1997]~~ ***2001*** edition, and any subsequent edition issued by the National Fire Protection Association, unless the edition is disapproved by the administrator within 60 days after the date the edition is published by the National Fire Protection Association. The most current edition that has been approved by the administrator may be determined by contacting the office of the administrator. The ~~[1997]~~ ***2001*** edition may be obtained from Global Engineering Documents, 15 Inverness Way East, Englewood, Colorado ~~[80012,]~~ ***80112,*** for the price of ~~[$48.]~~ ***$49.***

12. The administrator hereby adopts by reference the ~~[Safety Code for Mechanical Refrigeration,]~~ ***Safety Standard for Refrigeration Systems,*** ANSI/ASHRAE 15, ~~[1999]~~ ***2001*** edition, and any subsequent edition issued by the American Society of Heating, Refrigeration and Air-Conditioning Engineers, unless the edition is disapproved by the administrator within 60 days after the date the edition is published by the American Society of Heating, Refrigeration and Air-Conditioning Engineers. The most current edition that has been approved by the administrator may be determined by contacting the office of the administrator. The ~~[1999]~~ ***2001*** edition may be obtained from Global Engineering Documents, 15 Inverness Way East, Englewood, Colorado ~~[80012,]~~ ***80112,*** for the price of ~~[$64.]~~ ***$46.***

Sec. 207. NAC 512.570 is hereby amended to read as follows:

512.570 1. An internal inspection conducted pursuant to this section must consist of as complete an examination as can reasonably be made of the internal and external surfaces of a boiler or pressure vessel while it is not operating and must not be conducted until any plates for a

manhole or handhole or other closures of openings used for an inspection are removed. An external inspection conducted pursuant to this section must consist of an examination of the external surfaces of a boiler or pressure vessel and must be performed while the boiler or pressure vessel is in operation. An inspection conducted pursuant to this section must include operational testing of all controls and safety devices.

2. A power boiler and a high-pressure, high-temperature boiler must be inspected internally, if the construction and design of the boiler so allows, at least once each year and externally approximately 6 months after the date of the internal inspection. If an internal inspection is not possible, such a boiler must be inspected externally at least once every 6 months.

3. A low-pressure steam boiler must be inspected externally at least once every year and internally, if the construction and design of the boiler so allows, at least once every 2 years.

4. A hot water heating boiler and a hot water supply boiler must be inspected externally at least once every 2 years and internally, if the construction and design of the boiler so allows, at the request of the ~~[boiler]~~ ***inspector or special*** inspector.

5. A lined potable water heater must be inspected externally at least once every 2 years.

6. Any other fired pressure vessel for which a frequency of inspection is not specified in subsections 1 to 5, inclusive, must be inspected internally, if the construction and design of the pressure vessel so allows, at least once each year.

7. ~~[A]~~ ***Except as otherwise provided in this section, a*** pressure vessel must be inspected externally at least once every 3 years.

8. ~~[A boiler inspector employed by an authorized inspection entity]~~ ***An inspector or special inspector*** may require any boiler or pressure vessel to be prepared for inspection if, in his

opinion, an inspection is necessary to determine whether the boiler or pressure vessel is operating in a safe manner.

9. As used in this section:

(a) "Fired pressure vessel" means a vessel other than a boiler in which steam or vapor pressure is generated in excess of 15 pounds per square inch by direct firing with a solid, liquid or gaseous fuel or by an electric heating element.

(b) "Lined potable water heater" means a fired heater for the storage of water which has a corrosion-resistant lining and is used to supply potable hot water.

Sec. 208. NAC 512.572 is hereby amended to read as follows:

512.572 If ~~[a boiler]~~ ***an inspector or special*** inspector, upon his inspection of a boiler or pressure vessel, finds that the boiler or pressure vessel or any appurtenance thereof is in such condition as to be unsafe, the ~~[boiler]~~ inspector ***or special inspector*** shall immediately notify the owner or user and the administrator in writing and, as soon as practicable thereafter, submit to the owner or user and the administrator a report on the defects, which states which repairs or other corrective measures are required. Until the corrections have been made, the boiler or pressure vessel must not be operated.

Sec. 209. NAC 512.573 is hereby amended to read as follows:

512.573 If an accident occurs that renders a boiler, pressure vessel or pressure-retaining item inoperative, the owner or user shall immediately notify the ~~[administrator]~~ ***enforcement section*** at (775) ~~[687-5243.]~~ ***684-7085.*** The owner or user shall investigate the accident and submit a report relating to the investigation to the administrator within 10 business days after the accident. Such a boiler, pressure vessel or pressure-retaining item and any parts thereof must not

be removed or disturbed before an inspection has been made by ~~[the boiler]~~ ***an*** inspector ***or special inspector*** unless human life is endangered or except to limit further damage.

Sec. 210. NAC 512.574 is hereby amended to read as follows:

512.574 1. ~~[A boiler]~~ ***An*** inspector ***or special inspector*** shall stamp a boiler or pressure vessel that he has inspected and declared unsafe with the letters "XXX" on each side of the number that indicates the registration of the boiler or pressure vessel with the ~~[national board]~~ ***National Board*** or the number designated by the enforcement section. Such a stamp indicates that the boiler or pressure vessel is condemned.

2. ~~[No person may]~~ ***A person shall not*** use or offer for sale in this state a boiler or pressure vessel that has been stamped pursuant to subsection 1.

Sec. 211. NAC 512.575 is hereby amended to read as follows:

512.575 1. A contractor shall submit a written notice to the administrator before installing a boiler or pressure vessel in this state that is constructed in a manner that meets the standards of this state, the American Society of Mechanical Engineers or the ~~[national board.]~~ ***National Board.*** Except for an existing or a reinstalled boiler or pressure vessel, a boiler or pressure vessel must not be installed in this state unless it has been registered with the ~~[national board.]~~ ***National Board.***

2. Except as otherwise provided in subsection 4, the notice of installation of a boiler or pressure vessel must include the American Society of Mechanical Engineers' data report of the manufacturer concerning the construction of the boiler or pressure vessel, or an equivalent standard which is approved by the ~~[national board,]~~ ***National Board,*** unless the boiler is constructed of cast iron.

3. A notice of installation of a new boiler or pressure vessel must include the plans and specifications of the boiler room in which the boiler or pressure vessel is being installed which designates the location of the boiler or pressure vessel and which complies with the requirements of NAC 512.579.

4. Before a secondhand or portable boiler or pressure vessel may be installed or shipped for installation into this state, the owner or user or the contractor installing the boiler or pressure vessel must submit to the administrator a notice of installation. The notice of installation must include, without limitation, a report of inspection ***.*** ~~[by a boiler inspector.]~~ ***The report of inspection must be prepared by a person who holds a commission and who inspected the boiler or pressure vessel.*** The fittings and appurtenances of the boiler or pressure vessel must comply with the requirements for the installation of a new boiler or pressure vessel.

5. As used in this section:

(a) "Existing boiler or pressure vessel" means any boiler or pressure vessel constructed, installed, placed in operation or contracted for use in this state before January 28, 2000.

(b) "Portable boiler" means a boiler that is intended primarily for temporary use and has a construction that allows it to be moved readily from one location to another.

(c) "Reinstalled boiler or pressure vessel" means a boiler or pressure vessel removed from its original setting ***and reinstalled at the same location or*** at a new location without a change of ownership.

(d) "Secondhand boiler or pressure vessel" means a boiler or pressure vessel that has ***changed ownership and has*** been moved since its original installation.

Sec. 212. NAC 512.585 is hereby amended to read as follows:

512.585 1. A repair or alteration to a boiler or pressure vessel must conform to the applicable provisions of the code or this chapter, and any jurisdictional requirements.

2. If a repair or alteration to a boiler or pressure vessel is necessary, ~~[a boiler]~~ ***an*** inspector ***or special inspector*** must be consulted regarding the ~~[best]~~ ***appropriate*** method for making the repair or alteration. After the repair or alteration is made, the ~~[boiler]~~ inspector ***or special inspector*** shall inspect it pursuant to the code. The person who makes such a repair or alteration shall submit to the administrator the appropriate "R" form prescribed by the ~~[national board]~~ ***National Board*** within 30 days after completion of the repair or alteration.

3. A person who makes a repair or alteration to a boiler or pressure vessel must be qualified pursuant to the ~~[national board inspection code.]~~ ***National Board Inspection Code.***

4. A person who makes a repair or alteration to a boiler or pressure vessel by fusion welding to the pressure parts of the boiler or pressure vessel must hold a valid certificate of authorization and stamp designated as "R," which have been issued by the ~~[national board.]~~ ***National Board.***

5. A repair or alteration made by fusion welding must not be made to the pressure parts of a boiler constructed of cast iron.

6. A person who is in the business of repairing safety valves must have a certificate of authorization ~~[and a]~~ ***from the National Board for the use of a National Board Pressure Relief Valve Repair*** stamp ***,*** designated ***by the National Board*** as ***a*** "VR" ~~[from the national board.]~~ ***stamp.***

7. As used in this section, "alteration" means a change in any item described in the data report from the original manufacturer for the boiler or pressure vessel which affects the capability of the boiler or pressure vessel to contain pressure ~~[,]~~ and which includes:

(a) Changes which do not physically alter the boiler or pressure vessel, including, without limitation, an increase in the maximum allowable internal or external working pressure in the boiler or pressure vessel or a change in the temperature at which a boiler or pressure vessel is designed to be operated; and

(b) A reduction in the minimum temperature of a boiler or pressure vessel which requires additional mechanical tests.

Sec. 213. NAC 618.010, 618.015, 618.016, 618.019, 618.022, 618.024, 618.028, 618.029, 618.032, 618.033, 618.034, 618.035, 618.043, 618.046, 618.049, 618.052, 618.0525, 618.0535, 618.054, 618.055, 618.061, 618.063, 618.065, 618.067, 618.070, 618.073, 618.076, 618.079, 618.082, 618.085, 618.094, 618.097, 618.099, 618.103, 618.106, 618.109, 618.115, 618.118, 618.119, 618.121, 618.122, 618.123, 618.124, 618.133, 618.135, 618.139, 618.143, 618.148, 618.149, 618.150, 618.151, 618.152, 618.154, 618.158, 618.166, 618.169, 618.170, 618.172, 618.1725, 618.173, 618.174, 618.175, 618.178, 618.181, 618.184, 618.187, 618.190, 618.192, 618.193, 618.199, 618.202, 618.208, 618.214, 618.215, 618.217, 618.218, 618.219, 618.220, 618.223, 618.226, 618.229, 618.232, 618.233, 618.235, 618.237, 618.241, 618.242, 618.245, 618.247, 618.248, 618.249, 618.250, 618.253, 618.256, 618.257, 618.259, 618.265, 618.268, 618.269, 618.270, 618.2705, 618.271, 618.272, 618.273, 618.274, 618.277, 618.280, 618.283, 618.286, 618.289, 618.290, 618.292, 618.295, 618.298, 618.301, 618.304, 618.310, 618.313, 618.316, 618.319, 618.322, 618.323, 618.324, 618.328, 618.331, 618.334, 618.340, 618.400, 618.406, 618.420, 618.424, 618.427, 618.433, 618.434, 618.435, 618.4355, 618.436, 618.438, 618.439, 618.442, 618.448, 618.451, 618.454, 618.457, 618.463, 618.464, 618.466, 618.470, 618.472, 618.475, 618.478, 618.480 and 618.484 are hereby repealed.

Sec. 214. 1. This section and sections 1 to 152, inclusive, and 154 to 213, inclusive, of this regulation become effective upon filing with the secretary of state.

2. Section 153 of this regulation becomes effective on the date on which the provisions of 42 U.S.C. § 666 requiring each state to establish procedures under which the state has authority to withhold or suspend, or to restrict the use of professional, occupational and recreational licenses of persons who:

(a) Have failed to comply with a subpoena or warrant relating to a procedure to determine the paternity of a child or to establish or enforce an obligation for the support of a child; or

(b) Are in arrears in the payment for the support of one or more children,

FLUSH are repealed by the Congress of the United States.

3. Sections 149, 150 and 151 of this regulation expire by limitation on the date on which the provisions of 42 U.S.C. § 666 requiring each state to establish procedures under which the state has authority to withhold or suspend, or to restrict the use of professional, occupational and recreational licenses of persons who:

(a) Have failed to comply with a subpoena or warrant relating to a proceeding to determine the paternity of a child or to establish or enforce an obligation for the support of a child; or

(b) Are in arrears in the payment for the support of one or more children,

FLUSH are repealed by the Congress of the United States.

TEXT OF REPEALED SECTIONS

618.010 Definitions. (NRS 618.295) As used in NAC 618.010 to 618.340, inclusive, unless the context otherwise requires, the words and terms defined in NAC 618.015 to 618.139, inclusive, have the meanings ascribed to them in those sections.

618.015 "Alteration" defined. "Alteration" means a change in any item described in the original manufacturer's data report for a boiler or pressure vessel which affects the capability of the boiler or pressure vessel to contain pressure, and includes:

1. Changes which do not physically alter the boiler or pressure vessel, such as an increase in the maximum allowable internal or external working pressure in the boiler or pressure vessel or a change in the temperature at which a boiler or pressure vessel is designed to be operated; and

2. A reduction in the minimum temperature of a boiler or pressure vessel which requires mechanical tests.

618.016 "Approved" defined. "Approved" means approved by the enforcement section.

618.019 "Authorized inspection entity" defined. (NRS 618.295) "Authorized inspection entity" means:

1. The division;

2. An insurance company that:

(a) Is licensed in this state to write insurance for a boiler or pressure vessel; and

(b) Employs a boiler inspector who has been issued a certificate of competency by the enforcement section; or

3. An inspection organization.

618.022 "Boiler" defined. "Boiler" means a closed vessel in which water is heated, steam is generated, steam is superheated, or any combination thereof, under pressure or vacuum, for use external to the boiler by the direct application of heat. "Boiler" includes fired units for heating or vaporizing liquids other than water if these units are separate from processing systems and complete within themselves.

618.024 "Boiler inspector" defined. (NRS 618.295) "Boiler inspector" means an inspector of boilers and pressure vessels who holds a commission and is employed by an authorized inspection entity.

618.028 "Certificate of competency" defined. "Certificate of competency" means a certificate issued to a person who has passed an examination which is prescribed by the enforcement section for qualification as a boiler inspector.

618.029 "Chief boiler inspector" defined. (NRS 618.295) "Chief boiler inspector" means the chief boiler inspector of the enforcement section.

618.032 "Code" defined. (NRS 618.295) "Code" means:

1. The *ASME Boiler and Pressure Vessel Code* of the American Society of Mechanical Engineers with amendments and interpretations adopted by the Council of the Society and approved and adopted by the division;

2. A code relating to the construction of boiler and pressure vessels that has been approved by the National Board; or

3. The *National Board Inspection Code*.

618.033 "Commission" defined. "Commission" means the commission issued by the National Board of Boiler and Pressure Vessel Inspectors to a holder of a certificate of competency who is authorized to make inspections of boilers or pressure vessels.

618.034 "Condemned boiler or pressure vessel" defined. (NRS 618.295) "Condemned boiler or pressure vessel" means a boiler or pressure vessel that has been inspected and declared unsafe, or has been disqualified by legal requirements, by a boiler inspector who has applied a stamp or mark condemning the boiler or pressure vessel.

618.035 "Contractor" defined. (NRS 618.295) "Contractor" has the meaning ascribed to it in NRS 624.020.

618.043 "Electric boiler" defined. "Electric boiler" means a power boiler or heating boiler in which the source of heat is electricity.

618.046 "Existing installation" defined. "Existing installation" means any boiler or pressure vessel constructed, installed, placed in operation or contracted for use in Nevada before December 23, 1992.

618.049 "External inspection" defined. "External inspection" means an inspection which is made when a boiler or pressure vessel is operating.

618.052 "Factor of safety" defined. (NRS 618.295) "Factor of safety" means the figure arrived at by dividing the pressure which will burst a boiler or pressure vessel by the maximum allowable working pressure as determined by the formulas set forth in the code that was applicable when the boiler or pressure vessel was constructed.

618.0525 "Fired pressure vessel" defined. "Fired pressure vessel" means a vessel other than a boiler in which steam or vapor pressure is generated in excess of 15 pounds per square inch by direct firing with a solid, liquid or gaseous fuel or by an electric heating element.

618.0535 "Heat exchanger" defined. (NRS 618.295) "Heat exchanger" means a device for transferring energy in the form of heat from a warmer medium to a cooler medium. The term includes a radiator.

618.054 "Heating boiler" defined. "Heating boiler" means a:

1. Steam or vapor boiler intended for operation at pressures not exceeding 15 PSIG; or

2. Hot water boiler intended for operation at pressures not exceeding 160 PSIG or temperatures of not more than 250° F.,

which is not used to heat potable water except through a heat exchanger.

618.055 "High-pressure, high-temperature water boiler" defined. "High-pressure, high-temperature water boiler" means a water boiler intended for operation at pressures in excess of 160 PSIG and at temperatures in excess of 250° F.

618.061 "Hot water supply boiler" defined. (NRS 618.295) "Hot water supply boiler" means a boiler or water heater completely filled with water that furnishes hot water to be used outside the boiler at pressures not exceeding 160 PSIG or at temperatures not exceeding 250°F. at or near the boiler outlet and which:

1. Uses a storage tank to supply hot water to the system;

2. Fires on demand to heat water which is supplied directly into the system; or

3. Is fired at a rate of not less than 200,000 British thermal units.

618.063 "Inspection for an operating permit" defined. (NRS 618.295) "Inspection for an operating permit" means an inspection:

1. That is used by the enforcement section as the basis for issuing, withholding or revoking an operating permit; and

2. For which an inspection report is required to be issued.

618.065 "Inspection organization" defined. (NRS 618.295) "Inspection organization" means an owner or user of boilers or pressure vessels who maintains an inspection program that includes inspection procedures that comply with the *National Board Inspection Code* and have been approved by the division.

618.067 "Internal inspection" defined. "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 not operating and all plates for a manhole or handhole or other closures of openings used for an inspection are removed.

618.070 "Lined potable water heater" defined. "Lined potable water heater" means a fired heater for storage of water with a corrosion resistant lining used to supply potable hot water.

618.073 "Miniature boiler" defined. "Miniature boiler" means a power boiler or high-pressure, high-temperature water boiler which does not exceed the following limits:

1. An inside diameter of the shell of 16 inches (410 millimeters);
2. Except for electric boilers, a heating surface of 20 square feet (1.9 square meters);
3. A gross volume, not including casing and insulation, of 5 cubic feet (140 liters); and
4. A maximum allowable working pressure of 100 PSIG.

618.076 "National Board" defined. "National Board" means the National Board of Boiler and Pressure Vessel Inspectors, 1055 Crupper Avenue, Columbus, Ohio 43229.

618.079 "*National Board Inspection Code*" defined. "*National Board Inspection Code*" means the manual for boiler and pressure vessel inspectors published by the National Board.

618.082 "New boiler or pressure vessel installation" defined. "New boiler or pressure vessel installation" means the construction, installation or placing into operation of or contracting for any boiler or pressure vessel on or after December 23, 1992.

618.085 "Nonstandard boiler or pressure vessel" defined. (NRS 618.295) "Nonstandard boiler or pressure vessel" means a boiler or pressure vessel that:

1. Does not bear a stamp of the American Society of Mechanical Engineers or of a standard of construction that is approved by the National Board; or

2. Is not registered with the National Board.

618.094 "Operating permit" defined. "Operating permit" means a permit issued by the enforcement section for the operation of a boiler or pressure vessel.

618.097 "Owner or user" defined. "Owner or user" means any person who is responsible for the safe installation, operation or maintenance of any boiler or pressure vessel within this state.

618.099 "Person" defined. "Person" means a natural person, any form of business organization and any other legal entity, including, but not limited to, a corporation, partnership, association, trust or unincorporated organization.

618.103 "Portable boiler" defined. (NRS 618.295) "Portable boiler" means a boiler which is primarily intended for temporary use and whose construction permits it to be readily moved from one location to another.

618.106 "Power boiler" defined. (NRS 618.295) "Power boiler" means a boiler in which steam or other vapor is generated at a pressure of more than 15 PSIG. The term includes a high-pressure, high-temperature water boiler.

618.109 "Pressure vessel" defined. "Pressure vessel" means a vessel in which pressure is obtained from an external source or by the application of heat from a direct or indirect source.

618.115 "PSIG" defined. "PSIG" means pounds per square inch gauge.

618.118 "Reinstalled boiler or pressure vessel" defined. "Reinstalled boiler or pressure vessel" means a boiler or pressure vessel removed from its original setting and reinstalled at the same location or at a new location without a change of ownership.

618.119 "Relief valve" defined. (NRS 618.295) "Relief valve" means an automatic pressure-relieving device as described in section I, IV or VIII of the *ASME Boiler and Pressure Vessel Code*, adopted by reference pursuant to NAC 618.148.

618.121 "Repair" defined. "Repair" means the work necessary to restore a boiler or pressure vessel to a safe and satisfactory operating condition, if there is no deviation from the original design.

618.122 "Safety relief valve" defined. "Safety relief valve" means a relieving device, which is:

1. Automatically pressure actuated; and
2. Suitable for use either as a safety valve or relief valve, depending on the application.

618.123 "Safety valve" defined. "Safety valve" means an automatic pressure-relieving device, which is:

1. Actuated by the static pressure upstream of the valve; and
2. A full-opening, spring-pop type used for gas or vapor service.

618.124 "Secondhand boiler or pressure vessel" defined. "Secondhand boiler or pressure vessel" means a boiler or pressure vessel which has been moved since its original installation.

618.133 "Standard boiler or pressure vessel" defined. (NRS 618.295) "Standard boiler or pressure vessel" means a boiler or pressure vessel which:

1. Bears the stamp of the American Society of Mechanical Engineers or of a standard of construction that is approved by the National Board; and

2. Is registered with the National Board.

618.135 "Structure" defined. (NRS 618.295) "Structure" means a wall, column or any equipment located in the area of a boiler or pressure vessel that is being installed.

618.139 "Unfired steam boiler" defined. "Unfired steam boiler" means an unfired pressure vessel or a system of unfired pressure vessels intended for operation at a pressure in excess of 15 PSIG to produce and control an output of thermal energy. The term includes boilers which heat water with waste heat.

618.143 Notification by insurance companies. Insurance companies shall notify the enforcement section, within 30 days, of all boilers and pressure vessels on which insurance is written, canceled, not renewed or suspended.

618.148 Adoption by reference of certain publications, codes and sections of codes. (NRS 618.295) The division hereby adopts by reference:

1. The following sections of the ASME Boiler and Pressure Vessel Code, 1998 edition, which are available from the American Society of Mechanical Engineers, P.O. Box 2900, Fairfield, New Jersey 07007-2900, for the price indicated:

(a) Section I, Power Boilers $210

(b) Section II, Material Specifications 1,400

(c) Section IV, Heating Boilers 195

(d) Section V, Nondestructive Examination 215

(e) Section VI, Recommended Rules for the Care and Operation of Heating Boilers.....125

(f) Section VII, Recommended Guidelines for the Care of Power Boilers.....145

(g) Section VIII, Pressure Vessels.....1,065

(h) Section IX, Welding and Brazing Qualifications 215

(i) Section X, Fiber-Reinforced Plastic Pressure Vessels 185

2. *Control and Safety Devices for Automatically Fired Boilers*, CSD-1, 1998 edition, published by the American Society of Mechanical Engineers. This publication and its addenda apply to automatically fired boilers which are directly fired with gas, oil, a combination of gas and oil, or electricity, and are available from the American Society of Mechanical Engineers, P.O. Box 2900, Fairfield, New Jersey 07007-2900, for the price of $52.

3. The *Power Piping Code*, B31.1, 1998 edition and addenda, published by the American Society of Mechanical Engineers. This publication and its addenda are available from the American Society of Mechanical Engineers, P.O. Box 2900, Fairfield, New Jersey 07007-2900, for the price of $164.

4. The *National Fuel Gas Code*, ANSI/NFPA 54, 1996 edition, which is available from Global Engineering Documents, 15 Inverness Way East, Englewood, Colorado 80012, for the price of $64.

5. The *National Electrical Code*, ANSI/NFPA 70, 1999 edition, which is available from Global Engineering Documents, 15 Inverness Way East, Englewood, Colorado 80012, for the price of $96.

6. Volumes 1, 2 and 3 of the *Uniform Building Code*, 1997 edition, which are available from the International Conference of Building Officials, 5360 South Workman Mill Road, Whittier, California 90601, for the price of $180.70.

7. The *Uniform Mechanical Code*, 1997 edition, which is available from the International Conference of Building Officials, 5360 South Workman Mill Road, Whittier, California 90601, for the price of $48.30.

8. The *Uniform Plumbing Code*, 1997 edition, which is available from the International Association of Plumbing and Mechanical Officials, 20001 Walnut Drive South, Walnut, California 91789-2825, for the price of $45.45.

9. Volumes 1 and 2 of the *Uniform Fire Code*, 1997 edition, which are available from the International Conference of Building Officials, 5360 South Workman Mill Road, Whittier, California 90601, for the price of $136.15.

10. The *National Board Inspection Code*, 1999 edition and addenda, which is available from the National Board of Boiler and Pressure Vessel Inspectors, 1055 Crupper Avenue, Columbus, Ohio 43229, for the price of $70.

11. The *Standard for Installation of Oil-Burning Equipment*, ANSI/NFPA 31, 1999 edition, which is available from Global Engineering Documents, 15 Inverness Way East, Englewood, Colorado 80012, for the price of $48.

12. The *Safety Code for Mechanical Refrigeration*, ANSI/ASHRAE 15, 1999 edition, which is available from Global Engineering Documents, 15 Inverness Way East, Englewood, Colorado 80012, for the price of $64.

618.149 Determination of suitability for this state of revisions of publications adopted by reference. (NRS 618.295) If any publication adopted by reference pursuant to NAC

618.148 is revised, the administrator shall review the revision to determine its suitability for this state. If the administrator determines that the revision is not suitable for this state, he will hold a public hearing to review his determination and give notice of that hearing within 6 months after the date of the publication of the revision. If, after the hearing, the administrator does not revise his determination, the administrator shall give notice that the revision is not suitable for this state within 30 days after the hearing. If the administrator does not give such notice, the revision becomes part of the publication adopted by reference pursuant to NAC 618.148.

618.150 Requirements for operation. (NRS 618.295) A new boiler or pressure vessel must not be operated in this state unless it is designed, constructed, inspected, stamped and installed in accordance with the code and NAC 618.010 to 618.340, inclusive.

618.151 Exemptions from requirements. (NRS 618.295) The provisions of NAC 618.010 to 618.340, inclusive, do not apply to:

1. Boilers and pressure vessels under the control of the Federal Government.

2. Unfired pressure vessels meeting the requirements of the United States Department of Transportation for the shipment of liquids or gases under pressure.

3. Pressure vessels operating under the laws of other states.

4. Unfired pressure vessels having an inside diameter not exceeding 6 inches (152 millimeters).

5. Unfired pressure vessels used for domestic purposes and containing cold water under pressure, including those containing air, the compression of which serves only as a cushion.

6. Pressure vessels containing water heated by steam or by any other means if none of the following limitations is exceeded:

(a) An input of heat of 199,999 British thermal units per hour (58,600 watts).

(b) A water temperature of 210° F. (99° C.).

(c) A water capacity of 120 gallons (450 liters).

7. Unfired pressure vessels that do not exceed 5 cubic feet in volume and 250 PSIG.

8. An unfired pressure vessel which may be classified as a pressure container which is an integral part or component of a rotating or reciprocating mechanical device, including a pump, compressor, turbine, generator, engine and hydraulic or pneumatic cylinder where the primary considerations of or stresses in the design, or both, derived from the functional requirements of the device.

9. Unfired pressure vessels used for the storage of compressed air only.

10. A hot water heater constructed of continuous coils, which is used only to produce steam vapor to clean machinery, equipment and buildings, if:

(a) The tubing or pipe size does not exceed three-fourths of an inch in diameter and drums and headers are not attached;

(b) The nominal water containing capacity does not exceed 6 gallons;

(c) The water temperatures do not exceed 350° F.; and

(d) Steam is not generated within the coil,

except that the provisions of NAC 618.010 to 618.340, inclusive, do apply to safety relief valves on a hot water heater constructed of continuous coils.

11. Unfired pressure vessels and piping containing liquid petroleum gas and liquid natural gas.

12. A boiler or heater for a pool, if :

(a) The supply or return line has no stop valves installed; and

(b) It is impossible for the unit to build pressure in excess of 15 pounds per square inch.

618.152 Variances. (NRS 618.295) An owner or user may be exempted from full compliance with a regulation adopted by the division only by a written order of the administrator authorizing the variance.

618.154 Examination for commission: Conduct; education and experience requirements; application; issuance of certificate of competency and card for identification; failure to pass. (NRS 618.295)

1. The examination for a commission will be conducted in accordance with the code.

2. An applicant for examination must have the education and experience required by the code.

3. The application for examination must be:

(a) Submitted to the enforcement section at least 45 days before the examination; and

(b) In writing on a form provided by the enforcement section, stating the education of the applicant and listing his employers, the length of time employed by each employer and the position held with each employer.

Applications containing false statements will be rejected.

4. If the applicant:

(a) Passes the examination; and

(b) Is employed full time by an authorized inspection entity,

the chief boiler inspector may issue the applicant a certificate of competency.

5. A card for identification may be issued to the applicant after the applicant receives a commission.

6. An applicant who fails to pass the examination may not take another written examination within 90 days after the examination.

618.158 Annual renewal of card for identification required. (NRS 618.295) A card for identification issued by the enforcement section must be renewed each year on or before March 1.

618.166 Revocation of certificate of competency; appeal. (NRS 618.295)

1. After an investigation, the chief boiler inspector may revoke the certificate of competency of a boiler inspector if the chief boiler inspector finds the boiler inspector:

(a) Is incompetent;

(b) Has willfully falsified any statement contained in his application or in a report of any inspection made by him;

(c) Willfully neglected to inspect a boiler or pressure vessel on or before the expiration of the operating permit; or

(d) Knowingly failed to report to the enforcement section any boiler or pressure vessel which is required to have a permit but does not.

2. The chief boiler inspector will give written notice of a revocation to the boiler inspector and his employer within 10 days after the revocation is made.

3. A boiler inspector whose certificate of competency has been revoked may appeal the revocation to the administrator.

618.169 Restriction of interests. (NRS 618.295) A boiler inspector may not engage in the sale of any service, article or device relating to boilers, pressure vessels or their appurtenances.

618.170 Reports of inspection; restriction on inspection for operating permit. (NRS 618.295)

1. A boiler inspector shall submit to the enforcement section within 30 days after the inspection, on a form approved by the chief boiler inspector, a report of each inspection he is required to conduct.

2. An inspection for an operating permit must be made by a boiler inspector.

618.172 Requirement; duration; location; operation without permit. (NRS 618.295)

1. Except as otherwise provided in subsection 4, the owner or user of a boiler or pressure vessel must obtain an operating permit before operating a boiler or pressure vessel.

2. An operating permit issued by the enforcement section is valid until the earliest date of the following:

(a) Its date of expiration;

(b) The date the boiler or pressure vessel for which the permit is issued is removed from the location in which it was installed;

(c) A defect or condition affecting the safety of the boiler or pressure vessel is discovered; or

(d) It is revoked by the enforcement section.

3. The operating permit must be retained on the premises where the boiler or pressure vessel is installed.

4. Until the operating permit has been issued, a report of inspection made pursuant to NAC 618.175 authorizes the operation of a boiler or pressure vessel, if:

(a) The report of inspection recommends that an operating permit be issued; and

(b) The equipment complies with the requirements of NAC 618.010 to 618.340, inclusive.

618.1725 Cancellation. The enforcement section will cancel an operating permit for a boiler or pressure vessel if it is moved from the site at which the boiler or pressure vessel was

inspected. If the boiler or pressure vessel is reinstalled, it must be inspected, and a new permit will be issued by the enforcement section.

618.173 Inspection for operating permit: Internal inspection. (NRS 618.295) An inspection for an operating permit must be an internal inspection if required by the enforcement section. If the enforcement section does not require an internal inspection, the inspection for an operating permit must comply with the requirements set forth in NAC 618.175.

618.174 Inspection for operating permit: Time and manner. (NRS 618.295)

1. The inspection for an operating permit must be conducted before the expiration date of the operating permit at a time agreed upon by the boiler inspector and the owner or user.

2. An external inspection may be performed by the boiler inspector during reasonable hours without prior notification to the owner or user.

618.175 Inspection for operating permit: General requirements; action on report of or refusal to allow inspection. (NRS 618.295)

1. The enforcement section will issue, renew or revoke an operating permit based on the report of an inspection by a boiler inspector. Unless the type of inspection is specified in NAC 618.178 and except as otherwise provided in subsections 2 and 3, an inspection must be:

(a) Internal; or

(b) If the inspection is of a pressure vessel and the determined thicknesses are included in the report, made by ultrasonic testing.

2. If the design or construction of a boiler or pressure vessel is such that an internal inspection is not possible, an external inspection is acceptable.

3. An internal inspection is not required to obtain an operating permit for a hot water heating boiler, hot water supply boiler or boiler made of cast iron.

4. If a boiler or pressure vessel is found to be unsafe to operate, the boiler inspector shall notify the enforcement section and the enforcement section will suspend the operating permit.

5. If the owner or user of a boiler or pressure vessel which is required to be inspected refuses to allow an inspection to be made, the chief shall suspend the operating permit until the owner or user allows the inspection.

6. The boiler inspector shall indicate in the report of inspection the type of inspection that was performed.

618.178 Frequency and scope of inspections; authority to require preparation for inspection. (NRS 618.295)

1. A power boiler or a high-pressure, high-temperature water boiler must be inspected internally, if the construction and design of the boiler so permits, at least once each year, and externally, while in operation, approximately 6 months after the date of the internal inspection. If an internal inspection is not possible, such a boiler must be inspected externally at least once every 6 months.

2. Low-pressure steam boilers must be inspected externally at least every 12 months and internally, if the construction and design of the boiler so permits, at least once every 2 years. The external inspection must include operational testing of all controls and safety devices.

3. Hot water heating boilers and hot water supply boilers must be inspected externally at least once every 2 years and internally, if the construction and design of the boiler so permits, at the request of the boiler inspector. The external inspection must include operational testing of all controls and safety devices.

4. Lined potable water heaters must be inspected externally at least once every 2 years. The external inspection must include operational testing of all controls and safety devices.

5. Other fired pressure vessels for which a frequency of inspection is not specified in subsections 1 to 4, inclusive, must be inspected internally, if the construction and design of the pressure vessel so permits, at least once each year. The external inspection must include operational testing of all controls and safety devices.

6. Except as otherwise provided in subsection 4, pressure vessels must be inspected internally, if the construction and design of the pressure vessel so permit, at least once every 3 years.

7. A boiler inspector employed by an authorized inspection entity may require any boiler or pressure vessel be prepared for inspection if, in his opinion, an inspection is necessary to determine the operational safety of the boiler or pressure vessel.

8. An inspection organization that has been authorized by the enforcement section to inspect its boilers and pressure vessels may request approval from the enforcement section to inspect its boilers and pressure vessels at a different interval.

9. Upon application from a petroleum company, chemical plant, public utility or other employer considered by the enforcement section as having a program acceptable to the chief boiler inspector for preventive maintenance and examination, an extension of time between required internal inspections may be granted for a period not to exceed 24 months, if the boilers are inspected externally at intervals of approximately 6 months. The application for an extension of time must be submitted in writing at least 45 days before the required internal inspection. The application must include the history of the power boiler or, if the power boiler is newly installed, of a similar boiler, substantiating that there is no significant deterioration from scaling, corrosion, erosion or overheating. Points of reference established by the owner or an authorized inspection entity at the time of the first inspection, must be used to determine the thickness of the walls of

the power boiler. If the application is approved after the internal inspection of each power boiler, a record showing the total corrosion and any other conditions which need correction must be submitted to the enforcement section.

10. An operating permit issued pursuant to subsection 9 expires 1 year after the date of an internal inspection. Before the expiration of the permit, the boiler must be inspected externally by a boiler inspector who will review the operation logs and records of water treatment. If the owner or user applies for an extension of the permit, the boiler inspector shall submit a report of inspection and recommendations to the enforcement section. If the enforcement section approves the application, it may extend a permit for a period not to exceed 6 months. Before the expiration date of the extension, the owner or user must apply again for an extension and the boiler must again be inspected externally by a boiler inspector. A second extension may be issued for an additional period of 6 months.

618.181 Preparation for inspection. (NRS 618.295)

1. The owner or user shall prepare each boiler or pressure vessel for internal inspection and shall apply a hydrostatic or pressure test, whenever necessary, on the date specified by the boiler inspector. The date must not be less than 7 days after the date of notification by the authorized inspection entity that an inspection will be made.

2. The owner or user of a boiler or pressure vessel shall prepare it for internal inspection as follows:

(a) Water must be drawn off and the boiler washed thoroughly.

(b) Plates for a manhole or handhole, washout plugs and inspection plugs in the connections of the water column must be removed. The furnace and combustion chambers must be thoroughly cooled and cleaned.

(c) All grates of internally fired boilers must be removed.

(d) Brickwork or insulation must be removed as required by the boiler inspector to determine the condition of the boiler or pressure vessel, headers, furnace, supports or other parts.

(e) The pressure gauge must be removed for testing.

(f) Any leakage of steam or hot water into the boiler or pressure vessel must be prevented by disconnecting the pipe or valve at the most convenient point or by any method approved by the boiler inspector.

(g) Before opening the cover for a manhole or handhole and entering any parts of the boiler or pressure vessel which connect to a common header with other boilers, the nonreturn valve, steam stop valves, blowoff valves and feed valves must be closed, tagged and padlocked, and the drain valves or cocks located between valves must be opened. Blowoff lines must be disconnected between pressure parts and valves where practicable. All drains and vent lines must be opened.

3. Pressure vessels must be prepared for inspection to the extent deemed necessary by the boiler inspector using the applicable procedures set forth in subsection 2.

618.184 Improper preparation. (NRS 618.295) If a boiler or pressure vessel has not been properly prepared for a required inspection, or if the owner or user fails to comply with the requirements for a hydrostatic or pressure test, the boiler inspector may decline to make the inspection or test and the operating permit will be withheld or revoked until the owner or user complies with the requirements.

618.187 Removal of covering; inaccessible parts. (NRS 618.295)

1. If a boiler or pressure vessel is covered so that the longitudinal seams of shells, drums or domes cannot be seen, sufficient covering, setting wall or other form of casing or housing must

be removed to permit reasonable inspection of the seams, rivets and other areas necessary to determine the condition and safety of the boiler or pressure vessel if the information cannot be determined by other means.

2. If the boiler inspector, as the result of conditions disclosed at the time of inspection, requires the removal of the interior or exterior lining, covering or brickwork to expose parts of the boiler or pressure vessel not normally visible, the owner or user shall remove such material to permit a proper inspection to ascertain the thickness and condition of the covered areas.

618.190 Defective conditions. (NRS 618.295) If, upon an external inspection, there is evidence of a leak or crack, sufficient covering of the boiler or pressure vessel must be removed to permit the boiler inspector to determine satisfactorily the safety of the boiler or pressure vessel. If the covering cannot be removed at that time, the boiler inspector may order the operation of the boiler or pressure vessel discontinued until the covering can be removed and a proper examination can be made.

618.192 Boiler inspector: Procedure upon discovery of violation. (NRS 618.295) If a boiler inspector determines that there is a violation of the code or NAC 618.010 to 618.340, inclusive, the boiler inspector shall notify the owner or user in writing, describe the nature of the violation and refer to the section of the appropriate code or NAC 618.010 to 618.340, inclusive. The enforcement section shall fix a reasonable time for the owner or user to correct the condition creating the violation.

618.193 Boiler inspector: Procedure upon discovery of defects. (NRS 618.295)

1. If a boiler inspector, upon his first inspection of a boiler or pressure vessel, finds that the boiler or pressure vessel or any appurtenance thereof is in an unsafe condition, the boiler inspector shall immediately notify the enforcement section and submit a report of the defects.

2. If, as the result of an external inspection, the boiler inspector determines that the continued operation of a boiler or pressure vessel constitutes an unsafe condition to the employees, the boiler inspector:

(a) Shall immediately notify the owner or user in writing, stating what repairs or other corrective measures are required. Unless the owner or user makes the repairs or institutes other corrective measures promptly, the boiler inspector shall immediately notify the enforcement section. Until the corrections have been made, the boiler or pressure vessel involved must not be operated and the operating permit may be revoked by the chief boiler inspector.

(b) May require an internal inspection or a pressure test, or both, to evaluate the condition of the boiler or pressure vessel. The owner or user shall prepare the boiler or pressure vessel for the internal inspection or pressure test.

618.199 Notification of accidents. (NRS 618.295) If an accident occurs which renders a boiler or pressure vessel inoperative, the owner or user shall immediately notify the enforcement section in writing and submit a detailed report of the accident. In case of a serious accident, including an explosion, notice must be given immediately by the most expeditious means. Neither the boiler nor pressure vessel, nor any parts thereof, may be removed or disturbed before an inspection has been made by the boiler inspector unless human life is endangered or except to limit further damage.

618.202 Condemned boilers or pressure vessels. (NRS 618.295)

1. Any boiler or pressure vessel which has been inspected and declared unsafe by an inspector will be stamped by the boiler inspector with the letters “XXX” on each side of the number designated by the state.

2. No person may use or offer for sale a condemned boiler or pressure vessel for operation in this state.

618.208 Acceptance of boiler or pressure vessel for installation. (NRS 618.295) A boiler or pressure vessel constructed in a manner which meets the standards of this state, having the standard stamping of another state that has adopted a standard of construction equivalent to the standard of this state, the American Society of Mechanical Engineers or the National Board, may be accepted for installation in this state by the enforcement section if the contractor installing the boiler or pressure vessel applies to the enforcement section for a permit for installation pursuant to NAC 618.214 before the construction or installation begins. The application must include a data report from the manufacturer of the boiler or pressure vessel.

618.214 Requirements for installation or alteration. (NRS 618.295)

1. A contractor must obtain a permit for installation before installing or altering a new boiler or pressure vessel, including a refrigeration pressure vessel, in this state. If installation is begun before the permit is issued, installation must be suspended until the permit is issued.

2. A request for a permit for installation must be submitted by the installer to the enforcement section in writing not less than 10 days before the installation will begin and include:

(a) A data report from the manufacturer of the boiler or pressure vessel; and

(b) The plans and specifications of the boiler room, which designate the location of the boilers and pressure vessels in compliance with the requirements of NAC 618.271 and 618.273.

3. Except for an existing or a reinstalled boiler or pressure vessel, a boiler or pressure vessel may not be installed in this state unless it has been registered with the National Board.

4. Before a secondhand or portable boiler or pressure vessel may be installed or shipped for installation into this state, the owner, user or contractor must apply to the enforcement section for approval to install it. The request for a permit for installation must include a report of inspection by a boiler inspector. The fittings and appurtenances of the boiler or pressure vessel must comply with the requirements for the installation of a new boiler or pressure vessel.

5. Any installation of a boiler or pressure vessel which is not included in NAC 618.010 to 618.340, inclusive, shall be deemed an installation of a new boiler or pressure vessel and must be referred to the enforcement section for approval.

618.215 Requirements for reinstallation. (NRS 618.295)

1. If a boiler or pressure vessel is removed from its original site and reinstalled at the same location or reinstalled at a new location without a change of ownership before reinstallation, the contractor must apply to the enforcement section for a permit for installation before reinstalling the boiler or pressure vessel. The fittings and appurtenances must comply with the requirements for the installation of a new boiler or pressure vessel.

2. If a standard boiler or pressure vessel is to be moved to another state for temporary use or repair, the owner or user must apply to the enforcement section for approval to reinstall the boiler or pressure vessel within this state.

618.217 General requirements. (NRS 618.295)

1. Upon completion of the installation or at the time of an inspection, each boiler or pressure vessel must be stamped, tagged or numbered as close as practicable to the nameplate or stamping of the manufacturer with a number of the State of Nevada only after the controls and safety devices required for the boiler or pressure vessel have been tested and approved. The stamp, tag or number must consist of four digits at least 5/16 of an inch in height, preceded with the last two

digits of the year in which the boiler or pressure vessel is stamped and followed by the letters "NV."

2. The stamp, tag or number must be permanent in nature, must not be concealed by lagging or paint and must be exposed at all times unless a suitable record is kept of the location of the stamp, tag or number so that it may be readily uncovered at any time.

618.218 Stamping and restamping: Compliance with code. The stamping or restamping of a boiler or pressure vessel must comply with the code.

618.219 Numbering for boiler or pressure vessel requiring manufacturer's data report; copy of report to be filed with enforcement section. (NRS 618.295) A boiler or pressure vessel for which a manufacturer's data report is required must bear a number beginning with "NB" as registered with the National Board. A copy of the manufacturer's data report, signed by the manufacturer's representative and the boiler inspector, must be filed with the enforcement section.

618.220 Decrease in working pressure or temperature; joint inspection. (NRS 618.295)

1. A boiler inspector may decrease the working pressure or temperature of a boiler or pressure vessel if the condition of the boiler or pressure vessel requires the decrease. If the owner or user does not concur with the decision of the boiler inspector, the owner or user may appeal the decision to the chief boiler inspector.

2. The chief boiler inspector may request a joint inspection by at least two boiler inspectors. Each inspector shall render his report to the chief boiler inspector, and the chief boiler inspector shall render a final decision based upon the data contained in the reports submitted by the inspectors.

618.223 Removal or alteration of appliance for safety or device or valve for relief of pressure.

1. No person may attempt to remove or do any work on any required appliance for safety while a boiler or pressure vessel is subject to pressure.

2. If an appliance is removed for repair while a boiler or pressure vessel is out of service, it must be reinstalled and working properly before the boiler or pressure vessel is returned to service.

3. No person may alter any appliance for safety or any device or valve for the relief of pressure to maintain a working pressure in excess of that stated on the operating permit for the boiler or pressure vessel.

618.226 Platforms and runways.

1. If valves and other appurtenances require frequent manipulation and are so located that they cannot be reached or operated from the floor, a platform or other safe means of operation must be provided. If a platform or runway is used, it must be at least 24 inches wide and be provided with standard handrails and toe boards and have at least 7 feet and 6 inches of head room. All runways must have at least two means of exit remotely located from one another and connected to a permanent stairway or incline ladder leading to the floor.

2. When necessary for safety, a steel runway or platform of standard construction must be installed across the tops of adjacent boilers or pressure vessels or at some other convenient level to afford safe access. All runways must have at least two means of exit, remotely located from one another.

618.229 Gas burners. For installations which are gas-fired, the burners used must conform to the applicable requirements of the National Fuel Gas Code, Z223.1.

618.232 Supports. Each boiler and pressure vessel must be supported by masonry or structural supports of sufficient strength and rigidity to safely support the boiler or pressure vessel and its contents. There must be no excessive vibration in either the boiler, pressure vessel or its connecting piping.

618.233 Connective pipes. (NRS 618.295) All connective pipes which are subjected to pressure emanating from:

1. A heating boiler;
2. A hot water supply boiler;
3. A fired storage water heater;
4. A power or process boiler; or
5. An unfired pressure vessel,

are part of the installation of the boiler or pressure vessel and must comply with the requirements for the boiler or pressure vessel. The inspection of the initial installation of such pipes must be performed by a boiler inspector.

618.235 Doors, latches and fastenings.

1. A watertube boiler must have firing doors which open inward, unless the doors are provided with substantial and effective latching or fastening devices or are so constructed as to prevent them from being blown open by pressure on the furnace side.

2. Latches or fastenings must be of the positive self-locking type. Friction contacts, latches or bolts actuated by springs must not be used. The requirements for latches or fastenings do not apply to coal openings of down-draft or similar furnaces.

3. All other doors except explosion doors not used in the firing of the boiler may be provided with bolts or fastenings in lieu of self-locking latching devices. Explosion doors, if used

and if located in the setting walls within 7 feet of the firing floor or operating platform, must be provided with substantial deflectors to divert the blast.

618.237 Backflow prevention devices. (NRS 618.295) Except as otherwise provided in this section, the pipe that is used to feed water into a boiler or pressure vessel must not be installed or connected to any domestic water supply unless a backflow prevention device that is approved pursuant to the code is installed to prevent contamination or pollution of the water supply. A backflow prevention device is not required to be installed on a hot water supply boiler that is used only for domestic water use.

618.241 Repairs or alterations. (NRS 618.295)

1. Repairs and alterations to all boilers and pressure vessels must conform to the applicable provisions of the *National Board Inspection Code* and this chapter.

2. If a repair or alteration to a boiler or pressure vessel is necessary, a boiler inspector must be consulted about the best method of making the repair or alteration. After the repair or alteration is made, the boiler inspector shall inspect it pursuant to the code. The person who makes the repairs or alterations shall submit the prescribed "R" form of the National Board to the enforcement section within 30 days after completion of the repair or alteration.

3. The person who makes repairs or alterations must be qualified pursuant to the *National Board Inspection Code*.

618.242 Repair of safety valves. (NRS 618.295) A person who is in the business of repairing safety valves must have a certificate of authorization and a stamp designated as "VR" from the National Board.

618.245 Lap-seam crack. (NRS 618.295)

1. The shell or drum of a boiler or pressure vessel with a lap-seam crack along a longitudinal riveted joint must be immediately discontinued from use. The crack may not be repaired.

2. As used in this section, “lap-seam crack” means the crack found in lap seams, extending parallel to the longitudinal joint and located between or adjacent to rivet holes.

618.247 Automatically controlled boilers; repair or replacement of fittings or appliances. (NRS 618.295)

1. Each automatically controlled boiler must be provided with a control for water level which automatically maintains the water level in the boiler within the range designated by the code.

2. Whenever repairs are made to fittings or appliances or it becomes necessary to replace them, the replacement or repairs must comply with the applicable provisions of the code.

618.248 Repair or replacement of fitting or appliance. The replacement or repair of a fitting or appliance must be made in compliance with the requirements for the initial installation of a fitting or appliance.

618.249 Capacity ratings of certain valves. (NRS 618.295) The capacity rating of:

1. A safety valve that is designed primarily for use in steam or vapor service must be rated in pounds per hour.

2. A relief valve that is designed primarily for use in liquid service must be rated in British thermal units per hour.

3. A safety relief valve that is designed primarily for use in:

(a) Steam or vapor service must be rated in pounds per hour.

(b) Heated liquid service must be rated in British thermal units per hour.

4. A cold water relief valve may be rated in gallons per hour.

618.250 Power boilers: Safety valves. (NRS 618.295)

1. The use of weighted-lever safety valves or safety valves having the seat or disk of cast iron is prohibited. Valves of this type or construction must be replaced by direct spring-loaded, pop-type valves that conform to the requirements of section I of the *ASME Boiler and Pressure Vessel Code*, adopted by reference pursuant to NAC 618.148.

2. Each boiler must have at least one safety valve certified by the American Society of Mechanical Engineers or the National Board and, if it has more than 500 square feet of water-heating surface or an input of electric power of more than 1,100 kw, it must have two or more such safety valves.

3. The valve must be connected to the boiler independent of any other connection and attached as close as possible to the boiler, without unnecessary intervening pipe or fittings.

4. No valves of any description may be placed between the safety valve and the boiler or on the discharge pipe between the safety valve discharge and the atmosphere. A discharge pipe must be at least the full size of the discharge of the safety valve and fitted with an open drain to prevent water lodging in the upper part of the safety valve or discharge pipe. If an elbow is placed on a safety valve or discharge pipe, it must be located close to the outlet of the safety valve or discharge pipe and must be anchored and supported securely. All safety discharges must be so located or piped as to be carried clear of walkways or platforms.

5. The capacity of the safety valve of each boiler must be such that the safety valve will discharge all the steam that can be generated by the boiler without allowing the pressure to which any valve is set to rise more than 6 percent above the working pressure if the steam is discharged or 6 percent above the maximum allowable working pressure of the boiler, whichever is less.

6. One or more safety valves on every boiler must be set at or below the maximum allowable working pressure. The remaining valves may be set within a range of 3 percent above the maximum allowable working pressure, but the range of the setting of all the safety valves on a boiler may not exceed 10 percent of the highest pressure to which any valve is set.

7. If two or more boilers operating at different pressures and settings of the safety valve are interconnected, the lower pressure boilers or interconnected piping must be equipped with safety valves of sufficient capacity to prevent overpressure, considering the maximum generating capacity of all boilers.

8. In those cases where the boiler is supplied with feed water directly from water mains without the use of feeding apparatus other than return traps, no safety valve may be set at a pressure greater than 94 percent of the lowest pressure obtained in the supply main feeding the boiler.

9. The relieving capacity of the safety valves on any boiler must be checked by one of the following methods, and if found to be insufficient, additional valves must be provided:

(a) By making an accumulation test, which consists of shutting off all other steam discharge outlets from the boiler and forcing the fires to the maximum. The safety valve capacity must be sufficient to discharge all the steam that can be generated by the boiler without allowing the pressure to rise more than 6 percent above the highest pressure at which any valve is set and in no case to rise more than 6 percent above the maximum allowable working pressure of the boiler. This method must not be used on a boiler with a superheater or reheater or on a high-pressure, high-temperature water boiler.

(b) By measuring the maximum amount of fuel that can be burned and computing the corresponding capacity for evaporation or generation of steam upon the basis of the heating

value of this fuel. These computations must be made as set forth in the appendix of section I of the *ASME Boiler and Pressure Vessel Code*, adopted by reference pursuant to NAC 618.148.

(c) By measuring the maximum amount of feed water that can be evaporated.

10. If either of the methods outlined in paragraph (b) or (c) of subsection 9 is employed, the sum of the safety valve capacities must be equal to or greater than the maximum evaporative capacity or the maximum steam generating capacity of the boiler.

11. The capacity rating of a:

(a) Safety valve must be expressed in pounds per hour.

(b) Relief valve must be expressed in British thermal units per hour.

618.253 Steam heating boilers: Safety valves. (NRS 618.295)

1. Each low-pressure steam boiler must have one or more safety valves certified by the American Society of Mechanical Engineers or the National Board which is of the spring-pop type, adjusted and sealed to discharge at a pressure not to exceed 15 PSIG. Seals must be attached in a manner to prevent the valve from being taken apart without breaking the seal. The safety valves must be arranged so that they cannot be reset to relieve at a higher pressure than the maximum allowable working pressure of the low-pressure steam boiler. A connection for the body drain below seat level must be provided by the manufacturer, which must not be plugged during or after field installation. For valves exceeding 2-inch pipe size, the drain hole must be tapped not less than 3/8-inch pipe size. For valves which are less than 2 inches, the drain hole may not be less than one-quarter of an inch in diameter.

2. No safety valve for a low-pressure steam boiler may be smaller than three-quarters of an inch. No safety valve may be larger than 4 1/2 inches. The inlet opening must have an inside diameter equal to or greater than the seat diameter.

3. The minimum relieving capacity of the valve must be determined by the marking of the capacity on the boiler.

4. The minimum valve capacity in pounds per hour must be the greater figure determined:

(a) By dividing the maximum output in British thermal units at the boiler nozzle obtained by the firing of any fuel for which the unit is installed by 1,000; or

(b) On the basis of the pounds of steam generated per hour per square foot of heating surface as given in the following table:

Minimum Pounds of Steam Per Hour Per Square Foot

of Heating Surface

Boiler Heating Surface:	Firetube Boilers	Watertube Boilers
Hand fired	5	6
Stoker fired	7	8
Oil, gas or pulverized fuel fired	8	10
Waterwall Heating Surface:		
Hand fired	8	8
Stoker fired	10	12
Oil, gas or pulverized fuel fired	14	16

5. For the purposes of this table:

(a) If a boiler is fired only by a gas which gives a heat value not in excess of 200 British thermal units per cubic foot, the minimum safety valve or safety relief valve relieving capacity may be based on the value given for hand fired boilers above.

(b) The minimum safety valve or safety relief valve relieving capacity for electric boilers must be 3 1/2 pounds per hour per kilowatt input.

6. The safety valve capacity for each steam boiler must be such that, if the fuel-burning equipment is installed and operated at maximum capacity, the pressure cannot rise more than 6 PSIG above the maximum allowable working pressure.

7. If operating conditions are changed or an additional boiler heating surface is installed, the valve capacity must be increased, if necessary, to meet the new conditions as set forth in the code. The additional valves required may be installed on the outlet piping if there is no intervening valve.

8. If there is any doubt as to the capacity of the safety valve, an accumulation test must be run as provided in section IV of the *ASME Boiler and Pressure Vessel Code*, adopted by reference pursuant to NAC 618.148.

9. No valve of any description may be placed between the safety valve and the boiler or on the discharge pipe between the safety valve and the atmosphere. The discharge pipe must be at least full size and be fitted with an open drain to prevent water from lodging in the upper part of the safety valve or in the discharge pipe. If an elbow is placed on the outlet for the safety valve or the discharge pipe, it must be located close to the outlet or the discharge pipe and must be securely anchored and supported. All discharges from safety valves must be so located or piped as not to endanger persons working in the area.

618.256 Hot water boilers: Safety relief valves. (NRS 618.295)

1. Each hot water heating boiler must have at least one safety relief valve, certified by the American Society of Mechanical Engineers or the National Board, set to relieve pressure at or below the maximum allowable working pressure of the boiler. Each hot water supply boiler must have at least one safety relief valve of the automatic reseating type, certified by the American Society of Mechanical Engineers or the National Board, set to relieve at or below the maximum allowable working pressure of the boiler. Safety relief valves must have a capacity certified by the American Society of Mechanical Engineers or the National Board and must have pop action if tested by steam. If more than one safety relief valve is used on hot water heating or hot water supply boilers, the additional valve must be rated by the American Society of Mechanical Engineers or the National Board and set within a range not to exceed 6 PSIG above the maximum allowable working pressure of the boiler up to and including 60 PSIG and 10 percent if the maximum allowable working pressure exceeds 60 PSIG. Safety relief valves must be spring loaded. Safety relief valves must be so arranged that they cannot be reset at a higher pressure than the maximum permitted by this subsection.

2. No material which is likely to fail because of deterioration or vulcanization if it is subjected to a saturated steam temperature which corresponds to test pressure for capacity may be used for any part of the safety relief valve.

3. No safety relief valve may be smaller than three-quarters of an inch or larger than 4 1/2 inches in a standard pipe size, except that boilers having a heat input not greater than 15,000 British thermal units per hour may be equipped with a safety relief valve of one-half of an inch in diameter or its equivalent area. The opening for the inlet must have an inside diameter approximately equal to, or greater than, the diameter of the seat. In no case may the minimum

opening through any part of the valve be less than one-fourth of an inch in diameter or an equivalent area.

4. The capacity of the safety relief valve for each boiler must be such that, with the fuel-burning equipment installed and operated at maximum capacity, the pressure cannot rise more than 6 PSIG above the maximum allowable working pressure for pressure up to and including 60 PSIG and 10 percent of maximum allowable working pressures over 60 PSIG.

5. If operating conditions are changed or additional boiler heating surface is installed, the capacity of the valve must be increased, if necessary, to meet the new conditions as set forth in the code and must be in accordance with subsection 4. The additional valves required because of changed conditions may be installed on the outlet piping if there is no intervening valve.

6. If there is any doubt as to the capacity of the safety relief valve, an accumulation test must be run as provided in section IV of the *ASME Boiler and Pressure Vessel Code*, adopted by reference pursuant to NAC 618.148.

7. No valve of any description may be placed between the safety relief valve and the boiler, or on the discharge pipe between the safety relief valve and the atmosphere. The discharge pipe must be at least full size and fitted with an open drain to prevent water from lodging in the upper part of the safety relief valve or in the discharge pipe. If an elbow is placed on the discharge pipe, it must be located close to the safety relief valve outlet or the discharge pipe must be securely anchored and supported. All discharges from the safety relief valve must be so located or piped as not to endanger persons working in the area.

618.257 Lined potable water heaters: Relief valves.

1. A lined potable water heater must have at least one:

(a) Safety relief valve that is not smaller than three-fourths of an inch standard pipe size; or

(b) Pressure temperature relief valve which is marked with the symbol V or HV to assure compliance with the construction and rating requirements of the code.

2. The pressure setting on the relief valve of a lined potable water heater must be less than or equal to the maximum allowable working pressure of the water heater. If any other components of the hot water supply system, such as a valve, pump, expansion or storage tank or piping, have a working pressure rating that is less than the water heater, the pressure setting for the relief valve must be based upon the component with the lowest maximum allowable working pressure rating. If there is more than one safety relief valve on a water heater, the pressure of the additional valve must not exceed the pressure of the first valve by more than 10 percent.

3. The relieving capacity for the safety relief valve of an electrically powered lined potable water heater must be greater than 3500 British thermal units per hour per kilowatt of input. The required relieving capacity for the safety relief valve on any other lined water heater must be in British thermal units per hour less than the maximum allowable input.

4. A lined potable water heater must have a safety relief valve capacity such that when the fuel burning equipment is installed and operated at maximum capacity, the pressure cannot rise more than 10 percent of maximum allowable working pressures.

5. If operating conditions change or an additional heating surface is installed, the capacity of the safety relief valve on a lined potable water heater must be increased to meet the requirements of this section. If any additional valves are required because of a change in operating conditions, the valves may be installed on the outlet piping if there is not an intervening valve.

618.259 Approval required. (NRS 618.295)

1. A person shall not install, operate, sell or offer for sale nonstandard boilers or pressure vessels in this state without the permission of the enforcement section.

2. If a nonstandard boiler or pressure vessel which is in use in this state is removed from service, the nonstandard boiler or pressure vessel must not be returned to service or reinstalled without the permission of the chief boiler inspector.

618.265 Period of operation.

1. A boiler having a longitudinal joint which is other than lap-riveted may be continued in operation beyond 30 years at the working pressure determined by NAC 618.268, if it is thoroughly inspected internally and externally and given a hydrostatic pressure test of 1 1/2 times the maximum allowable working pressure and held for at least 30 minutes, during which no distress or leakage develops.

2. The maximum age at which any nonstandard boiler having longitudinal joints which are lap-riveted and operating at a pressure in excess of 50 PSIG may be operated is 20 years. Such a boiler, when removed from its existing installation, may not be reinstalled for a pressure in excess of 15 PSIG.

618.268 Working pressure. (NRS 618.295)

1. Except as otherwise provided in this section, the maximum allowable working pressure of a nonstandard boiler is determined by the following formula:

$$\frac{TStE}{RFS} = \text{maximum allowable working pressure, in PSIG}$$

where:

TS = ultimate tensile strength of shell plate, in PSIG. If the tensile strength is not

known, it shall be deemed to be 55,000 PSIG for steel and 45,000 PSIG for wrought iron.

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

E = efficiency of longitudinal joint:

For tube ligaments, E is determined by the appropriate provisions of section I of the *ASME Boiler and Pressure Vessel Code*, adopted by reference pursuant to NAC 618.148.

For riveted construction, E is determined by the appropriate provisions of the *National Board Inspection Code*.

For seamless construction, E must be 100 percent.

R = inside radius of weakest course of shell, in inches.

FS = factor of safety permitted by this chapter.

2. The resistance of mild steel to crushing shall be deemed to be 95,000 PSIG.

3. If computing the ultimate strength of rivets in shear, the following values in pounds per square inch of the cross-sectioned area of the shank of the rivet must be used:

	PSIG
Iron rivets in single shear	38,000
Iron rivets in double shear	76,000
Steel rivets in single shear	44,000
Steel rivets in double shear	88,000

4. If the diameter of the rivet holes in the longitudinal joints of a boiler is not known, the diameter and cross-sectioned area of rivets, after driving, may be selected from the following table or ascertained by cutting out one rivet in the body of the joint.

Sizes of Rivets Based on Plate Thickness

Thickness of plate, in inches	1/4	9/32	5/16	11/32	3/8	13/32
Diameter of rivet after driving, in inches	11/16	11/16	3/4	3/4	13/16	13/16
Thickness of plate, in inches	7/16	15/32	1/2	9/16	5/8	
Diameter of rivet after driving, in inches	15/16	15/16	15/16	1-1/16	1-1/16	

5. A nonstandard boiler with welded seams may not be operated at pressures exceeding 15 PSIG for steam and 30 PSIG for water.

6. The maximum allowable working pressure may be decreased by the boiler inspector if the condition and safety of the boiler warrant it.

7. Except as otherwise provided in this subsection, the lowest factor of safety permissible on existing installations is 4.5 or as set forth in the edition of the code that was applicable at the time of construction. The lowest factor of safety permissible on existing installations is 8 feet for horizontal-return tubular boilers having continuous longitudinal lap seams more than 12 feet in

length. If such a horizontal-return tubular boiler is removed from its existing setting, it must not be reinstalled for pressures in excess of 15 PSIG.

8. Reinstalled or secondhand boilers must have a minimum factor of safety of 6 if the longitudinal seams are of lap-riveted construction, and a minimum factor of safety of 5 if the longitudinal seams are of butt- and double-strap construction.

618.269 Working pressure for boiler made of cast iron. The maximum allowable working pressure for any boiler made of cast iron, except a hot water boiler, is 15 PSIG.

618.270 Working pressure for watertube boiler. The maximum allowable working pressure on a watertube boiler which has:

1. Tubes secured in headers made of cast iron or malleable iron; or

2. Mud drums made of cast iron,

must not exceed 160 PSIG.

618.2705 Maximum age. The maximum age at which a standard boiler may be operated is the age determined pursuant to the code in effect when the boiler was constructed and stamped, if it is thoroughly inspected, internally and externally, and is given a hydrostatic pressure test of 1 1/2 times the maximum allowable working pressure with water at a temperature of at least 70° F. but no more than 120° F.

618.271 Clearance: Generally. (NRS 618.295) Except as otherwise provided in NAC 618.272 and 618.273, if boilers are replaced or new boilers are installed in existing or new buildings, a minimum height of at least 3 feet must be provided between the top of the boiler, excluding appurtenances, and the ceiling and at least 3 feet between any side of the boiler and any adjacent wall or other structure. Boilers and pressure vessels having manholes must have a 5-foot clearance from the opening of the manhole to any wall, ceiling or piping that will prevent

a person from entering the boiler or pressure vessel. All boilers and pressure vessels must be located so that adequate space will be provided for the proper operation of the boilers and pressure vessels and their appurtenances, for the inspection of all surfaces, tubes, waterwalls, economizers, piping, valves and other equipment, and for the necessary maintenance and repair and the replacement of tubes. If pressure vessels are installed or replaced, there must be an area of unobstructed clearance which is at least 18 inches wide and provides access for inspection, maintenance and repair. Clearance for repairs and cleaning may be provided through a door or access panel into another area if the door or access panel is large enough to allow the repairs and cleaning to be performed adequately.

618.272 Clearance: Fired storage and fired coil water heater. The clearance between a wall or other structure and a fired storage and fired coil water heater must be at least that specified by the manufacturer.

618.273 Clearance and access: Copper watertube boilers. (NRS 618.295)

1. A copper watertube boiler that is used for domestic hot water or comfort heating must have a clearance of not less than the clearance recommended by the manufacturer of the boiler between each side or end of the boiler from which maintenance, operation of the controls, or repairs may be required, and any wall, column, equipment or other structure.

2. Each side or end of a copper watertube boiler that is used for domestic hot water or comfort heating must have a clearance of not less than 6 inches or the clearance recommended by the manufacturer of the boiler, whichever is greater, between each side or end of the boiler from which maintenance, operation of the controls, or repairs will not be required, and any wall, column, equipment or other structure.

3. A copper watertube boiler must be installed in a manner which allows a person access to the boiler to maintain, repair or operate the boiler.

618.274 Feeding.

1. Each boiler must have a supply of feed water which will permit it to be fed at any time while under pressure.

2. A boiler having more than 500 square feet of water heating surface must have at least two means of feeding, one of which must be a feed pump. A source of feed directly from water mains at a pressure of 6 percent greater than the set pressure of the safety valve with the highest setting may be used as one of the means of feeding. Boilers fired by gaseous, liquid or solid fuel in suspension may be equipped with a single means of feeding water if means are furnished for the shutoff of heat before the level of water reaches the lowest safe level.

3. The feed water must be introduced into the boiler in such a manner that it will not be discharged close to riveted joints of the shell or furnace sheets, directly against the surfaces exposed to products of combustion or to direct radiation from the fire. The feed piping to the boiler must be provided with a check valve near the boiler and a stop valve or cock between the check valve and the boiler. When two or more boilers are fed from a common source, there must also be a stop 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 must be under the disk of the valve.

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

5. Where deaerating heaters are not employed, the temperature of the feed water must be at least 120° F. Where deaerating heaters are employed, the minimum feed water temperature must be at least 215° F.

618.277 Feed water connections.

1. Feed water, make-up water or water treatment must be introduced into a boiler through the return piping system or through an independent feed water connection which does not discharge against the parts of the boiler exposed to direct radiant heat from the fire. Feed water, make-up water or water treatment must not be introduced through openings or connections provided for inspection or cleaning, safety valve, safety relief valve, surface blowoff, water column, water gauge glass, pressure gauge or temperature gauge.

2. The feed water pipe must be provided with a check valve near the boiler and a stop valve or cock between the check valve and the boiler or return pipe system.

618.280 Return pipe loop connection. (NRS 618.295) The return water connections to all low-pressure steam heating boilers supplying a gravity return heating system must be arranged to form what is known as the “return pipe loop connection,” so that the water cannot be forced out of the boiler below the safe water level. This connection is shown in section IV of the *ASME Boiler and Pressure Vessel Code*, adopted by reference pursuant to NAC 618.148.

618.283 Steam gauges.

1. Each steam boiler must have a steam gauge connected to the steam space or to the steam connection to the water column. The steam gauge must have a dial range that is graduated to approximately double the pressure at which the safety valve is set, but in no case to less than 1 1/2 times this pressure. The steam gauge must be connected to a siphon or equivalent device of sufficient capacity to keep the gauge tube filled with water and so arranged that the gauge cannot

be shut off from the boiler except by a cock placed near the gauge and provided with a tee or lever handle arranged to be parallel to the pipe in which it is located when the cock is open.

2. If a steam gauge connection which is longer than 8 feet is necessary, a shutoff valve may be used near the boiler if the valve is of the outside-screw-and-yoke type and is locked open. The line must be of ample size with provision for free blowing. Each boiler must be provided with a 1/4-inch nipple and globe valve connected to the steam space for the exclusive purpose of attaching a test gauge when the boiler is in service so that the accuracy of the boiler steam gauge may be ascertained.

618.286 Stop valves and check valves.

1. Each outlet for steam from a boiler, except connections for a safety valve and water column, must be fitted with a stop valve located as close as practicable to the boiler.

2. If a stop valve is so located that water can accumulate, ample drains must be provided. The drainage must be piped to a safe location and must not be discharged on the top of the boiler or its setting.

3. If boilers provided with manholes are connected to a common steam main, the connection for steam from each boiler must be fitted with two stop valves having an ample free-blow drain between them. The discharge of the drain must be visible to the operator while manipulating the valves and must be piped clear of the boiler setting. The stop valves must consist of one automatic nonreturn valve set next to the boiler and a second valve of the outside-screw-and-yoke type.

4. If any part of a heating system may be closed off from the remainder of the system by closing a steam stop valve, there shall be a check valve in the condensate return line from that part of the system.

618.289 Water level indicators. (NRS 618.295)

1. No outlet connections, except for damper regulators, feed water regulators, low-water fuel cutouts, drains, steam gauges or such apparatus that does not permit the escape of an appreciable amount of steam or water therefrom, may be placed on the piping that connects the water column to the boiler. The water column must be provided with a valved drain of at least 3/4-inch pipe size, the drain to be piped to a safe location.

2. A boiler is not required to be installed with a gauge cock.

3. For all installations where the water gauge glass or glasses are more than 30 feet above the boiler operating floor, remote water level indicating or recording gauges must be installed at eye level above the operating floor.

4. Each steam boiler must have one or more water gauge glasses attached to the water column or boiler by means of valved fittings. The lower fitting must be provided with a drain valve of the straightway type with an opening not less than 1/4-inch diameter to facilitate cleaning. The replacement of the gauge glass must be possible while the boiler is under pressure.

5. Transparent materials other than glass may be used for the water gauge if the material has proved suitable for the pressure, temperature and corrosive conditions encountered in service.

618.290 Qualifications of attendant. A person is qualified to attend a power boiler or a high-pressure, high-temperature water boiler, where such attendance is required pursuant to chapter 618 of NAC, if he has:

1. The technical training, experience and knowledge necessary to start, operate and shut down the boiler; and

2. A high school diploma or the equivalent and at least the following number of days or equivalent hours of documented experience in the operation of boilers for the size of the boiler being operated:

(a) For up to 299 boiler horsepower, 182 days.

(b) For 300 to 499, inclusive, boiler horsepower, 365 days.

(c) For 500 to 1,000, inclusive, boiler horsepower, 547 days.

(d) For more than 1,000 boiler horsepower, 1,095 days.

618.292 Air and ventilation. (NRS 618.295)

1. A permanent source of outside air must be provided for the room in which the boiler is located to permit satisfactory combustion of the fuel as well as proper ventilation of the room under normal operating conditions. Air used for combustion must not be taken from a room that contains equipment for refrigeration.

2. The total input of British thermal units of the burners for all fired pressure vessels in the room for the boiler must be used to determine the size of the louver, whether the boilers are fired by coal, oil or gas in compliance with the applicable provisions of *Controls and Safety Devices for Automatically Fired Boilers,* adopted by reference pursuant to NAC 618.148.

618.295 Exits. Any room for a boiler exceeding 500 square feet in floor area and containing one or more boilers having a capacity to burn fuel of 1,000,000 British thermal units per hour, or the equivalent electrical heat input, must have at least two means of exit, remotely located from one another. Each elevation in such a room must have two means of exit, remotely located from one another.

618.298 Supervision. (NRS 618.295)

1. Except as otherwise provided in subsection 5, a high-pressure, high-temperature water boiler and a power boiler must be attended by an operator who meets the qualifications set forth in NAC 618.290.

2. A steam boiler must be attended by an operator, unless the boiler is equipped with each of the following functioning safety devices:

(a) A low water fuel cutoff;

(b) An automatic feed water regulator;

(c) Fireside regulators and controls;

(d) An audible alarm to indicate low water; and

(e) A pressure control.

3. The operator shall personally check the operation of the boiler, the necessary auxiliaries and the level of water in the boiler at intervals necessary to ensure the boiler's safe operation. The boiler and its auxiliaries must be checked at least once every 60 minutes and must not be left unattended for periods in excess of the time required to evaporate the water from the normal operating level to the lowest water level permissible if the feed water is shut off or the boiler is forced to its maximum capacity. A log noting the time of all checks and observations must be kept in the boiler room.

4. If the attendance of the boiler is required pursuant to this section, a time clock to start or stop automatically the operation of the boiler must not be used, unless the timing mechanism is a device or system which has been approved by the chief.

5. High-pressure, high-temperature water boilers and power boilers do not need to be attended, if the boiler is equipped with the following functioning protective devices, as required

by the applicable provisions of *Controls and Safety Devices for Automatically Fired Boilers*, adopted by reference pursuant to NAC 618.148:

(a) If the boiler is operated at less than supercritical pressure:

(1) A low water fuel cutoff;

(2) An automatic feed regulator;

(3) Fireside regulators and controls;

(4) An audible alarm to indicate low water;

(5) A pressure control; and

(6) A programmed flame safeguard system with an audible alarm on burners equipped with spark ignition.

(b) If the boiler is operated at supercritical pressure, it must include all the devices described in paragraph (a) and:

(1) A cutoff device for high temperature or fuel; and

(2) An audible alarm to indicate high temperature.

6. As used in this section, "supercritical pressure" means 3,206 pounds of pressure per square inch at 705° F.

618.301 Hot water boilers: Pressure or altitude gauges.

1. Each hot water boiler must have a pressure or altitude gauge connected to it or to its flow connection in such a manner that it cannot be shut off from the boiler except by a cock with a tee or lever handle, placed on the pipe near the gauge. The handle of the cock must be parallel to the pipe in which it is located when the cock is open.

2. The scale on the dial of the pressure or altitude gauge must be graduated to not less than 1 1/2 nor more than 3 times the pressure at which the safety valve is set.

3. Piping or tubing for pressure or altitude gauge connections must be of nonferrous metal when smaller than 1-inch pipe size.

618.304 Hot water boilers: Thermometers. Each hot water boiler must have a thermometer so located and connected that it is easily readable when observing the water pressure or altitude gauge. The thermometer must be so located and connected that it will at all times indicate the temperature in degrees Fahrenheit of the water in the boiler at or near the outlet.

618.310 Device for feeding water; automatic cutoff for fuel.

1. Except as otherwise provided in subsections 4 and 5, each automatically fired steam, vapor system or hot water heating boiler over 400,000 British thermal units must be equipped with an automatic cutoff for fuel if water is low and located to automatically cut off the supply of fuel when the surface of the water falls to the lowest safe water line. If a device for feeding water is installed, it must be so constructed that the inlet valve for water cannot feed water into the boiler through the float chamber and so located as to supply requisite water for feeding. For steam boilers, the lowest safe water line must be not lower than the lowest visible part of the water glass.

2. A device for controlling the feeding of water or fuel may be attached directly to a boiler or for low-pressure steam and hot water boilers, to the tapped opening provided for attaching a water glass directly to the boiler. The water glass must be attached as close as possible to the boiler. The ends of the nipples must be reamed to full-size diameter. The connection from the boiler must be a nonferrous “T” or “Y” joint at least 1/2-inch pipe size between the boiler and the water glass. The straightway tapping of the “Y” or “T” must take the fittings for the water glass.

The side outlet of the “Y” or “T” must take the fittings for the fuel cutoff or device for feeding water.

3. Designs embodying a float and float bowl must have a vertical drain pipe for the straightway valve at the lowest point in the water-equalizing pipe connections by which the bowl and the equalizing pipe can be flushed and the device tested. The straightway valve must be at least 3/4-inch national pipe size.

4. The cutoff for fuel, if water is low on a hot water heating boiler, may be located anywhere above the lowest safe permissible water level established by the manufacturer of the boiler.

5. A coil-type or a watertube boiler for hot water with a heat input of 400,000 British thermal units per hour or more and which requires forced circulation of water to prevent overheating of the coils or tubes, must have a device to sense the flow of water installed in the outlet pipes in place of the cutoff for fuel if water is low. The device must automatically cut off the supply of fuel if the circulating flow of water is interrupted. If the input of heat is less than 400,000 British thermal units per hour a pressure flow safety switch must be installed.

618.313 Pressure-reducing valves.

1. Where pressure-reducing valves are used, at least one relief or safety valve must be provided on the low-pressure side of the reducing valve if the piping or equipment on the low-pressure side does not meet the requirements for the full initial pressure. The relief or safety valve must be located downstream and as close as possible to the reducing valve. Proper protection must be provided to prevent injury or damage caused by the escaping fluid from the discharge or relief or safety valve if vented to the atmosphere. The combined discharged capacity

of the relief or safety valve must be such that the pressure rating of the lower pressure piping or equipment is not exceeded if the reducing valve fails when it is in the open position.

2. Hand-controlled bypasses around reducing valves may be used. If a bypass is used around the reducing valve, the safety valve on the low-pressure side must be of sufficient capacity to relieve all the fluid that can pass through the bypass without overpressuring the low-pressure side. A pressure gauge must be installed on the low pressure side of a reducing valve downstream of the safety relief valve.

618.316 Blowoff connection.

1. The construction of the setting around each blowoff pipe must permit free expansion and contraction. The openings for the setting must be sealed without restricting the movement of the blowoff piping.

2. All blowoff piping, when exposed to heat from a furnace, must be protected by firebrick or other heat-resisting material so constructed that the piping may be inspected readily. Each boiler must have a blowoff pipe, fitted with a valve or cock, in direct connection with the lowest water space. Cocks must be of the gland or guard type and suitable for the pressure allowed. The use of globe valves must meet the requirements established by the American Society of Mechanical Engineers. If the maximum allowable working pressure exceeds 100 PSIG:

(a) Each blowoff pipe must be provided with two valves or a valve and cock, and the valves and cocks must be made of extra-heavy steel, or bronze when listed as acceptable in table 126.1 of the *Power Piping Code*, B31.1, of the American Society of Mechanical Engineers and must not be galvanized; and

(b) The blowoff piping must be at least extra heavy steel from the boiler to each valve and must be run full size without reducers or bushings.

3. All fittings between the boiler and blowoff valve must be of steel. In case of the renewal of the blowoff pipe or fittings, they must be installed in accordance with the requirements for new installations in the *Power Piping Code*, B31.1, of the American Society of Mechanical Engineers.

618.319 Blowoff equipment. (NRS 618.295)

1. A blowdown from a boiler that enters a sanitary sewer system or a blowdown which is considered a hazard to life or property must pass through blowoff equipment that will reduce pressure and temperature.

2. The temperature of the water leaving the blowoff equipment must not exceed 140° F.

3. The pressure of the blowdown leaving any type of blowoff equipment must not exceed 5 PSIG.

4. The blowoff piping and fittings between the boiler and the blowoff tank must comply with the code.

5. All blowoff equipment must be fitted with openings to facilitate cleaning and inspection.

6. Blowoff equipment must conform to the provisions of the code.

618.322 Piping outlets for discharge. (NRS 618.295) The discharge of safety valves, blowoff pipes and other outlets must be full sized to the point of discharge and be piped to a safe point of discharge.

618.323 Working pressure for formed heads and nonstandard pressure vessels. (NRS 618.295) The maximum allowable working pressure permitted for:

1. Formed heads and their tensile strength and factors of safety; and

2. Nonstandard pressure vessels subjected to external pressure,

must be determined by section VIII, division 1, of the *ASME Boiler and Pressure Vessel Code*, adopted by reference pursuant to NAC 618.148.

618.324 Working pressure for nonstamped pressure vessel. If a pressure vessel is not stamped with a code of the American Society of Mechanical Engineers but is constructed of known materials and is designed and constructed in accordance with sound engineering standards, formulas and practices that provide a level of safety equivalent to that required in the code, the maximum allowable working pressure of the pressure vessel must be calculated according to the formula used by the designer of the pressure vessel.

618.328 Maximum allowable working pressure. (NRS 618.295)

1. The maximum allowable working pressure for standard pressure vessels must be determined in accordance with the applicable provisions of the edition of the code under which they were constructed and stamped.

2. The maximum allowable working pressure on the shell of a nonstandard pressure vessel must be determined by the following formula:

$$\frac{TStE}{RFS} = \text{maximum allowable working pressure, in PSIG}$$

where:

TS = ultimate tensile strength of shell plate, in PSIG. If the tensile strength of carbon steel plate is not known, it shall be deemed to be 55,000 PSIG for temperatures not exceeding 650° F. For all other materials, the lowest

stress values for that material designated in section VIII of the *ASME Boiler and Pressure Vessel Code*, adopted by reference pursuant to NAC 618.148, must be used.

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

E = efficiency of longitudinal joint, depending upon construction. The following values must be used:

For riveted joints, calculated riveted efficiency.

For fusion-welded and brazed joints:

Single lap weld	40 percent
Double lap weld	50 percent
Single butt weld	60 percent
Double butt weld	70 percent
Forge weld	70 percent
Brazed steel	80 percent

R = inside radius of weakest course of shell, in inches, if the thickness does not exceed 10 percent of the radius. If the thickness is more than 10 percent of the radius, the outer radius must be used.

FS = factor of safety.

3. The maximum allowable working pressure for nonstandard pressure vessels subjected to external pressure will be determined by the applicable provisions in division 1 of section VIII of the *ASME Boiler and Pressure Vessel Code,* adopted by reference pursuant to NAC 618.148.

4. The minimum factor of safety may not be less than the factor set forth in the edition of the code that was applicable at the time of construction. The maximum allowable working pressure may be decreased if deemed necessary by the boiler inspector to ensure the operation of the vessel within safe limits. The boiler inspector shall consider the condition of the vessel and the particular service to which it is subjected.

5. The maximum allowable working pressure permitted for formed heads under pressure will be determined by using the appropriate formulas set forth in:

(a) Division 1 of section VIII of the ASME Boiler and Pressure Vessel Code, adopted by reference pursuant to NAC 618.148; and

(b) Subsections 3 and 4.

618.331 Safety appliances. Each pressure vessel must be protected by safety or relief valves and indicating and controlling devices which will ensure its safe operation. These valves and devices must be so constructed, located and installed that they cannot readily be rendered inoperative. The relieving capacity of safety valves must be sufficient to prevent a rise of pressure in the vessel of more than 10 percent above the highest pressure to which any device to relieve pressure is set but in no case more than 6 percent above the maximum allowable working pressure. The opening pressure of the device to relieve pressure must be no greater than the maximum allowable working pressure of the vessel.

618.334 Hydrostatic tests for pressure.

1. A hydrostatic pressure test, when applied to pressure vessels, must not exceed 1 1/2 times the maximum allowable working pressure. The pressure must be under proper control so that the required test pressure will not be exceeded by more than 2 percent.

2. During a hydrostatic test, the safety valve must be removed or each valve disk must be held to its seat by means of a testing clamp or plugging device and not by screwing down the compression screw upon the spring.

3. The temperature of the water used to apply a hydrostatic test must be not less than 70° F. or more than 120° F.

4. When a hydrostatic test is applied, the pressure must be equal to:

(a) The normal operating pressure of the pressure vessel but need not exceed the release pressure of the safety valve having the lowest release setting if tightness is in question.

(b) One and one-half times the maximum allowable working pressure if safety is in question.

5. If the contents of the vessel prohibit contamination by any other medium or when a hydrostatic test is not possible, other testing media may be used if the requirements of the applicable section of the code are met.

618.340 Contractor's license required for certain activities; exemption from requirement. (NRS 618.295)

1. Except as otherwise provided in subsections 2 and 3, a person shall not undertake to, or offer to undertake to, install, construct, add to, subtract from, improve or move any boiler or pressure vessel unless he holds a classification C-1 contractor's license issued pursuant to chapter 624 of NRS, which authorizes him to install boilers or pressure vessels.

2. A person who performs an act described in subsection 1 as the employee of another is not required to hold the appropriate contractor's license if:

(a) The person's only compensation for the act is wages paid by his employer; and

(b) The person's employer holds a license that meets the requirements of subsection 1.

3. The provisions of this section do not apply to a person who merely furnishes materials or supplies without fabricating them into or using them in the performance of work on a boiler or pressure vessel.

618.400 Definitions. (NRS 618.295) As used in NAC 618.400 to 618.484, inclusive, unless the context otherwise requires, the words and terms defined in NAC 618.406 to 618.436, inclusive, have the meanings ascribed to them in those sections.

618.406 "Alteration" defined. "Alteration" means any change to an existing elevator, dumbwaiter, escalator, moving walk or related equipment other than the repair or replacement of damaged, worn or broken parts necessary for normal operation.

618.420 "Employee" defined. "Employee" has the meaning ascribed to it in NRS 618.085.

618.424 "Existing installation" defined. "Existing installation" means an elevator, dumbwaiter, escalator, moving walk or related equipment which was installed before, or was in the process of being installed on, November 10, 1986.

618.427 "Inspector" defined. "Inspector" means an elevator inspector employed by the enforcement section or a special inspector with a current certificate of competency issued by the enforcement section.

618.433 "New elevator, dumbwaiter, escalator, moving walk or related equipment" defined. "New elevator, dumbwaiter, escalator, moving walk or related equipment" means a complete elevator, dumbwaiter, escalator, moving walk or related equipment the application for installation or relocation of which is filed with the division on or after December 11, 1992.

618.434 "Owner or user" defined. "Owner or user" means any person responsible for the safe installation, operation and maintenance of any elevator, dumbwaiter, escalator, moving walk or related equipment.

618.435 "Related equipment" defined. (NRS 618.295) "Related equipment" means any manlifts, personnel hoists and any other related equipment designated by the chief.

618.4355 "Safety code" defined. (NRS 618.295) "Safety code" means the *Safety Code for Elevators and Escalators,* A17.1, 1996 edition and addenda, published by the American Society of Mechanical Engineers.

618.436 "Special inspector" defined. "Special inspector" means any inspector holding a certificate of competency issued in this state who is regularly employed or whose services are contracted for by an insurance company authorized to insure elevators, dumbwaiters, escalators, moving walks and related equipment in Nevada.

618.438 Definitions in safety code. (NRS 618.295) As used in NAC 618.400 to 618.484, inclusive, unless the context otherwise requires, the words and terms defined in the safety code have the meanings ascribed to them in the safety code.

618.439 Scope and applicability.

1. The requirements of NAC 618.400 to 618.484, inclusive, apply to all installations of elevators, dumbwaiters, escalators, moving walks and related equipment as specified in this section.

2. All new elevators, dumbwaiters, escalators, moving walks and related equipment must be designed and installed in accordance with the requirements of the safety code and NAC 618.400 to 618.484, inclusive.

3. All relocations of elevators, dumbwaiters, escalators, moving walks and related equipment made on or after December 11, 1992, must meet the requirements of the safety code and NAC 618.400 to 618.484, inclusive.

4. Existing elevators, dumbwaiters, escalators, moving walks and related equipment installed before December 11, 1992, may be used without being reconstructed to comply with the requirements of the safety code and NAC 618.400 to 618.484, inclusive, except for those sections which specifically refer to such installations. Every installation must be maintained in a safe operating condition.

5. Alterations to existing elevators, dumbwaiters, escalators, moving walks and related equipment must conform to the applicable section of the safety code and NAC 618.400 to 618.484, inclusive.

618.442 Variances. A variance in writing from the requirements of NAC 618.400 to 618.484, inclusive, to permit the use of other devices and methods within the limitations stated in the safety code may be granted only by the administrator.

618.448 Adoption by reference of certain codes, manuals and standards. (NRS 618.295)

1. The following codes, manuals and standards are hereby adopted by reference by the division for the design, construction, installation, operation, inspection, testing, maintenance, alteration and repair of elevators, dumbwaiters, escalators, moving walks and related equipment for the price listed:

(a) Safety code, including appendices, for the price of $125, with the following amendments and deletions:

(1) Rule 100.1(c)(2) - Observation Elevators. Fixed guards must have a height of at least 8 feet and be made of unperforated material. If glass is used in the elevator, it must be laminated and meet the requirements of rule Z97.1 of the *USA Standard*, 1984 edition, published by the American National Standards Institute, for the price of $26.

(2) Rule 102.2(c)(4) - Main Line Power. Main line electrical power supplied to the elevator must not be disconnected by the activation of a smoke detector.

(3) Cylinder Alteration or Repair. If any alteration or repair is made to a cylinder or if it is replaced or sleeved, it must be inspected for conformance with Rules 302.3 and 302.5 by an inspector employed by the enforcement section.

(4) In rule 211.3 - Firefighter's Service - Automatic Elevators, delete the standards which apply to elevators that are covered by chapter 477 of NRS.

(5) Delete part V - Private Residence Elevators.

(6) Delete rule 204.1j - Side Emergency Exits.

(7) Delete rule 111.5 - Restricted Opening of Car Doors.

(b) *Inspectors' Manual for Electric Elevators*, A17.2.1, 1996 edition and addenda, published by the American Society of Mechanical Engineers, for the price of $52.

(c) *Inspectors' Manual for Hydraulic Elevators*, A17.2.2, 1996 edition and addenda, published by the American Society of Mechanical Engineers, for the price of $54.

(d) *Inspectors' Manual for Escalators and Moving Walks*, A17.2.3, 1998 edition and addenda, published by the American Society of Mechanical Engineers, for the price of $42.

(e) *Safety Requirements for Personnel Hoists*, A10.4, 1990 edition, published by the American National Standards Institute, for the price of $65.

(f) *Safety Standard for Belt Manlifts*, A90.1, 1997 edition, published by the American Society of Mechanical Engineers, for the price of $39.

(g) *Handbook*, A17.1, 1996 edition, published by the American Society of Mechanical Engineers, for the price of $105.

(h) *Safety Code for Existing Elevators and Escalators*, A17.3, 1996 edition, published by the American Society of Mechanical Engineers, for the price of $55.

(i) *Specifications for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People*, A117.1, sections 4.10 and 4.11, 1992 edition, published by the American National Standards Institute, for the price of $48.

2. The codes, manuals and standards set forth in subsection 1 which are published by the American Society of Mechanical Engineers may be obtained from the American Society of Mechanical Engineers, P.O. Box 2900, Fairfield, New Jersey 07007-2900.

3. The codes, manuals and standards set forth in subsection 1 which are published by the American National Standards Institute may be obtained from the American National Standards Institute, 11 West 42nd Street, New York, New York 10036.

4. If any publication adopted by reference pursuant to this section is revised, the administrator shall review the revision to determine its suitability for this state. If the administrator determines that the revision is not suitable for this state, he will hold a public hearing to review his determination and give notice of that hearing within 6 months after the date of the publication of the revision. If, after the hearing, the administrator does not revise his determination, the administrator shall give notice that the revision is not suitable for this state within 30 days after the hearing. If the administrator does not give such notice, the revision becomes part of the publication adopted by reference pursuant to this section.

618.451 Responsibility of contractor; responsibility of owner or user.

1. The contractor installing, relocating or altering an elevator, dumbwaiter, escalator, moving walk or related equipment is responsible for its operation, maintenance and all required tests of the equipment until an operating permit has been issued.

2. The owner or user or his agent is responsible for the safe operation and proper maintenance of the elevator, dumbwaiter, escalator, moving walk or related equipment after the operating permit has been issued.

618.454 Permits for construction: General requirements; effect. (NRS 618.295)

1. Except as otherwise provided in subsection 3, a permit for construction or installation must be obtained from the enforcement section by the contractor proposing to alter an existing or erect or construct a new elevator, dumbwaiter, escalator, moving walk or related equipment before work is begun.

2. The contractor must submit a request for the permit for construction or installation accompanied by plans and specifications in the form prescribed by the enforcement section. If the plans and specifications indicate the alteration, installation or construction will comply with NAC 618.400 to 618.484, inclusive, the enforcement section will issue a permit to the contractor altering, installing or constructing the equipment.

3. A permit is not required for repairs and replacement normally necessary for the maintenance of the elevator, dumbwaiter, escalator, moving walk or related equipment if parts of equivalent materials, strength and design as that used in the original construction are used.

4. No elevator, dumbwaiter, escalator, moving walk or related equipment for which a permit for construction or installation is required may be installed, constructed or altered unless a permit

has been issued. If the alteration, installation or construction is started before the permit is obtained, the work must be suspended until a permit is issued.

5. An operating permit for an elevator, dumbwaiter, escalator, moving walk or related equipment issued pursuant to subsection 1 of NAC 618.457 is void upon the issuance of a permit for construction or installation to alter the elevator, dumbwaiter, escalator, moving walk or related equipment. A permit for construction or installation does not authorize the operation of an elevator, dumbwaiter, escalator, moving walk or related equipment for which an operating permit is required.

6. The contractor altering an existing or erecting or constructing a new elevator, dumbwaiter, escalator, moving walk or related equipment must have a contractor's license issued pursuant to chapter 624 of NRS.

618.457 Operating permits: Issuance; suspension, cancellation or refusal to issue; operation without permit. (NRS 618.295)

1. An operating permit will be issued by the enforcement section to the owner or lessee of every elevator, dumbwaiter, escalator, moving walk or related equipment and of every existing elevator, escalator, moving walk or related equipment if the report of inspection indicates the equipment is in compliance with NAC 618.400 to 618.484, inclusive. The operating permit must set forth the number assigned by the enforcement section and the serial number assigned by the manufacturer for the elevator, dumbwaiter, escalator, moving walk or related equipment. The operating permit must be kept at the same location as the elevator, dumbwaiter, escalator, moving walk or related equipment.

2. The operating permit will be issued within:

(a) Thirty days for existing elevators, dumbwaiters, escalators, moving walks and related equipment; and

(b) Fifteen days for new elevators, dumbwaiters, escalators, moving walks and related equipment,

after the date of the inspection, unless the time is extended by the enforcement section. Except as otherwise provided in subsection 6, no elevator, dumbwaiter, escalator, moving walk or related equipment for which a permit is required may be operated by the owner or user unless the operating permit has been issued or an interim approval has been granted.

3. The operating permit will be issued for a period not to exceed:

(a) One year for elevators, dumbwaiters and wheelchair lifts.

(b) Six months for escalators or moving walks.

(c) The period designated by the enforcement section for related equipment.

4. If the report of the inspection required before an operating permit is issued indicates a violation of NAC 618.400 to 618.484, inclusive, or of the detailed plans and specifications approved by the enforcement section pursuant to NAC 618.442, the enforcement section will give notice to the appropriate person of the changes necessary for compliance. After the changes have been made, the enforcement section will issue an operating permit to the owner or user.

5. If the report of the inspection indicates that an elevator, dumbwaiter, escalator, moving walk or related equipment is unsafe and that its continued operation may be dangerous, the enforcement section will refuse to issue, or will suspend or cancel, the operating permit and require the owner or lessee to discontinue the use of the elevator, dumbwaiter, escalator, moving walk or related equipment until it has been made safe and is in compliance with the requirements of NAC 618.400 to 618.484, inclusive.

6. Until an operating permit is issued by the enforcement section, the report of inspection is authorization to operate the elevator, dumbwaiter, escalator, moving walk or related equipment, if:

(a) The report of inspection authorizes the issuance of an operating permit; and

(b) The equipment is in compliance with NAC 618.400 to 618.484, inclusive.

618.463 Limited operating permits: Authorization for use of conveyance during installation or alteration. (NRS 618.295) The enforcement section may permit the temporary use of any elevator, dumbwaiter, escalator, moving walk or related equipment for passenger or freight service during its installation or alteration, under the authority of a limited operating permit issued for each class of service.

618.464 Limited operating permits: Authorization for use of conveyance during installation, alteration or construction; training of operator required. (NRS 618.295)

1. The enforcement section will issue a limited operating permit to allow an elevator, dumbwaiter, escalator, moving walk or related equipment to be used during its installation or alteration or during a construction project.

2. A limited operating permit will not be issued for an elevator, dumbwaiter, escalator, moving walk or related equipment until the elevator, dumbwaiter, escalator, moving walk or related equipment has been tested as required by the safety code.

3. A limited operating permit will be issued for not longer than 90 days. The elevator, dumbwaiter, escalator, moving walk or related equipment for which the permit is issued may be inspected by the enforcement section every 30 days.

4. The holder of a limited operating permit issued pursuant to this section shall ensure that the elevator, dumbwaiter, escalator, moving walk or related equipment for which the permit is

issued is operated only by a person who has completed the training necessary for the operation of that equipment as required by the manufacturer thereof.

618.466 Completion of work: Duties of contractor; inspection by enforcement section.

1. A contractor installing, relocating or altering elevators, dumbwaiters, escalators, moving walks or related equipment shall notify the enforcement section, in writing or by telephone, at least 7 days before completion of the work, and shall test the new, moved or altered portions of the equipment as required by the safety code.

2. All new, altered and relocated elevators, dumbwaiters, escalators, moving walks or related equipment must be inspected for compliance with the requirements of NAC 618.400 to 618.484, inclusive, by an inspector of the enforcement section. The inspector shall witness the tests required by the safety code.

618.470 Inspections to determine safety of equipment. An inspector or a special inspector may inspect any elevator, dumbwaiter, escalator, moving walk or related equipment when, in his opinion, an inspection is necessary to determine the safety of the equipment.

618.472 Reports of inspections and tests; notice of violation.

1. A report of every required inspection or test must be filed with the enforcement section by the inspector making the inspection, on a form approved by the enforcement section, within 30 days after the inspection or test has been completed. Each report must describe the nature of the violation including a reference to the section of the safety code or NAC 618.400 to 618.484, inclusive, which has been violated. The enforcement section will fix a reasonable time for correction of the condition causing the violation.

2. If the inspector determines that there is a violation of NAC 618.400 to 618.484, inclusive, he shall notify the owner or user in writing.

618.475 Accidents: Notification of enforcement section; inspection and report; subsequent use or removal of equipment.

1. The owner or user or his agent shall promptly notify the enforcement section of every injury to any employee, involving an elevator, dumbwaiter, escalator, moving walk or related equipment. The owner or user or his agent shall provide the assistance required by the enforcement section for the investigation or inspection of any accident or damage.

2. The enforcement section will, as soon as practical after receiving notification of an accident, make an inspection and keep in its files a complete report of its findings, including a detailed list of all material facts and information available and the cause, as far as it can be determined, for the accident.

3. If an accident involves the failure or destruction of any part of the construction or the operating mechanism of an elevator, a dumbwaiter, an escalator, a moving walk or related equipment, the use of the elevator, dumbwaiter, escalator, moving walk or related equipment is prohibited until:

(a) The enforcement section has been notified;

(b) It has been made safe;

(c) It has been reinspected; and

(d) Any repairs, changes or alterations have been approved by the enforcement section.

4. If an accident involves the failure of an elevator, dumbwaiter, escalator, moving walk or related equipment, no part of the elevator, dumbwaiter, escalator, moving walk or related equipment may be removed from the premises until permission has been granted by the enforcement section.

618.478 Numbering of equipment. (NRS 618.295) All new and existing elevators, dumbwaiters, escalators, moving walks and related equipment must be assigned a number by an inspector. The number must be painted on or attached to the elevator car or to the balustrade of the escalator or the moving walk, in plain view, and to the driving mechanism. The number must be shown on all required permits.

618.480 Separation of certain hoistways by metal guards or wire screens.

1. If the elevator pits of adjoining hoistways are at different levels, a permanent metal guard, perforated or unperforated, must be installed between the adjoining hoistways. The metal guard must:

(a) Extend at least 6 feet above the floor of the higher elevator pit; and

(b) Prevent a person from walking from one elevator pit to another.

A door which is self-closing may be installed in the metal guard between the adjoining hoistways.

2. If an elevator in a multiple hoistway is altered, installed or constructed, a wire screen with not more than a 2-inch mesh must be installed between the hoistway of the elevator and the adjoining hoistways during the alteration, installation or construction. The wire screen must completely separate the hoistway of the elevator from the adjoining hoistways.

618.484 Violations of code. If, at the time of the inspection of any elevator, dumbwaiter, escalator or moving walk, the inspector determines that a violation of a requirement of the code exists, he shall notify the owner or user in writing. Each report must describe the nature of the violation, including a reference to the section or rule of the code violated. The enforcement section will fix a reasonable time for the abatement of violations.