

**ARTICLE 45-12
NORTH DAKOTA BOILER RULES**

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**CHAPTER 45-12-01
DEFINITIONS**

Section
45-12-01-01 Definitions

~~45-12-01-01. Definitions.~~

~~As used in this article:~~

- ~~1. "Alteration" means a change in an item described on an original manufacturer's data report which affects the pressure retaining capability of the pressure retaining item. An alteration includes nonphysical changes such as an increase in the maximum allowable internal or external working pressure, an increase in design temperature, or a reduction in minimum temperature. For boilers used in the power generation industry exceeding one hundred thousand pounds of steam per hour output, increases in steaming capacity shall not be considered an alteration if a new baseline steaming capacity is established based on either an engineering evaluation or a review of the operating history and a conditional assessment of the boiler and its components. An engineering evaluation or conditional assessment must be made by the boiler owner with review and comment by the authorized inspection agency responsible for the in-service inspection of the boiler. Engineering evaluations and conditional assessments are subject to the review and approval of the chief boiler inspector.~~
- ~~2. "Apartments" means all multiple dwellings, including condominiums.~~
- ~~3. "Approved" means approved by the commissioner.~~
- ~~4. "A.S.M.E. code" means the boiler and pressure vessel construction code of the American society of mechanical engineers of which sections I, II, IV, V, VIII (divisions 1, 2 and 3), IX, and X, 2017 edition, are hereby adopted by the commissioner and incorporated by reference as a part of this article. A copy of the American society of mechanical engineers code is on file at the office of the boiler inspection program. The American society of mechanical engineers code may be obtained from the American society of mechanical engineers headquarters at 2 park avenue, New York, New York 10016-5990 or from www.asme.org.~~
- ~~5. "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 externally to itself by the direct application of heat from the combustion of fuels or from electricity or nuclear energy. The term boiler includes fired units for vaporizing liquids other than water when these~~

units are separate from processing systems and are complete within themselves, as provided under North Dakota Century Code section 26.1-22.1-01.

6. ~~"Certificate inspection" means an inspection, the report of which is used by the chief boiler inspector to decide whether a certificate may be issued under North Dakota Century Code section 26.1-22.1-10.~~
7. ~~"Certificate of competency" means a certificate issued by a jurisdiction indicating that a person has passed an examination prescribed by the national board of boiler and pressure vessel inspectors.~~
8. ~~"Chief inspector" means the chief boiler inspector appointed by the commissioner to serve in the capacity as stated by law.~~
9. ~~"Commissioner" means the insurance commissioner of North Dakota.~~
10. ~~"Condemned boiler" means a boiler that has been inspected and declared unsafe or disqualified by legal requirements by an inspector qualified to take such action who has applied a stamping or marking designating its rejection.~~
11. ~~"Deputy inspector" means a boiler inspector or inspectors employed by the commissioner to assist the chief inspector in making inspections of boilers.~~
12. ~~"Existing installations" includes any boiler constructed, installed, or placed in operation before July 1, 1973.~~
13. ~~"External inspection" means an inspection made when a boiler is in operation.~~
14. ~~"Fusion welding" means a process of welding metals in a molten or molten and vaporous state, without the application of mechanical pressure or blows. Such welding may be accomplished by the oxyacetylene or oxyhydrogen flame or by the electric arc. Thermic welding is also classed as fusion.~~
15. ~~"High pressure, high temperature water boiler" means a water boiler operating at pressures exceeding one hundred sixty pounds per square inch gauge [1103.17 kilopascals] or temperatures exceeding two hundred fifty degrees Fahrenheit [121.16 degrees Celsius]. For practical purposes it must be deemed the same as a power boiler.~~
16. ~~"Hot water supply boiler" means a fired boiler used exclusively to supply hot water for purposes other than space heating and includes all service-type and domestic-type water heaters not otherwise exempt by North Dakota Century Code section 26.1-22.1-06.~~
17. ~~"Inspector" means the chief boiler inspector or any deputy inspector or special inspector.~~
18. ~~"Internal inspection" means an inspection made when a boiler is shut down and handholes and manholes are opened for inspection of the interior.~~
19. ~~"Low pressure and heating boiler" means a boiler operated at pressures not exceeding fifteen pounds per square inch gauge [103 kilopascals] for steam or at pressures not exceeding one hundred sixty pounds per square inch gauge [1103.17 kilopascals] and temperatures not exceeding two hundred fifty degrees Fahrenheit [121.1 degrees Celsius] for water.~~
20. ~~"Major repair" means a repair upon which the strength of a boiler would depend. Major repairs are those that are not of a routine nature as described in the national board inspection code.~~
21. ~~"Miniature boiler" means any boiler that does not exceed any of the following limits:
 - a. ~~Sixteen-inch [40.64-centimeter] inside diameter of shell.~~~~

- ~~b. Twenty square feet [1.86 square meter] heating surface.~~
 - ~~c. Five cubic feet [.142 cubic meter] gross volume, exclusive of casing and insulation.~~
 - ~~d. One hundred pounds per square inch gauge [689.48 kilopascals] maximum allowable working pressure.~~
- ~~22. "National board" means the national board of boiler and pressure vessel inspectors, 1055 crupper avenue, Columbus, Ohio 43229, whose membership is composed of the chief inspectors of government jurisdictions who are charged with the enforcement of the provisions of the American society of mechanical engineers code.~~
- ~~23. "National board inspection code" means the manual for boiler and pressure vessel inspectors supplied by the national board. The national board inspection code, 2017 edition, is hereby adopted by the commissioner and incorporated by reference as a part of this article. Copies of this code may be obtained from the national board at 1055 crupper avenue, Columbus, Ohio 43229.~~
- ~~24. "New boiler installations" includes all boilers constructed, installed, or placed in operation after July 1, 1973.~~
- ~~25. "Nonstandard boiler" means a boiler that does not bear the state stamp, the national board stamping, the American society of mechanical engineers stamp, or the stamp of any state or political subdivision which has adopted a standard of construction equivalent to that required by this article.~~
- ~~26. "Owner or user" means any person, firm, corporation, state, or political subdivision owning or operating any boiler which is not specifically exempt under North Dakota Century Code section 26.1-22.1-06 within North Dakota.~~
- ~~27. "Power boiler" means a closed vessel in which steam or other vapor (to be used externally to itself) is generated at a pressure of more than fifteen pounds per square inch gauge [103 kilopascals] by the direct application of heat.~~
- ~~28. "Reciprocal commission" means a commission issued by the commissioner to persons who have passed a written examination prescribed by the national board and who hold a national board commission issued by the national board, or to persons who have passed the written examination prescribed by the national board and are employed by an accredited national board owner/user inspection organization.~~
- ~~29. "Reinstalled boiler" means a boiler removed from its original setting and reerected at the same location or erected at a new location without change of ownership.~~
- ~~30. "Reinstalled pressure vessel" means a pressure vessel removed from its original setting and reerected at the same location or erected at a new location without change of ownership.~~
- ~~31. "Repair" is a restoration of any damaged or impaired part to an effective and safe condition.~~
- ~~32. "Secondhand boiler" means a boiler of which both the location and ownership have been changed after primary use.~~
- ~~33. "Secondhand pressure vessel" means a pressure vessel of which both the location and ownership have been changed after primary use.~~
- ~~34. "Service-type or domestic-type water heater" means a fired water heater of either instantaneous or storage type, used for heating or combined heating and storage of hot water to be used exclusively for domestic or sanitary purposes, with temperatures not exceeding two~~

~~hundred ten degrees Fahrenheit [98.68 degrees Celsius], and a heat input not in excess of two hundred thousand British thermal units [2.11 x 10 to the 8th power joules] per hour, and pressure not to exceed one hundred sixty pounds per square inch [1103.17 kilopascals].~~

~~35. "Special inspector" means an inspector regularly employed by an accredited national board authorized inspection agency or an inspector who has passed the national board examination and is employed by an accredited national board owner/user inspection organization.~~

~~36. "Standard boiler" means a boiler that bears the stamp of North Dakota or of another state that has adopted a standard of construction equivalent to that required by this article or a boiler that bears the national board stamping or American society of mechanical engineers stamp.~~

~~37. "State of North Dakota boiler construction code" is used to designate the accepted reference for construction, installation, operation, and inspection of boilers and will be referred to as this article. Anything not amended or specifically covered in this article must be considered the same as the American society of mechanical engineers code.~~

~~38. "Steam traction engines" means boilers on wheels which are used solely for show at state fairs and other exhibitions in which the public is invited to attend. Repealed effective January 1, 2024~~

History: ~~Effective June 1, 1994; amended effective April 1, 1996; January 1, 2000; October 1, 2002; January 1, 2006; January 1, 2008; April 1, 2010; July 1, 2012; January 1, 2014; April 1, 2017.~~

General Authority: ~~NDCC 26.1-22.1-14~~

Law Implemented: ~~NDCC 26.1-22.1-14~~

**CHAPTER 45-12-02
ADMINISTRATION**

Section

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45-12-02-01. Inspection reports to be submitted.

- ~~1. Power boilers. Each authorized inspection agency or owner/user inspection organization, to which a special inspector commission has been issued, shall submit to the chief boiler inspector complete data of each high pressure boiler insured or inspected by it or covered by a written inspection agreement. A complete report of each boiler inspection must be filed electronically with the chief boiler inspector on form SFN 10706 within fifteen days of inspection.~~
- ~~2. Low pressure, hot water heating, and hot water supply boilers. Within one year from effective date of this article, each authorized inspection agency or owner/user inspection organization shall submit to the chief boiler inspector complete data of each boiler insured or inspected by it or covered by a written inspection agreement. A complete report of each boiler inspection must be filed electronically with the chief boiler inspector on form SFN 10706 within fifteen days of inspection. Repealed effective January 1, 2024~~

History: Effective June 1, 1994; amended effective January 1, 2006; April 1, 2010; January 1, 2016.

General Authority: NDCC 26.1-22.1-14

Law Implemented: NDCC 26.1-22.1-14

45-12-02-02. Insurance companies and other authorized inspection agencies to notify the chief inspector of new, canceled, or suspended risks.

~~Each insurance company or other authorized inspection agency shall notify the chief inspector within thirty days of each boiler insured, covered by a written inspection agreement, canceled, not renewed, or suspended because of unsafe conditions. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994; amended effective January 1, 2006.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-02-03. Insurance companies and other authorized inspection agencies to notify the chief inspector of defective boilers and boiler accidents.

~~If a special inspector, upon the first inspection of a boiler, finds that the boiler or any of the appurtenances are in such condition that the inspector's company refuses insurance or the boiler does not comply with the provisions of this article, the company shall submit a report of the defects to the chief inspector. When an accident occurs to an insured boiler or to a boiler covered by a written inspection agreement which requires major repairs as defined in subsection 20 of section 45-12-01-01, or which results in the boiler being removed from service, that accident must be reported to the chief boiler inspector within thirty days of the insuring or inspecting company first becoming aware of the accident. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994; amended effective January 1, 2006.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-02-04. Owner/user inspection organizations making own inspections.

~~The chief inspector will not be required to inspect boilers in any establishment owned and operated by an owner/user inspection organization provided an annual boiler inspection program is established and maintained by such organization and all boilers and appurtenances are constructed, installed, operated, and repaired in accordance with the provisions of this article. When boilers are inspected by an employee of an owner/user inspection organization, such inspector must hold a certificate of competency or a commission issued by North Dakota or a state that has adopted the American Society of Mechanical Engineers Code. A complete report of each boiler inspection must be filed electronically with the chief inspector on form SFN 10706 within fifteen days of inspection. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994; amended effective January 1, 2006; January 1, 2016.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-02-05. Defective conditions disclosed at time of external inspections.

~~If upon an external inspection there is evidence of a leak or crack, enough of the covering of the boiler must be removed to satisfy the inspector, in order that the inspector may determine the safety of the boiler. If the covering cannot be removed at that time, the inspector may order the operation of the boiler stopped until the covering can be removed and proper examination can be made. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-02-06. Owner or user to notify the chief inspector in case of accident.

~~When an accident occurs which requires major repairs as defined in subsection 20 of section 45-12-01-01, the owner or user shall immediately notify the chief inspector and submit a detailed report of the accident. In case of an explosion, notice must be given immediately by telephone, telegraph, or messenger and the parts of the boiler may not be removed or disturbed before an inspection has been made by an inspector, unless for the purpose of saving human life or property. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

General Authority: ~~NDCC 26.1-22.1-14~~
Law Implemented: ~~NDCC 26.1-22.1-14~~

45-12-02-07. Operating without a certificate of inspection.

~~The owner or user who causes a boiler to be operated after inspections without possessing a valid certificate of inspection is subject to the penalty under North Dakota Century Code section 26.1-22.1-14. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994; amended effective January 1, 2000.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-02-08. Validity of inspection certificate for boilers.

~~A certificate of inspection, issued in accordance with this article, is valid until expiration unless some defect or condition affecting the safety of the boiler is disclosed and if all inspection fees have been paid. A certificate of inspection is valid for the following time periods:~~

- ~~1. Thirty-six months for power boilers over one hundred thousand pounds [45359.24 kilograms] of steam per hour as allowed by North Dakota Century Code section 26.1-22.1-07.~~
- ~~2. Twelve months for steam traction engines.~~
- ~~3. Twelve months for all other power boilers.~~
- ~~4. Thirty-six months for hot water heating and hot water supply boilers.~~
- ~~5. Twenty-four months for low pressure steam boilers.~~

~~A certificate issued for a boiler inspected by a special inspector is valid only if the boiler for which it was issued continues to be insured by a duly authorized insurance company, covered by a written inspection agreement with an authorized inspection agency, or inspected by an accredited owner/user inspection organization. A two-month grace period must be extended for any certificate. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994; amended effective January 1, 2000; January 1, 2006; January 1, 2016.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-02-09. Restamping boilers.

~~When the stamping on a boiler becomes indistinct, the inspector shall instruct the owner or user to have it restamped. Request for permission to restamp the boiler must be made to the chief inspector and proof of the original stamping must accompany the request before authorization by the chief inspector. Restamping authorized by the chief inspector may be done only by an inspector, and must be identical with the original stamping, except that it is not required to restamp the American Society of Mechanical Engineers Code symbol. Notice of completion of such restamping must be filed with the chief inspector by the inspector who stamped the boiler or pressure vessel, together with a facsimile of the stamping. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-02-10. Condemned boilers and condemned pressure vessels.

~~Any boiler having been inspected and declared unsafe by the chief inspector or the inspector's deputy must be stamped by the inspector with the letter X and the letters ND as shown on the following facsimile which will be designated a condemned boiler:)0(ND)0(. Repealed effective January 1, 2024.~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-02-11. Owner and installer to notify chief boiler inspector of boilers to be installed in North Dakota or brought into North Dakota for temporary use.

- ~~1. The owner shall notify the chief boiler inspector before any new or secondhand boiler may be operated in North Dakota, giving its location and operating pressure.~~
- ~~2. The installer shall notify the chief boiler inspector before any new or secondhand boiler may be installed in North Dakota, giving its location and operating pressure.~~
- ~~3. The owner shall notify the chief boiler inspector of boilers removed from location, junked, or sold.~~
- ~~4. The owner shall notify the chief boiler inspector within fifteen days of removing a boiler from its location as to whether it has been junked or sold. If it has been sold, the name and address of the purchaser must be given.~~
- ~~5. When a boiler is brought into the state on a temporary basis and is to be removed from the state, a notice must be given as to the date it will be removed from North Dakota. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-02-12. Owner to notify the chief boiler inspector of businesses closed or reopened.

- ~~1. It is the responsibility of the owner of a building complex or owner of a boiler to notify the chief boiler inspector of plans to discontinue use of a boiler due to business being permanently closed.~~
- ~~2. If a business is destroyed by fire, flood, or windstorm, the owner shall notify the chief boiler inspector as to plans developed for the disposition of the boiler. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-02-13. Removal of used boilers from the state.

~~When a nonportable standard boiler located in this state is moved to another state for use or repair, the owner shall apply to the chief boiler inspector before the boiler may be reinstalled in North Dakota. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-02-14. Nonstandard boilers.

~~A nonstandard boiler used in this state, if moved outside of the state, cannot be reinstalled in this state without permission of the chief boiler inspector. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-02-15. Installing used or secondhand boilers.

~~Before a used or secondhand boiler may be installed in this state, an inspection must be made by an inspector. (Note: It is recommended that before a used or secondhand boiler is shipped for installation or operation in this state, that it be inspected by a North Dakota inspector, or by a national board commissioned inspector, and data submitted by the inspector filed by the buyer or owner or user with the chief boiler inspector for the chief inspector's approval. Otherwise hardships may be encountered should the boiler be condemned after installation.)~~ Repealed effective January 1, 2024

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-02-16. Reinstalled boilers.

~~When a stationary boiler is moved and reinstalled, the fittings and appliances must comply with all requirements for new installations.~~ Repealed effective January 1, 2024

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-02-17. Reporting repairs to be made.

- ~~1. The owner or person in charge of a boiler repair shop making major repairs to a boiler shall notify the chief boiler inspector of each major repair or alteration to be made to a boiler, and the anticipated repair must be approved before work is started; or~~
- ~~2. If the boiler is insured, covered by a written inspection agreement with an authorized inspection agency, or owned by an owner/user inspection organization, the special inspector may authorize the repair. After such repairs are made, they are subject to the approval of an inspector.~~ Repealed effective January 1, 2024

~~History: Effective June 1, 1994; amended effective January 1, 2006.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-02-18. Reports of welded repair or alterations.

All alterations and major repairs made to boilers in North Dakota must be reported on the appropriate national board form. The completed form must be sent to the chief boiler inspector by the repair concern effecting the repair or alteration within thirty days of the completion of the repair or alteration.

~~Subject to the administrative procedures of the boiler inspection program and the approval of the inspector, repairs of a routine nature may be given prior approval and the requirement for the repair stamping may be waived. The National Board Inspection Code must be used as a guideline in determining repairs of a routine nature.~~ Repealed effective January 1, 2024

~~History: Effective June 1, 1994; amended effective October 1, 2002; January 1, 2014.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-02-19. Stamping of boilers.

- ~~1. Every boiler built for use in North Dakota must conform in every detail to the boiler laws and rules of North Dakota. When correctly constructed in accordance with these laws and rules it must be stamped with a state stamp of North Dakota and assigned a state number.~~
- ~~2. A boiler may not be operated in North Dakota unless it is stamped with the American society of mechanical engineers stamp and registered with the national board or can qualify for a North Dakota stamp. A request for a North Dakota stamp must be accompanied by a manufacturer's data report with supporting evidence that the boiler meets all requirements of the laws of North Dakota.~~
- ~~3. Upon completion of the installation, all boilers must be inspected by an inspector. Initial certificate inspections may only be made by the chief inspector or deputy inspectors. At the time of this inspection, each boiler must be stamped with a serial number of North Dakota preceded by the letters N.D. The letters and figures must not be less than five-sixteenths inch [7.94 millimeters] in height. If construction will not permit stamping, a numbered metal tag must be attached in a conspicuous place. The stamping may not be concealed by lagging or paint and must be exposed at all times. Repealed effective January 1, 2024~~

History: Effective June 1, 1994.

General Authority: NDCC 26.1-22.1-14

Law Implemented: NDCC 26.1-22.1-14

45-12-02-20. Welders' requirements.

- ~~1. Any person welding on new or existing boilers shall register with the chief boiler inspector sufficient data to show a satisfactory performance qualification test for American society of mechanical engineers position "6G" or equivalent. This data must be documented on a current American society of mechanical engineers section IX "QW-484" form. Tests of welded specimens must be made by a certified testing laboratory.~~
- ~~2. In lieu of the above requirements, a firm in possession of a valid American society of mechanical engineers certificate of authorization for new boiler construction or a valid national board "R" certificate of authorization for repairing or altering existing boilers may allow welder's qualifications to be audited by the chief boiler inspector at the chief boiler inspector's discretion. The welders must be qualified according to the requirements of American Society of Mechanical Engineers Boiler and Pressure Vessel Code, section IX. Repealed effective January 1, 2024~~

History: Effective June 1, 1994; amended effective April 1, 1996.

General Authority: NDCC 26.1-22.1-14

Law Implemented: NDCC 26.1-22.1-14

45-12-02-21. Alterations of boilers.

~~Alterations, as defined in this article, must be made by a firm in possession of a valid national board "R" certificate of authorization, with alterations included within its scope of activity. Repealed effective January 1, 2024~~

History: Effective June 1, 1994.

General Authority: NDCC 26.1-22.1-14

Law Implemented: NDCC 26.1-22.1-14

45-12-02-22. Major repairs to boilers.

~~Major repairs, as defined in this article, must be made by:~~

- ~~1. A firm in possession of a valid national board "R" certificate of authorization for the type of vessel to be repaired; or~~
- ~~2. A firm authorized by the commissioner to do repairs to boilers. Such authorization may only be issued upon a successful review of that firm's repair capabilities by the chief inspector. Such a review must be based on the National Board Inspection Code and must be made on a frequency determined by the chief inspector. Such authorization may be revoked or not renewed by the chief inspector for cause.~~

~~The requirements of this section are effective December 1, 1994. Repealed effective January 1, 2024~~

~~**History:** Effective June 1, 1994; amended effective January 1, 2006.~~

~~**General Authority:** NDCC 26.1-22.1-14~~

~~**Law Implemented:** NDCC 26.1-22.1-14~~

CHAPTER 45-12-03
GENERAL REQUIREMENTS

Section

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45-12-03-01. Inspection of boilers.

~~The owner or user shall prepare a boiler subject to regular inspections for such inspections or hydrostatic tests when notified by the inspector. The owner or user shall prepare each boiler for internal inspection and shall prepare for and apply the hydrostatic test whenever necessary, on the date specified by the inspector, which may not be less than seven days after the date of notification. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-03-01.1. Boiler inspection fees.

~~The following will be charged for boiler inspections:~~

~~1. High pressure boilers.~~

a. Internal inspections.	Fee
 - 50 square feet [4.65 square meters] or less of heating surface	\$80.00

~~Over 50 square feet [4.65 square meters] and not over 500 square feet [46.45 square meters] \$100.00~~

~~Over 500 square feet [46.45 square meters] and not over 4,000 square feet [371.61 square meters] \$120.00~~

~~Over 4,000 square feet [371.61 square meters] of heating surface \$150.00~~

~~b. External inspections.~~

~~50 square feet [4.65 square meters] of heating surface or less; 100 KW or less \$60.00~~

~~Over 50 square feet [4.65 square meters] of heating surface; over 100 KW \$80.00~~

~~Portable oilfield boilers. Internal and external inspections of portable oilfield boilers must be charged inspection fees of seventy-five dollars per hour, including travel time, plus expenses for meals, mileage, and lodging at current state rates.~~

~~2. Low pressure boilers.~~

~~a. Internal inspections.~~

~~-Without manway \$75.00~~

~~-With manway \$85.00~~

~~b. External inspections.~~

~~Hot water heat and low pressure steam \$50.00~~

~~Hot water \$35.00~~

~~3. Steam traction engines.~~

~~Internal \$60.00~~

~~External \$55.00~~

~~Hydrostatic test \$70.00~~

~~Ultrasonic survey, per hour \$60.00~~

~~4. Certificate fee, per certificate as required by North Dakota Century Code section 26.1-22.1-10 certificate issued Repealed effective January 1, 2024 \$20.00, per year of~~

~~History: Effective June 1, 1994; amended effective January 1, 2000; October 1, 2002; July 1, 2012.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-03-02. Preparation for internal inspection.

The owner or user shall prepare a boiler for internal inspection in the following manner:

1. Water must be drawn off and the boiler thoroughly washed.

- ~~2.— All manholes and handhole plates, washout plugs, and plugs in water column connections must be removed, the furnace and combustion chambers thoroughly cooled and cleaned, at the discretion of the inspector.~~
- ~~3.— All grates of internally fired boilers must be removed, at the discretion of the inspector.~~
- ~~4.— At each annual inspection, brickwork must be removed as required by the inspector in order to determine the condition of the boiler, headers, furnace, supports, or other parts.~~
- ~~5.— The steam gauge must be removed for testing, at the discretion of the inspector.~~
- ~~6.— Any leakage of steam or hot water into the boiler must be cut off by disconnecting the pipe or valve at the most convenient point.~~
- ~~7.— Any low-water fuel cutoff float chamber must be opened and cleaned.~~
- ~~8. Safety concerns such as asbestos and confined space entry must be addressed by the owner to provide for the safety of the inspector. Applicable state or federal regulations must be used to decide if safety measures must be taken. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-03-03. Boiler improperly prepared for inspection.

~~If a boiler has not been properly prepared for an internal inspection or the owner or user fails to comply with the requirements for hydrostatic test as set forth in this article, the inspector may decline to make the inspection or test and withhold the certificate of inspection until the owner or user complies with the requirements. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-03-04. Removal of covering to permit inspection.

~~If the boiler is jacketed so that the longitudinal seams of shells, drums, or domes cannot be seen, enough of the jacketing, setting wall, or other form of casing or housing must be removed, at the discretion of the inspector, so that the size of the rivets, pitch of the rivets, and other data necessary to determine the safety of the boiler may be obtained, provided such information cannot be determined by other means. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-03-05. Lap seam crack.

~~The shell or drum of a boiler in which a lap seam crack is discovered along a longitudinal riveted joint must be immediately discontinued from use. If the boiler is not more than fifteen years of age, a complete new course of the original thickness may be installed at the discretion of the chief inspector. Patching is prohibited. "Lap seam crack" means the typical crack frequently found in lap seams, extending parallel to the longitudinal joint and located either between or adjacent to rivet holes. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

General Authority: ~~NDCC 26.1-22.1-14~~
Law Implemented: ~~NDCC 26.1-22.1-14~~

45-12-03-06. Hydrostatic pressure tests.

~~A hydrostatic pressure test, when applied to boilers of riveted or welded construction, except locomotive boilers, may not exceed one and one-half times the maximum allowable working pressure. Hydrostatic pressure applied to locomotive boilers may not exceed one and one-quarter times the maximum allowable working pressure. During the hydrostatic pressure test, the safety valve or valves must be removed or each valve disk must be held down by means of a testing clamp and not by applying the additional load to the spring with the compression screw. The minimum temperature of the water used to apply a hydrostatic test must not be less than sixty degrees Fahrenheit [15.6 degrees Celsius], nor shall it exceed one hundred twenty degrees Fahrenheit [49.3 degrees Celsius]. (Note: For all cases involving the question of tightness, the pressure may be equal to the release pressure of the safety valve or valves having the lowest release setting.)~~ Repealed effective January 1, 2024

History: Effective June 1, 1994; amended effective January 1, 2000.

General Authority: NDCC 26.1-22.1-14

Law Implemented: NDCC 26.1-22.1-14

45-12-03-07. Automatic low-water fuel cutoff or water-feeding device.

- ~~1. Each automatically fired steam or vapor system boiler must be equipped with an automatic low-water cutoff located to automatically cut off the fuel supply when the surface of the water falls to the lowest safe waterline. For other than electric and miniature boilers, each automatically fired steam or vapor system boiler must be equipped with at least two low-water fuel cutoffs, one of which must be readily testable. One low-water fuel cutoff must be set to function ahead of the other. Functioning of the lower of the controls shall cause safety shutdown and lockout. The manual reset may be incorporated into the lower cutoff control. Where a reset device is separate from the low-water fuel cutoff, a means shall be provided to indicate actuation of the low-water fuel cutoff. The manual reset device may be of the instantaneous type or may include a time delay of not more than three minutes after the fuel has been cut off. A system may incorporate a time delay component with the low-water fuel cutoff device to prevent short cycling. A time delay must not exceed the manufacturer's recommended timing, or ninety seconds, whichever is less. A high pressure boiler regularly attended by a full-time operator is not considered as automatically fired, and is not required to be equipped with low-water fuel cutoffs. For other than electric boilers, the primary low-water fuel cutoff for low pressure steam boilers must be a float type that can be readily tested.~~
- ~~2. If a water-feeding device is installed, it must be constructed so that the water inlet valve cannot feed water into the boiler through the float chamber and located to supply requisite feedwater. The lowest safe waterline should not be lower than the lowest visible part of the water glass.~~
- ~~3. Such fuel or feedwater control device may be attached directly to a boiler or to the tapped openings provided for attaching a water glass directly to a boiler, provided that for low pressure boilers such connections from the boiler are nonferrous tees or Ys not less than one-half inch [12.7-millimeter] pipe size between the boiler and the water glass, so that the water glass is attached directly and as close as possible to the boiler; the straight tapping of the Y or tee to take the water glass fittings, and the side outlet of the Y or tee to take the fuel cutoff or water-feeding device. The ends of all nipples must be reamed to full-size diameter.~~
- ~~4. Designs embodying a float and float bowl must have a vertical straight drainpipe 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. This drainpipe and connections must be not less than national pipe standard (NPS) 1-1/2.~~ Repealed effective January 1, 2024

History: Effective June 1, 1994; amended effective April 1, 1996; January 1, 2000; January 1, 2006.

General Authority: NDCC 26.1-22.1-14

Law Implemented: NDCC 26.1-22.1-14

45-12-03-08. Safety appliances.

1. ~~A person may not remove, tamper with, or render inoperative any safety appliances prescribed by these rules except for the purpose of making repairs. The resetting of safety appliances may not exceed the accepted working pressure of the unit.~~
2. ~~Repairs or adjustments made to safety or safety relief valves must be done by the manufacturer of the valve or an approved testing facility equipped to do such repairs or adjustments. The resetting of safety valves or safety relief valves may not exceed the accepted working pressure for the unit.~~
3. ~~An approved testing facility must be one of the following:~~
 - a. ~~A facility holding a valid certificate of authorization and "VR" symbol stamp issued by the national board of boiler and pressure vessel inspectors.~~
 - b. ~~An owner or user program for doing adjustments to set pressure or blowdown, or both, to boiler pressure relief valves owned by them, provided the adjusted settings or capacities, or both, and the date of the adjustments are recorded on a metal tag secured to the seal wire. All external adjustments must be sealed showing the identification of the organization making the adjustments. The chief boiler inspector shall review the training, qualifications, and procedures used to implement this program. Repealed effective January 1, 2024~~

History: Effective June 1, 1994; amended effective January 1, 2006.

General Authority: NDCC 26.1-22.1-14

Law Implemented: NDCC 26.1-22.1-14

45-12-03-09. Blowoff tanks.

1. ~~Blowoff piping from a boiler may not discharge directly into a sewer. A blowoff tank, constructed to the provisions of section VIII of the American Society of Mechanical Engineers Code, must be used where conditions do not provide an adequate and safe open discharge.~~
2. ~~Blowoff tanks hereinafter installed, if of metal, must be designed for a minimum working pressure of fifty pounds per square inch [344.74 kilopascals].~~
3. ~~The outlet from the blowoff tank must be twice the area of the inlet pipe, and made to extend internally within eight inches [203.2 millimeters] from the bottom of the tank.~~
4. ~~Vent pipe at least four times the area of the inlet pipe must lead to the outer atmosphere.~~
5. ~~Vents must be as direct as possible to the outer air and discharge at a safe location. There may be no valve or other possible obstructions such as water pockets between the tank and the discharge end of the vent pipe.~~
6. ~~All pipe connections between the tank and the boiler must be as direct as possible and must conform to the American Society of Mechanical Engineers Code.~~
7. ~~For convenience in cleaning the tank, a manhole or an access opening must be provided.~~
8. ~~If a blowoff tank is not vented as specified above, it must be constructed for a pressure equal to that allowed on the boiler to which it is attached or must be equipped with a safety valve or valves of sufficient capacity to prevent the pressure from exceeding the safe working pressure of the tank.~~

- ~~9. Boiler blowoff systems constructed in accordance with the national board rules and recommendations for the design and construction of boiler blowoff systems must be considered as complying with this section. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-03-10. Blowoff piping.

- ~~1. The construction of the setting must be done in such a manner that it does not restrict the movement of the blowoff piping.~~
- ~~2. All blowoff piping, when exposed to furnace heat, must be protected by firebrick or other heat-resisting material so constructed that the piping may be readily inspected.~~
- ~~3. Each boiler must have a blowoff pipe, fitted with a valve 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-type valves is not permitted unless complying with the American Society of Mechanical Engineers Code. When the maximum allowable working pressure exceeds one hundred pounds per square inch gauge [689.48 kilopascals] each blowoff pipe must be provided with two valves or a valve and a cock, such valves and cocks to be of the extra heavy type.~~
- ~~4. When the maximum allowable working pressure exceeds one hundred pounds per square inch gauge [689.48 kilopascals], blowoff piping must be extra heavy from the boiler to the valve or valves and must be run full size without use of reducers or bushings. The piping must be at least extra heavy duty wrought iron or steel and may not be galvanized.~~
- ~~5. All fittings between the boiler and blowoff valve must be steel or extra heavy fittings of malleable iron. In case of renewal of blowoff pipe or fittings, they must be installed in accordance with the rules and regulations for new installations. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-03-11. Location of blowoffs and vents.

~~The discharge of safety valves, blowoff pipes, and other outlets must be located so as to prevent injury to personnel. For high pressure boilers, vents from blowoff tanks, condensate tanks, and the discharge piping from safety valves must be as short and straight as possible and so arranged as to avoid undue stresses on the safety valve or valves. Safety valve discharge piping must be so designed and constructed as to prevent excessive back pressure, while not affecting safety valve capacity and performance. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-03-12. Underground installations.

~~Where necessary to install a blowoff tank underground, it must be enclosed in a concrete or brick pit with a removable cover so that inspection of the entire shell and heads of the tank can be made. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

General Authority: NDCC ~~26.1-22.1-14~~

Law Implemented: NDCC 26.1-22.1-14

45-12-03-13. Supports.

Each boiler must be supported by masonry or structural supports of sufficient strength and rigidity to safely support the boiler and its contents. There must be a minimum of vibration in the boiler and its connecting piping. Repealed effective January 1, 2024

History: Effective June 1, 1994.

General Authority: NDCC 26.1-22.1-14

Law Implemented: NDCC 26.1-22.1-14

45-12-03-14. Pressure reducing valves.

- ~~1. Where pressure reducing valves are used, one or more relief or safety valves must be provided on the low pressure side of the reducing valve in case the piping or equipment on the low pressure side does not meet the requirements for the full initial pressure. The relief or safety valves must be located adjoining or as close as possible to the reducing valve. Proper protection must be provided to prevent injury or damage caused by the escaping steam from the discharge. Capacity of the relief valves must be such that the pressure rating of the lower pressure piping or equipment shall not be exceeded in case the reducing valve sticks open.~~
- ~~2. The use of hand-controlled bypasses around reducing valves is permissible. The bypass if used around a reducing valve may not be greater in capacity than the reducing valve unless the piping or equipment is adequately protected by relief valves or meets the requirements of the high pressure system.~~
- ~~3. A pressure gauge must be installed on the low pressure side of a reducing valve.~~
- ~~4. All low pressure headers and their outlets must be protected by a safety valve or valves whose combined capacity is equivalent to the total amount of steam that can pass from the high pressure system to the lower pressure system. Repealed effective January 1, 2024~~

History: Effective June 1, 1994.

General Authority: NDCC 26.1-22.1-14

Law Implemented: NDCC 26.1-22.1-14

45-12-03-15. Ladders and runways.

~~To ensure safe access to batteries of boilers, a steel platform or runway at least eighteen inches [457.2 millimeters] in width must be provided, complete with standard railing and toeboards on either side, across the tops of adjacent boilers. Wherever arrangement and location permit, all runways must provide for two means of egress remotely located with respect to the other and connected to a permanent stairway or fixed ladder leading to the floor level. The inspector shall notify the chief inspector of the owners or users who must provide for these requirements and the chief inspector shall give written notice to the owner or user that the installation be made. Repealed effective January 1, 2024~~

History: Effective June 1, 1994.

General Authority: NDCC 26.1-22.1-14

Law Implemented: NDCC 26.1-22.1-14

45-12-03-16. Boiler logs.

~~A log must be kept as to all repairs made, unusual incidents, accidents, water tests, amounts, types, and dates of water treatment. Logs for hobby boilers must also include operating hours, operators, fusible plug installation dates, safety valve tests, and apprentice operator training data. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994; amended effective July 1, 2012.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-03-17. Major repairs and alterations.

~~If a major repair or alteration is necessary, an inspector must be called for consultation and advice as to the best method of making such repair or alteration. After such repair or alteration is made, it is subject to the approval of the inspector. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994; amended effective October 1, 2002.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-03-18. Same material to be used.

- ~~1. No repair to any boiler or steampipe nor any of the connections thereto may be approved which is made in whole or in part of unsuitable material or is unsafe from any cause. Nothing herein may be construed to prevent the use of any boiler constructed of riveted iron or steel plates when the inspector has satisfactory evidence that such boiler or steam generator is equal in strength to and as safe from explosion as boilers constructed of the best quality of materials.~~
- ~~2. Quality of the material used in boiler construction and repair demands critical attention because in performing its function a steam boiler is continually subjected to disruptive stresses. These are due to high internal pressures and to changes in temperature. Disastrous consequences will inevitably follow if the material fails under these stresses.~~
- ~~3. The quality of the material used in the different parts of a boiler should be selected with special reference to the stresses and disruptive influences which each part encounters in service.~~
- ~~4. Galvanized pipe may not be used on any boiler or boiler system subject to this article, as this may cause deterioration of the boiler.~~
- ~~5. Sweated or soldered copper joints may not be used in steam piping and connections.~~
- ~~6. Repair material having a lesser tensile strength than that used in the original construction may not be used. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-03-19. Repairs to boilers.

- ~~1. Rejection of repair. Any riveted or welded repair made to a boiler in North Dakota which does not meet this article's requirements will be cause for rejection of the repair by an inspector.~~
- ~~2. Rejection of welds. Any weld found to contain heavy slag inclusions or to be porous or found to be cracked will be reason for rejection of the weld and either part or all of the weld must be removed by grinding or chipping and the weld must be replaced. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994; amended effective October 1, 2002.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-03-20. Removal of safety appliances.

- ~~1. A person may not attempt to remove or do any work upon a safety appliance, prescribed by these rules, while a boiler is in operation. Should any of these safety appliances be repaired during an outage of a boiler, they must be reinstalled and in proper working order before the object is again placed in service. This provision does not apply to the removal and replacement of a gauge glass.~~
- ~~2. A person may not in any manner load the safety valve or valves to maintain a working pressure in excess of that stated on the certificate of inspection. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-03-21. Repairs and renewals of boiler fittings and appliances.

~~Whenever repairs are made to fittings or appliances or it becomes necessary to replace them, the work must comply with all requirements for new installations. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-03-22. Return pump.

~~Each condensate return pump where practicable must be provided with an automatic water level control set to maintain the water level within the limits of two gauge cocks. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-03-23. Shop inspection - Manufacturing - Repairs -Alterations.

~~Any boiler or pressure vessel being constructed, repaired, or altered in North Dakota must be inspected by an inspector holding a North Dakota reciprocal commission and a national board commission. The boiler inspection program may function as an authorized inspection agency. The boiler inspection program may cooperate with the national board and American society of mechanical engineers in making shop reviews and audits. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994; amended effective January 1, 2014.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-03-24. Commissioner to arrange for examinations.

~~The commissioner shall cause examinations to be conducted at such times as is necessary for the qualification of inspectors. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-03-25. Conditions not covered by this article.

1. ~~In any conditions not covered by this article, the American Society of Mechanical Engineers Code for new installations applies.~~

- ~~2. If any section, subsection, sentence, clause, phrase, provision, or exemption of this article is declared unconstitutional or invalid for any reason, such invalidity does not affect the remaining portion of this article. Repealed effective January 1, 2024~~

History: Effective June 1, 1994.

General Authority: NDCC 26.1-22.1-14

Law Implemented: NDCC 26.1-22.1-14

45-12-03-26. Inspection of boilers.

- ~~1. Each boiler used or proposed to be used within this state, except boilers exempt in North Dakota Century Code section 26.1-22.1-06, must be thoroughly inspected as to their construction, installation, condition, and operation as follows:
 - ~~a. Power boilers must be inspected annually both internally while not under pressure and externally while under pressure. However, any power boiler or steam generator, the operation of which is an integral part of or a necessary adjunct to other continuous processing operations, must be inspected internally at such intervals as are permitted by the shutting down of the processing operation. The chief boiler inspector may provide for extension of time between internal inspections, but an external inspection must be made, and report submitted, for purposes of issuing a certificate. In all other instances the certificate inspection must be an internal inspection when construction permits.~~
 - ~~b. Power boilers of one hundred thousand pounds [45359.24 kilograms] per hour or more capacity, which comply with subsection 2 of North Dakota Century Code section 26.1-22.1-07, must be inspected at least once every thirty-six months internally while not under pressure and at least once every twelve months externally while under pressure.~~
 - ~~c. Steam traction engines must be inspected at least once every twelve months. Inspections must alternate between internal inspections, external inspections, and hydrostatic tests.~~
 - ~~d. Low pressure steam boilers must be inspected annually. Low pressure steam boilers of steel construction must be inspected alternately internally and externally. The issuance of a certificate must normally be based on the internal inspection.~~
 - ~~e. Hot water heating and hot water supply boilers must be inspected triennially unless they are located in a nursing home, school, hospital, nursery school, or kindergarten, in which case they must be inspected annually. Internal inspections will be required when deemed necessary by the inspector.~~
 - ~~f. A grace period of two months beyond the period specified in the above subdivisions may elapse between inspections.~~~~
- ~~2. Certificate inspections must be made during the period of thirty days prior to and thirty days after the expiration date of the certificate. Noncertificate inspections, when required by the provisions of this section, must be made between certificate inspections. The chief boiler inspector encourages reports to be made at any time adverse conditions are found, or when difficulty is encountered getting cooperation from the owner or user.~~
- ~~3. The inspections required under this section must be made by the chief boiler inspector, or by a deputy inspector, or by a special inspector provided for in this article.~~
- ~~4. If at any time a hydrostatic test is deemed necessary by the inspector, it must be made by the owner or user in the presence of, and under the supervision of the inspector, and must be approved by the inspector.~~

~~5. Cast iron boilers must be considered as boilers that do not lend themselves to internal inspections. Internal inspections of electric boilers must be made when deemed necessary by the inspector. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994; amended effective April 1, 1996; January 1, 2000; January 1, 2006; April 1, 2010; January 1, 2016.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-03-27. Steam traction engines.

~~All steam traction engines must conform to at least one of the following: chapter 45-12-04, 45-12-05, 45-12-06, or 45-12-07. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-03-28. Safety valves.

- ~~1. Boiler safety valves and safety relief valves must be placed on, or as close as physically possible, to the boiler proper.~~
- ~~2. Safety valves or safety relief valves may not be placed on the feedline except when installed to provide control for feedwater pressure or to protect a feed pump against overpressure. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

**CHAPTER 45-12-04
POWER BOILERS - NEW INSTALLATIONS**

Section

45-12-04-01	Requirements
45-12-04-02	Appurtenances - Piping and Tests
45-12-04-03	Exits From Boiler Rooms
45-12-04-04	Boiler Clearances
45-12-04-05	Safety Valve Capacity

45-12-04-01. Requirements.

1. ~~All new boilers, except those exempt by law, to be installed in North Dakota must be reported to the chief boiler inspector by the owner or user and by the installer.~~
2. ~~After July 1, 1973, power boilers that are not exempt by law may not be installed in this state unless they have been constructed, inspected, and stamped in conformity with the applicable edition of the American Society of Mechanical Engineers Code for power boilers and are approved, registered, and inspected in accordance with the requirements of this article.~~
3. ~~A boiler having the standard stamping of another state or province of Canada that has adopted a standard of construction equivalent to the standard of North Dakota may be accepted by the chief boiler inspector if the person desiring to install the boiler makes application for the installation and files with the application the manufacturer's data report covering the construction of the boiler. Repealed effective January 1, 2024~~

History: Effective June 1, 1994; amended effective July 1, 2012.

General Authority: NDCC 26.1-22.1-14

Law Implemented: NDCC 26.1-22.1-14

45-12-04-02. Appurtenances - Piping and tests.

- 1 ~~The inspector shall inspect all boilers and connected appurtenances for their safe operation and all pressure piping connecting them to the appurtenances and all piping up to and including the first stop valve, or the second stop valve when two are required.~~
2. ~~Any pressure piping to the boiler, such as water column, blowoff valve, feedwater regulator, superheater, economizer, stop valves, etc., which are shipped connected to the boiler as a unit, must be hydrostatically tested with the boiler and witnessed by an inspector.~~
3. ~~All economizers, whether separately fired or not, and when located within the scope of boiler external piping, must be constructed to section I of the American Society of Mechanical Engineers Code. All superheaters must be constructed to section I of the American Society of Mechanical Engineers Code.~~
4. ~~The chief boiler inspector may waive American society of mechanical engineers section I boiler external piping requirements for new and secondhand boilers of less than forty horsepower output if the boiler external piping is mechanically installed (i.e., no welding), the piping does not exceed two-inch [5.08 centimeters] national pipe standard in size, the piping is schedule eighty minimum, and the boiler maximum allowable working pressure does not exceed one hundred fifty pounds per square inch [1034.22 kilopascals] gauge. Repealed effective January 1, 2024~~

History: Effective June 1, 1994; amended effective October 1, 2002; July 1, 2012.

General Authority: NDCC 26.1-22.1-14

Law Implemented: NDCC 26.1-22.1-14

45-12-04-03. Exits from boiler rooms.

- ~~1. To lessen the hazard of being trapped within the boiler room, ash pit aisles, or other locations, there must be at least two means of exit as may be considered necessary by the inspector. Each elevation must be provided with at least two means of egress, each to be remotely located from the other.~~
- ~~2. All inspectors shall notify the chief inspector of the owners or users who must provide for these requirements. The chief inspector shall then give written notice to the owner or user that the necessary work must be completed within six months from the date of notification. Repealed effective January 1, 2024~~

History: Effective June 1, 1994.

General Authority: NDCC 26.1-22.1-14

Law Implemented: NDCC 26.1-22.1-14

45-12-04-04. Boiler clearances.

- ~~1. All new boiler installations must be designed to allow for normal operation, cleaning, and inspections, and must have at least three feet [.91 meters] of clearance on each side of the boiler with no obstructions and boilers operated in battery may not be installed closer than four feet [1.22 meters] from each other.~~
- ~~2. All boilers must be installed to allow for removal of tubes without removing walls or other structures. The front or rear of any boiler may not be located any nearer than three feet [.91 meters] from any wall or structure.~~
- ~~3. On all boilers equipped with a manhole, at least seven feet [2.1336 meters] of clearance must be maintained from the top of the boiler manhole to the ceiling of the boiler room.~~
- ~~4. Boilers without manholes must have a minimum of at least three feet [.91 meters] from the top of the boiler to the lowest point of the boiler room ceiling. Repealed effective January 1, 2024~~

History: Effective June 1, 1994.

General Authority: NDCC 26.1-22.1-14

Law Implemented: NDCC 26.1-22.1-14

45-12-04-05. Safety valve capacity.

~~The minimum required relieving capacity of safety valves or safety relief valves for all types of boilers may not be less than the maximum designed steaming capacity as determined by the manufacturer and must be based on the capacity of all the fuel burning equipment as limited by other boiler functions. Repealed effective January 1, 2024~~

History: Effective April 1, 1996.

General Authority: NDCC 26.1-22.1-14

Law Implemented: NDCC 26.1-22.1-14

**CHAPTER 45-12-05
POWER BOILERS - EXISTING INSTALLATIONS**

Section

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45-12-05-01. Maximum allowable working pressure for standard boilers.

~~The maximum allowable working pressure for standard boilers must be determined in accordance with the applicable provisions of the edition of the American Society of Mechanical Engineers Code under which they were constructed and stamped. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-05-02. Maximum allowable working pressure for nonstandard boilers.

- ~~1. The maximum allowable working pressure on the shell of a nonstandard boiler must be determined by the strength of the weakest section of the structure, computed from the thickness of the plate, the tensile strength of the plate, the efficiency of the longitudinal joint or tube ligaments, the inside diameter of the weakest course and the factor of safety allowed by this article.~~

~~$\frac{TSE}{RFS}$ = Maximum allowable working pressure, per square inch gauge where:~~

~~TS = Ultimate tensile strength of shell plates per square inch~~

~~t = Minimum thickness of shell plate, in weakest course, inches~~

~~E = Efficiency of longitudinal joint:~~

For tube ligaments and riveted construction, E shall be determined by the rules given in section I, part PR, of the American Society of Mechanical Engineers Code for power boilers. For seamless construction, E shall be considered one hundred percent.

~~R = Inside radius of the weakest course of the shell, in inches~~

~~FS = Factor of safety permitted~~

- ~~2. When the tensile strength of steel or wrought iron shell plate is not known, it must be taken as fifty-five thousand pounds per square inch [386.11 megapascals] for steel and forty-five thousand pounds per square inch [310.26 megapascals] for wrought iron.~~
- ~~3. The resistance to crushing of mild steel must be taken at ninety-five thousand pounds per square inch [655 megapascals] of the cross-sectional area.~~
- ~~4. When computing the ultimate strength of rivets in shear, the following values, in pounds per square inch [megapascals] of the cross-sectional area of the rivet shank must be used:~~

	POUNDS PER SQUARE INCH	MEGAPASCALS
Iron rivets in single shear	38,000	262.00
Iron rivets in double shear	76,000	524.00
Steel rivets in single shear	44,000	303.37
Steel rivets in double shear	88,000	606.69

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

SIZES OF RIVETS BASED ON PLATE THICKNESS

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

- ~~5. The following factors of safety must be increased by the inspector if the condition and safety of the boiler demand it:~~

~~The lowest factor of safety permissible on existing installations is four, except for horizontal-return-tubular boilers having continuous longitudinal lap seams more than twelve feet [3.66 meters] in length, when the factor of safety is eight; when this latter type boiler is removed from its existing setting, it may not be reinstalled for pressures in excess of fifteen pounds per square inch gauge [103 kilopascals].~~

~~Reinstalled or secondhand boilers must have a minimum factor of safety of six when the longitudinal seams are of lap-riveted construction, and a minimum factor of safety of five when the longitudinal seams are of butt-and-double-strap construction. Steam traction~~

~~engines must be considered as secondhand boilers for purposes of determining their factors of safety. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994; amended effective July 1, 2012; January 1, 2014.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-05-03. Age limit of existing boilers.

- ~~1. The age limit of any boiler of nonstandard construction is thirty years except that after a thorough internal and external inspection and a hydrostatic pressure test of one and one-half times the allowable working pressure held for a period of at least thirty minutes during which no distress or leakage develops, any boiler having other than a lap-riveted longitudinal joint may be continued in operation without reduction in working pressure. The age limit of any boiler having lap-riveted longitudinal joints and operating at a pressure in excess of fifty pounds per square inch [344.74 kilopascals] is twenty years; this type of boiler, when removed from an existing setting, may not be reinstalled for a pressure in excess of fifteen pounds per square inch [103 kilopascals]. A reasonable time for replacement, not to exceed one year, may be given at the discretion of the chief boiler inspector.~~
- ~~2. The shell or drum of a boiler in which a typical lap seam crack is discovered along a longitudinal riveted joint for either butt seam or lap joints must be permanently discontinued for use under steam pressure. "Lap seam crack" means the typical crack frequently found in lap seams extending parallel to the longitudinal joint and located either between or adjacent to rivet holes.~~
- ~~3. The age limit of boilers of standard construction installed prior to the date this law becomes effective is dependent on thorough internal and external inspection and hydrostatic pressure test of one and one-half times the allowable working pressure for a period of thirty minutes. If the boiler under these test conditions exhibits no distress or leakage, it may be continued in operation at the same working pressure. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-05-04. Welded boilers.

~~Boilers that have either longitudinal or circumferential seams of fusion welded construction must have been constructed and stamped in accordance with the rules and regulations of the American Society of Mechanical Engineers Code or must have the standard stamping of another state that has adopted a standard of construction equivalent to the standards of the American Society of Mechanical Engineers Code. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-05-05. Pressure on old boilers.

~~The maximum working pressure of an old boiler may not be increased to a greater pressure than would be allowed for a new boiler of the same construction. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-05-06. Cast iron headers and mud drums.

~~The maximum allowable working pressure on a watertube boiler, the tubes of which are secured to a cast iron or malleable iron header, or which have cast iron mud drums, may not exceed one hundred sixty pounds per square inch gauge [1103.17 kilopascals]. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-05-07. Pressure on cast iron boilers.

~~The maximum allowable working pressure for any cast iron boiler, except hot water boilers, is fifteen pounds per square inch gauge [103 kilopascals]. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-05-08. Safety valves and safety relief valves.

~~Safety valves and safety relief valves must meet the requirements of the edition of the American Society of Mechanical Engineers Code, section 1, referenced in this article or the requirements of the edition of the American Society of Mechanical Engineers Code, section 1, to which the boiler they are installed was constructed. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994; amended effective January 1, 2014.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-05-09. Superheater safety valve requirements.

~~Superheater safety valves must meet the requirements of the edition of the American Society of Mechanical Engineers Code section referenced in this article or the requirements of the edition of the American Society of Mechanical Engineers Code section to which the superheater they are installed was constructed. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994; amended effective January 1, 2014.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-05-10. Capacity.

~~The minimum safety valve or safety relief valve relieving capacity for all high-pressure boilers other than steam traction engines must be determined by the edition of the American Society of Mechanical Engineers Code, section 1, referenced in this article or by the requirements of the American Society of Mechanical Engineers Code, section 1, to which the boiler they are installed was constructed.~~

~~The minimum safety valve relieving capacity for steam traction engines must be determined using the edition of the National Board Inspection Code referenced in this article. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994; amended effective January 1, 2014.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-05-11. Mounting.

~~The mounting of safety valves and safety relief valves must meet the requirements of the edition of the American Society of Mechanical Engineers Code, section 1, referenced in this article or by the requirements of the edition of the American Society of Mechanical Engineers Code, section 1, to which the boiler they are installed was constructed. Repealed effective January 1, 2024~~

~~**History:** Effective June 1, 1994; amended effective January 1, 2014.~~

~~**General Authority:** NDCC 26.1-22.1-14~~

~~**Law Implemented:** NDCC 26.1-22.1-14~~

45-12-05-12. Operation.

~~The operation of safety valves and safety relief valves must meet the requirements of the edition of the American Society of Mechanical Engineers Code, section 1, referenced in this article or by the requirements of the edition of the American Society of Mechanical Engineers Code, section 1, to which the boiler they are installed was constructed.~~

~~If the operating conditions of a valve are changed so as to require a new spring for a different pressure, the valve must be adjusted by the manufacturer, the manufacturer's authorized representative, or by a holder of a valid national board "VR" certificate who shall furnish and install a new nameplate. Repealed effective January 1, 2024~~

~~**History:** Effective June 1, 1994; amended effective July 1, 2012; January 1, 2014.~~

~~**General Authority:** NDCC 26.1-22.1-14~~

~~**Law Implemented:** NDCC 26.1-22.1-14~~

45-12-05-13. Steam stop valves.

- ~~1. Each discharge outlet, except safety valve, safety relief valves, reheater inlet and outlet, or superheater inlet connections, must be fitted with a stop valve located at an accessible point in the steam-delivery line and as near the boiler nozzle as is convenient and practicable. When such outlets are over two-inch [50.8 millimeter] pipe size, the valve or valves used on the connection must be of the outside-screw-and-yoke-rising-spindle type so as to indicate from a distance by the position of its spindle whether it is closed or open, and the wheel may be carried either on the yoke or attached to the spindle. A plug-cock-type valve may be used provided the plug is held in place by a guard or a gland, the valve is equipped to indicate from a distance whether it is closed or open, and the valve is equipped with a slow-opening mechanism. In the case of a single boiler and prime mover installation, the stop valve required herein may be omitted provided the prime mover throttle valve is equipped with an indicator to show whether the valve is open or closed and is designed to withstand the required hydrostatic pressure test of the boiler.~~
- ~~2. When the boilers are connected to a common header, the connection from each boiler having a manhole opening must be fitted with two stop valves having an ample free-blow drain between them. The discharge of this drain must be visible to the operator while manipulating the valve. The stop valves must consist preferably of one automatic nonreturn valve (set next to the boiler) and a second valve of the outside-screw-and-yoke type must be used. Where intercommunicating systems of different pressures are installed, every boiler on each system must be equipped with an automatic nonreturn valve set next to the boiler.~~
- ~~3. When more than one stop valve is required, it shall have a pressure rating at least equal to that required for the expected steam temperature and pressure at the valve, or the pressure rating at least equal to eighty-five percent of the lowest set pressure of any safety valve on the boiler drum and for the expected temperature of the steam at the valve, whichever is greater.~~

- ~~4. All valves and fittings on steamlines shall have a pressure rating of at least one hundred pounds per square inch [689.48 kilopascals] in accordance with the applicable American national standards institute standard. Repealed effective January 1, 2024~~

History: Effective June 1, 1994.

General Authority: NDCC 26.1-22.1-14

Law Implemented: NDCC 26.1-22.1-14

45-12-05-14. Feedwater valves and piping.

- ~~1. Except for high temperature water boilers, the feedpipe must be provided with a check valve near the boiler and a 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 globe or regulating valve on the branch to each boiler located between the check valve and the source of supply. Whenever globe valves are used on feedpiping, the inlet must be under the disk of the valve. On single boiler turbine unit installations, the boiler feed shutoff valve may be located upstream from the boiler feed check valve.~~
- ~~2. When the supply line to a boiler is divided into branch feed connections and all such connections are equipped with stop and check valves, the stop and check valves in the common source may be omitted.~~
- ~~3. If a boiler is equipped with duplicate feed arrangements, each such arrangement must be equipped as required by these rules.~~
- ~~4. A combination stop and check valve in which there is only one seat and disk and a valve stem is provided to close the valve when the stem is screwed down must be considered only as a stop valve, and a check valve must be installed as otherwise provided.~~
- ~~5. Where an economizer or other feedwater heating device is connected directly to the boiler without intervening valves, the feed valves and check valves required must be placed on the inlet of the economizer or feedwater heating device.~~
- ~~6. The recirculating return line for a high temperature water boiler must be provided with the same stop valve, or valves, required by subsection 1 of section 45-12-05-13 for the main boiler and the required stop valve or valves is optional. A check valve may not be a substitute for a stop valve.~~
- ~~7. Except as provided for in subsections 8 and 10, boilers having more than five hundred square feet [46.45 square meters] of water heating surface must have at least two means of feeding water. Each source of feeding must be capable of supplying water to the boiler at a pressure of six percent higher than the highest setting of any safety valve on the boiler. For boilers that are fired with solid fuel not in suspension, and for boilers whose setting or heat source can continue to supply sufficient heat to cause damage to the boiler if the feed supply is interrupted, one such means of feeding must not be subject to the same interruption as the first method.~~
- ~~8. Except as provided for in subsection 7, boilers fired by gaseous, liquid, or solid fuel in suspension may be equipped with a single means of feeding water provided means are furnished for the immediate shut off of heat input if the water feed is interrupted.~~
- ~~9. For boilers having a water heating surface of not more than one hundred square feet [9.29 square meters], the feedpiping and connection to the boiler may not be smaller than one-half-inch [12.7 millimeter] pipe size. For boilers having a water heating surface more than one hundred square feet [9.29 square meters], the feedpiping and connection to the boiler may not be less than three-quarter-inch [19.05 millimeter] pipe size.~~

- ~~10. High temperature water boilers must be provided with means of adding water to the boiler or system while under pressure.~~
- ~~11. The feedwater must be introduced into a boiler in such a manner that the water will not be discharged directly against surfaces exposed to gases of high temperature or to direct radiation from the fire or close to any riveted joints of the furnace sheets or of the shell. For pressures of four hundred pounds [2757.92 kilopascals] or over, the feedwater inlet through the drum must be fitted with shields, sleeves, or other suitable means to reduce the effects of temperature differentials in the shell or head. If necessary, the discharge end of a feedpipe must be fitted with a baffle to divert the flow from riveted joints. Feedwater may not be introduced through the blowoff. Repealed effective January 1, 2024~~

History: Effective June 1, 1994.

General Authority: NDCC 26.1-22.1-14

Law Implemented: NDCC 26.1-22.1-14

45-12-05-15. Blowoff valves and piping.

- ~~1. A "blowoff" means a pipe connection provided with valves through which the water in the boiler may be blown out under pressure, excepting drains such as are used on water columns, gauge glasses, or piping of feedwater regulators, etc., used for the purpose of determining the operating condition of such equipment. Piping connections used primarily for continuous operation, such as deconcentrators on continuous blowdown systems, are not classed as blowoffs but the pipe connections and all fittings up to and including the first shutoff valve must be equal at least to the pressure requirements for the lowest set pressure of any safety valve on the boiler drum and with the corresponding saturated steam temperature.~~
- ~~2. A surface blowoff may not exceed two and one-half inch [63.5 millimeter] pipe size, and the internal and external pipes, when used, must form a continuous passage, but with clearance between their ends and arranged so that the removal of either will not disturb the other.~~
- ~~3. Each boiler, except high temperature water boilers, must have a bottom blowoff pipe fitted with a valve or cock in direct connection with the lowest water space practicable.~~
- ~~4. All waterwalls and water screens which do not drain back into the boiler, and all integral economizers must be equipped with blowoff valves.~~
- ~~5. Except as permitted for miniature boilers, the minimum size of pipe and fittings is one inch [25.4 millimeters], and the maximum size is two and one-half inches [63.5 millimeters], except that for boilers with one hundred square feet [9.29 square meters] of heating surface or less, the minimum size of pipe and fittings is three-fourths inch [19.05 millimeters].~~
- ~~6. Condensate return connections of the same size or larger than the size herein specified may be used, and the blowoff may be connected to them. In such case the blowoff must be so located that the connection may be completely drained.~~
- ~~7. A bottom blowoff pipe when exposed to direct furnace heat must be protected by firebrick or other heat-resisting material which is so arranged that the pipe may be inspected.~~
- ~~8. An opening in the boiler setting for a blowoff pipe must be arranged to provide free expansion and contraction.~~
- ~~9. On a boiler having multiple blowoff pipes, a single master valve may be placed on the common blowoff pipe from the boiler, in which case only one valve on each individual blowoff is required. In such a case either the master valve or the individual valves or cocks must be of the slow-opening type.~~

- ~~10. Two independent slow opening valves, or a slow opening valve and a quick opening valve or cock, may be combined in one body and may be used provided the combined fitting is the equivalent of two independent slow opening valves, or a slow opening valve and a quick opening valve or cock and provided further that the failure of one to operate cannot affect the operation of the other.~~
- ~~11. The bottom blowoff pipes of every traction or portable boiler must have at least one slow opening or quick opening blowoff valve or cock conforming to the requirements of section 45-12-05-15.~~
- ~~12. Only one blowoff valve, which must be of a slow opening type, is required on forced circulation and electric boilers having a normal water content not exceeding one hundred gallons [378.54 liters]. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-05-16. Factors of safety.

~~The minimum factor of safety may not be less than four for existing installations. The commissioner authorizes an inspector to increase the factor of safety if the condition of the boiler or pressure vessel warrants it. If the owner or user does not concur with the inspector's decision, the owner or user may appeal to the commissioner who may request a joint inspection by the chief boiler inspector and the deputy inspector or special inspector. Each inspector shall render the inspector's report to the commissioner, and the commissioner shall render the final decision, based upon the data contained in all the inspector's reports. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994; amended effective January 1, 2008.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-05-17. Inspection of inaccessible parts.

~~If in the opinion of the inspector, as the result of conditions disclosed at the time of inspection, it is advisable to remove the interior or exterior lining, covering, or brickwork to expose certain parts of the vessel not normally visible, the owner or user shall remove such material to permit proper inspection and the drilling of any part of the vessel to ascertain thickness. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-05-18. Repairs and renewals of fittings and appliances.

~~Whenever repairs are made to fittings and appliances or it becomes necessary to replace them, the work must comply with the requirements for new installations. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-05-19. Fusible plugs.

- ~~1. Fire-actuated fusible plugs, if used, must conform to the requirements of the American society of mechanical engineers code for power boilers.~~

- ~~2. They may be replaced by steel plugs if the boiler is gas-fired or oil-fired and is equipped with a low water fuel cutoff. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994; amended effective January 1, 2006.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-05-20. Water columns, gauge glasses, and gauge cocks.

- ~~1. Outlet connections (except for damper regulator, feedwater regulator, low water fuel cutoff, drains, steam gauges, or such apparatus that does not permit the escape of an appreciable amount of steam or water therefrom) may not be placed on the piping that connects the water column to the boiler. The water column must 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 three-fourths-inch [19.05-millimeter] pipe size, the drain to be piped to a safe location.~~
- ~~2. Each boiler constructed prior to 1999 must have three or more gauge cocks located within the visible length of the water glass, except when the boiler has two water glasses located on the same horizontal lines. Boilers not over thirty-six inches [.914 meters] in diameter, in which the heating surface does not exceed one hundred square feet [9.29 square meters] need have but two gauge cocks.~~
- ~~3. For all installations where the water gauge glass or glasses are more than thirty feet [9.14 meters] from the boiler operating floor, it is recommended that water level indicating or recording gauges be installed at eye height from the operating floor. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994; amended effective January 1, 2016.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-05-21. Steam pressure gauge.

- ~~1. Each steam boiler must have a steam gauge, with dial range not less than one and one-half times the pressure at which the safety valve is set, connected to the steam space or to the steam connection to the water column. 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. When a steam pressure gauge connection longer than eight feet [2.44 meters] becomes necessary, a shutoff valve may be used near the boiler provided the valve is of the outside-screw-and-yoke type and is locked open. The line must be ample size with provision for free blowing. Each boiler must be provided with a one-fourth-inch [6.35-millimeter] 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. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-05-22. Pressure on nonstandard steam traction engines.

~~All steam traction engines that are of nonstandard boiler construction are limited to a maximum allowable working pressure of one hundred pounds per square inch [690 kilopascals], unless a thorough ultrasonic thickness survey, engineering analysis, and other inspections, approved by the~~

~~chief boiler inspector, determine that a different pressure is appropriate. The maximum allowable working pressure may not be greater than that permitted by the original manufacturer. Boilers herein described are not subject to the age limits of section 45-12-05-03. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994; amended effective January 1, 2014.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-05-23. Duties of owners.

- ~~1. It is the duty of the owner or user of any steam traction engine on wheels to notify the chief boiler inspector of sale or other disposition of steam traction engines.~~
- ~~2. Within ten days of purchase, any person purchasing any steam traction engine shall notify the chief boiler inspector where it will be located and operated. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-05-24. Inspection and repair of standard and nonstandard steam traction engines.

~~The National Board Inspection Code referenced in this article must be used for the inspection and repair of all steam traction engines unless otherwise noted in this article. Repealed effective January 1, 2024~~

~~History: Effective January 1, 2014.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

CHAPTER 45-12-06
MINIATURE BOILERS - NEW INSTALLATIONS

Section

45-12-06-01 Requirements

45-12-06-01. Requirements.

- ~~1. All new boilers, except those exempt by law, to be installed in North Dakota must be reported to the chief boiler inspector by the owner or user and by the installer.~~
- ~~2. A miniature boiler, except one exempt by law, may not be installed in North Dakota unless it has been constructed, inspected, and stamped in conformity with section I of the American Society of Mechanical Engineers Code and is approved, registered, and inspected in accordance with this article.~~
- ~~3. A miniature boiler having the standard stamping of another state that has adopted a standard of construction equivalent to the standard of North Dakota may be accepted by the inspector. However, the person desiring to install the same shall make application for the installation and shall file with this application the manufacturer's data report covering the construction of the boiler in question.~~
- ~~4. All new installation boilers, including reinstalled boilers, must be installed in accordance with the requirements of the American Society of Mechanical Engineers Code and these regulations: Repealed effective January 1, 2024~~

History: ~~Effective June 1, 1994.~~

General Authority: ~~NDCC 26.1-22.1-14~~

Law Implemented: ~~NDCC 26.1-22.1-14~~

CHAPTER 45-12-07
MINIATURE BOILERS - EXISTING INSTALLATIONS

Section

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45-12-07-01. General rules.

~~The rules adopted for power boilers applying to strength of materials and calculations to determine maximum allowable working pressure must be used for miniature boilers unless a special rule is stated in those rules. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-07-02. Maximum allowable working pressure.

~~The maximum allowable working pressure for standard boilers on the shell of a boiler or drum must be determined by section 45-12-05-01. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-07-03. Maximum allowable working pressure for nonstandard boilers.

~~Nonstandard miniature boilers:~~

- ~~1. Must conform to all requirements of this chapter.~~
- ~~2. Must have a factor of safety as given in subsection 5 of section 45-12-05-02.~~
- ~~3. Must be given an initial inspection that must include a hydrostatic pressure test.~~
- ~~4. May not have solder or silver solder as a method of attachment of any pressure part of the entire assembled unit.~~
- ~~5. May have a plate for the North Dakota stamp and registration number to be welded to boiler proper. The plate must be placed in a conspicuous and accessible location with a minimum size thickness one-sixteenth inch [1.59 millimeters], length two inches [50.8 millimeters], and width one inch [25.4 millimeters].~~
- ~~6. May not exceed the design criteria limits as defined in subsection 20 of section 45-12-01-01.~~

- ~~7. Of the watertube, fired-coil and fired-radiator design must be considered as not meeting the requirements of this section.~~
- ~~8. Exceeding twelve inches [304.80 millimeters] internal diameter must have at least one 1-inch [25.4 millimeter] opening in the bottom of the shell and one 1-inch [25.4 millimeter] opening in each water leg. Boilers not exceeding twelve inches [304.80 millimeters] internal diameter must have one 1/2-inch [12.7 millimeter] opening in the shell and one 1/2-inch [12.7 millimeter] opening in each water leg.~~
- ~~9. Construction material used for fabrication of the shell must be steel of at least fifty five thousand pounds per square inch [386.11 megapascals] tensile strength. Material of tubes may be steel, brass, or copper with a rating equal to materials from section II of the American Society of Mechanical Engineers Code. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-07-04. Safety valves.

- ~~1. Each miniature boiler must be equipped with an American society of mechanical engineers approved safety valve set at or below the maximum allowable working pressure.~~
- ~~2. The safety valve must be plainly marked by the manufacturer showing name or identifying trademark, nominal diameter, and pressure at which it is set to release.~~
- ~~3. The safety valve relieving capacity of each boiler must be such that it will discharge all the steam that can be generated by the boiler without allowing the pressure to rise more than six percent above the maximum allowable working pressure.~~
- ~~4. In those cases where the boiler is supplied with feedwater directly from a pressure main or system without the use of a mechanical feeding device, the safety valve must be set to release at a pressure not in excess of ninety four percent of the lowest pressure obtained in the supply main or system feeding the boiler. Return traps may not be considered mechanical feeding devices. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-07-05. Gauge glass and water level indicator.

- ~~1. Each miniature boiler must be equipped with a water gauge glass for determination of water level.~~
- ~~2. The lowest permissible water level must be at a point one-third of the height of the shell, except where the boiler is equipped with internal furnace in which case it may not be less than one-third of the tube length above the top of the furnace. For small boilers where there is insufficient space for the usual type of gauge glass, water level indicators of the glass bull's-eye type may be used. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-07-06. Feeding and feedwater piping.

1. ~~Every miniature boiler must be provided with at least one feed pump or other mechanical feeding device except if the following conditions exist:~~
 - a. ~~If the boiler is connected to a water main or system having sufficient pressure to feed the boiler at any time while under pressure.~~
 - b. ~~If the fuel burned is such that all heat input can be discontinued instantaneously by the operation of a valve, cock, or switch, thereby permitting the boiler pressure to be quickly lowered to a point where water can be introduced from the connection of the water main.~~
 - c. ~~If the boiler is operated without extraction of steam (closed system) in which case the boiler is filled, when cold, through the connection or opening provided in accordance with the following rule.~~
2. ~~Each miniature boiler must be fitted with a feedwater connection that may not be less than one-half-inch [12.7-millimeter] iron pipe size. The feedpiping must be provided with a check valve near the boiler and a valve or check between the check valve and the boiler.~~
3. ~~Feedwater may be introduced through the blowoff connection if the boiler is operated without extraction of steam (closed system).~~
4. ~~Feedwater may not be introduced through the water column or gauge glass connections while the boiler is under pressure. Repealed effective January 1, 2024~~

History: ~~Effective June 1, 1994.~~

General Authority: ~~NDCC 26.1-22.1-14~~

Law Implemented: ~~NDCC 26.1-22.1-14~~

45-12-07-07. Blowoff piping.

1. ~~Each miniature boiler must be provided with a blowoff connection not less than one-half-inch [12.7-millimeter] iron pipe size, directly connected with the lowest water space.~~
2. ~~Blowoff piping may not be galvanized and must be provided with a valve or cock. Repealed effective January 1, 2024~~

History: ~~Effective June 1, 1994.~~

General Authority: ~~NDCC 26.1-22.1-14~~

Law Implemented: ~~NDCC 26.1-22.1-14~~

45-12-07-08. Steam gauges.

~~Each miniature boiler must be equipped with a steam gauge having a dial range not less than one and one-half times the safety valve setting. The gauge must be connected to the steam space or to the steam connection to the gauge glass by a brass or bronze composition siphon tube, or equivalent device that will keep the gauge tube filled with water. Repealed effective January 1, 2024~~

History: ~~Effective June 1, 1994.~~

General Authority: ~~NDCC 26.1-22.1-14~~

Law Implemented: ~~NDCC 26.1-22.1-14~~

45-12-07-09. Stop valves.

~~The steam piping from a miniature boiler must be provided with a stop valve located as close to the boiler shell or drum as is practicable, except in those cases where the boiler and steam receiver are operated as a closed system. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-07-10. Flue connection.

~~Each gas-fired boiler must be equipped with a four-inch [10.16-centimeter] vent pipe or flue extended to an approved location outside the building or connected to a chimney flue. If the horizontal run is more than ten feet [3.05 meters], the vent must be increased to six inches [152.4 millimeters]. A draft hood of approved design must be provided on each boiler. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-07-11. Duties of owners.

- ~~1. The owner and user of any steam traction engine or boiler on wheels shall notify the chief boiler inspector of sale or other disposition of steam traction engines.~~
- ~~2. Within ten days of purchase, any person purchasing any steam traction engine shall notify the chief boiler inspector where it will be located and operated. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-07-12. Steam gauge.

~~The steam pressure gauge must show the pressure at which the boiler is actually being operated. Adjustments to the gauge to show a lesser pressure are prohibited, and if any gauge has been so adjusted, such act will be considered a willful violation of this section. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

CHAPTER 45-12-08
HEATING, LOW PRESSURE, AND HOT WATER SUPPLY BOILERS - NEW
INSTALLATIONS

Section

45-12-08-01 Requirements

45-12-08-01. Requirements.

1. ~~Unless exempt by this article, a heating or low pressure boiler may not be installed in this state unless it has been constructed, inspected, and stamped to conform with section IV of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code and is approved, registered, and inspected in accordance with the requirements of this article.~~
2. ~~All new installation boilers, including reinstalled boilers, must be installed in accordance with the requirements of the American Society of Mechanical Engineers Code and this article.~~
3. ~~Hot water supply boilers may not be installed unless constructed and approved in accordance with the American gas association, the American national standards institute, or the American society of mechanical engineers.~~
4. ~~All new boilers, except those exempt by law, to be installed in North Dakota must be reported to the chief boiler inspector by the owner or user, and by the installer. Repealed effective January 1, 2024~~

History: ~~Effective June 1, 1994.~~

General Authority: ~~NDCC 26.1-22.1-14~~

Law Implemented: ~~NDCC 26.1-22.1-14~~

CHAPTER 45-12-09
HEATING, LOW PRESSURE, AND HOT WATER SUPPLY BOILERS - EXISTING
INSTALLATIONS

Section

45-12-09-01	American Society of Mechanical Engineers Code Boilers
45-12-09-02	Nonstandard Riveted Boilers
45-12-09-03	Nonstandard Welded Boilers
45-12-09-04	Nonstandard Cast Iron Boilers
45-12-09-05	Fired Radiators
45-12-09-06	General
45-12-09-07	Pressure-Relieving Devices
45-12-09-08	Steam Pressure Gauge
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45-12-09-14. 1	Pressure Control
45-12-09-15	Provisions for Thermal Expansion in Hot Water Systems
45-12-09-16	Return Pump
45-12-09-17	Repairs and Renewals of Fittings and Appliances
45-12-09-18	Low-Water Fuel Cutoff
45-12-09-19	Modular Hot Water Heating Boilers
45-12-09-20	Bottom Blowoff and Drain Valves
45-12-09-21	Emergency Shutoff Switches

45-12-09-01. American Society of Mechanical Engineers Code boilers.

~~The maximum allowable working pressure of a boiler built in accordance with the American Society of Mechanical Engineers Code may not exceed the pressure indicated by the manufacturer's identification stamped or cast upon the boiler or upon a plate secured to it. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-09-02. Nonstandard riveted boilers.

~~The maximum allowable working pressure on the shell of a noncode riveted heating boiler must be determined in accordance with section 45-12-05-01 except that the maximum allowable working pressure of a steam heating boiler may not exceed fifteen pounds [103 kilopascals] and a hot water boiler may not exceed thirty pounds [206.85 kilopascals] at a temperature not exceeding two hundred fifty degrees Fahrenheit [120 degrees Celsius]. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-09-03. Nonstandard welded boilers.

~~The maximum allowable working pressure of a noncode steel or wrought iron heating boiler of welding construction may not exceed fifteen pounds [103 kilopascals]. For other than steam service, the maximum allowable working pressure must be calculated in accordance with section IV of the American Society of Mechanical Engineers Code. Repealed effective January 1, 2024~~

History: Effective June 1, 1994.

General Authority: NDCC 26.1-22.1-14

Law Implemented: NDCC 26.1-22.1-14

45-12-09-04. Nonstandard cast iron boilers.

1. ~~The maximum allowable working pressure of a noncode boiler composed principally of cast iron may not exceed fifteen pounds [103 kilopascals] for steam service or thirty pounds [206.85 kilopascals] for hot water service.~~
2. ~~The maximum allowable working pressure of a nonstandard boiler having cast iron shell or heads and steel or wrought iron tubes may not exceed fifteen pounds [103 kilopascals] for steam service or thirty pounds [206.85 kilopascals] for water service.~~ Repealed effective January 1, 2024

History: Effective June 1, 1994.

General Authority: NDCC 26.1-22.1-14

Law Implemented: NDCC 26.1-22.1-14

45-12-09-05. Fired radiators.

~~A radiator in which steam pressure is generated at a pressure of fifteen pounds [103 kilopascals] or less is considered a low pressure boiler.~~ Repealed effective January 1, 2024

History: Effective June 1, 1994.

General Authority: NDCC 26.1-22.1-14

Law Implemented: NDCC 26.1-22.1-14

45-12-09-06. General.

~~If in the judgment of the inspector, a boiler is unsafe for operation at the pressure previously approved, the pressure must be reduced, proper repair made, or the boiler retired from service.~~ Repealed effective January 1, 2024

History: Effective June 1, 1994; amended effective January 1, 2014.

General Authority: NDCC 26.1-22.1-14

Law Implemented: NDCC 26.1-22.1-14

45-12-09-07. Pressure-relieving devices.

1. ~~Safety valve requirements for steam boilers are:~~
 - a. ~~Each steam boiler must have one or more American society of mechanical engineers approved safety valves of the spring-pop type adjusted and sealed to discharge at a pressure not to exceed fifteen pounds per square inch [103 kilopascals]. 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 boiler. For iron and steel-bodied valves exceeding two-inch [50.8 millimeter] pipe size, the drain hole or holes must be tapped not less than three-eighths-inch [9.53 millimeter] pipe size.~~
 - b. ~~Each safety valve three-fourths inch [10.05 millimeters] diameter or over used on a steam boiler must have a substantial device that will positively lift the disk from its seat at least one-sixteenth inch [1.59 millimeters] when there is no pressure in the boiler. The seats and disks must be of suitable material to resist corrosion.~~
 - c. ~~A safety valve for a steam boiler may not be smaller than three-fourths inch [19.05 millimeters] unless the boiler and radiating surfaces consist of a self-contained unit. A~~

safety valve may not be larger than four and one-half inches [114.3 millimeters]. The inlet opening must have an inside diameter equal to, or greater than, the seat diameter.

- d. ~~The minimum relieving capacity of valve or valves is governed by the capacity marking on the boiler.~~
- e. ~~The minimum valve capacity in pounds per hour is the greater of that determined by dividing the maximum British thermal units output at the boiler nozzle obtained by the firing of any fuel for which the unit is installed by one thousand, or is determined on the basis of the pounds of steam generated per hour per square foot of boiler heating surface. (One British thermal unit equals 1.055×10 to the 3rd power joules.)~~

**MINIMUM POUNDS OF STEAM PER HOUR
PER SQUARE FOOT OF HEATING
SURFACE**

	Firtube	Watertube
Boiler Heating Surface	Boilers	Boilers
Hand-fired	5	6
Stoker-fired	7	8
Oil, gas, or pulverized fuel-fired	8	10

- f. ~~Safety valves must be installed with the valve spindle in the vertical position. Discharge piping, to a safe location, may be required by the inspector.~~
2. ~~When a boiler is fired only by a gas having a heat value not in excess of two hundred British thermal units per cubic feet [745.58×10 to the 4th power joules per cubic meter], the minimum safety valve or safety relief valve relieving capacity may be based on the values given for hand-fired boilers above.~~
 3. ~~The safety valve or safety relief valve relieving capacity for electric boilers is three and one-half pounds [3692.5 joules] per hour per kilowatt input.~~
 - a. ~~The safety valve capacity for each steam boiler must be such that with the fuel-burning equipment installed and operated at maximum capacity the pressure cannot rise more than five pounds per square inch [34.47 kilopascals] above the maximum allowable working pressure.~~
 - b. ~~When operating conditions are changed, or additional boiler heating surface is installed, the valve capacity must be increased, if necessary, to meet the new conditions, the additional valves required, on account of changed conditions, may be installed on the outlet piping provided there is no intervening valve.~~
 4. ~~Safety relief valve requirements for hot water boilers are:~~
 - a. ~~Each hot water heating boiler must have at least one American society of mechanical engineers approved pressure relief valve set to relieve at or below the maximum allowable working pressure of the boiler. Each hot water supply boiler must have at least one officially rated safety relief valve or at least one American society of mechanical engineers approved pressure-temperature relief valve of the automatic reseating type set to relieve at or below the maximum allowable working pressure of the boiler. Pressure relief valves officially rated as to capacity must have pop action when tested by steam. When more than one safety relief valve is used on either hot water heating or hot water supply boilers, the additional valve or valves must be~~

~~officially rated and may be set within a range not to exceed six pounds per square inch [41.47 kilopascals] above the~~

~~maximum allowable working pressure of the boiler up to and including sixty pounds per square inch [413.69 kilopascals] and ten percent for those having a maximum allowable working pressure exceeding sixty pounds per square inch [413.69 kilopascals]. Safety relief valves must be spring loaded without disk guides on the pressure side of the valve. Safety relief valves must be arranged so that they cannot be reset to relieve at a higher pressure than the maximum permitted by this subdivision.~~

- ~~b. Each safety relief valve must have a substantial device that will positively lift the disk from its seat at least one-sixteenth inch [1.59 millimeters] when there is no pressure on the boiler.~~
- ~~c. Materials subject to deterioration or vulcanization when subject to saturated steam temperature corresponding to capacity test pressure may not be used for any part.~~
- ~~d. A safety relief valve may not be smaller than three-fourths inch [19.05 millimeters] nor larger than four and one-half inch [114.3 millimeter] standard pipe size, except that boilers having a heat input not greater than fifteen thousand British thermal units per hour [15.38 x 10 to the 7th power joules] may be equipped with a rated safety relief valve of one-half inch [12.7 millimeter] standard pipe size. The inlet opening must have an inside diameter approximately equal to, or greater than, the seat diameter. The minimum opening through any part of the valve may not be less than one-fourth inch [6.35 millimeters] diameter or its equivalent area.~~
- ~~e. The required steam-relieving capacity, in pounds per hour, of the pressure-relieving device or devices on a boiler must be determined 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 designed by one thousand or by multiplying the square feet of heating surface by five. In every case, the requirements of subdivision g must be met. (One British thermal unit equals 1.055 x 10 to the 3rd power joules.)~~
- ~~f. When operating conditions are changed, or additional boiler heating surface is installed, the valve capacity must be increased, if necessary, to meet the new conditions and be in accordance with subdivision g. The additional valves required, on account of changed conditions, may be installed on the outlet piping provided there is no intervening valve.~~
- ~~9. Safety relief valve capacity for each boiler must be such that with maximum heat input the pressure cannot rise more than six pounds per square inch [41.37 kilopascals] above the maximum allowable working pressure for pressures up to and including sixty pounds per square inch [413.69 kilopascals] and ten percent for maximum allowable working pressures over sixty pounds per square inch [413.69 kilopascals].~~
- ~~h. Safety relief valves must be installed with the spindle in the vertical position. Discharge piping, to a safe location, must be installed. Repealed effective January 1, 2024~~

History: Effective June 1, 1994.

General Authority: NDCC 26.1-22.1-14

Law Implemented: NDCC 26.1-22.1-14

45-12-09-08. Steam pressure gauge.

- ~~1. Each steam boiler must have a steam gauge or a compound steam gauge connected to its steam space or to its water column or to its steam connections. The gauge or connection must contain a siphon or equivalent device that will develop and maintain a water seal that will prevent steam from entering the gauge tube. The connection must be arranged so that the gauge cannot be shut off from the boiler except by a cock placed in the pipe at the gauge and provided with a tee or a lever handle arranged to be parallel to the pipe in which it is located~~

~~when the cock is open. The connections to the boiler must be not less than one-fourth-inch [6.35-millimeter] standard pipe size, but where steel or wrought iron pipe or tubing is used, they must be not less than one-half-inch [12.7-millimeter] standard pipe size. The minimum size of a siphon, if used, must be one-fourth inch [6.35 millimeters] inside diameter. Ferrous and nonferrous tubing having inside diameters at least equal to that of standard pipe sizes listed above may be substituted for pipe.~~

- ~~2. The scale on the dial of a steam boiler gauge must be graduated to not less than thirty pounds per square inch [206.84 kilopascals] nor more than sixty pounds per square inch [413.69 kilopascals]. The gauge must be provided with effective stops for the indicating pointer at the zero point and at the maximum pressure point. The travel of the pointer from zero to thirty pounds per square inch [206.84 kilopascals] pressure must be at least three inches [76.2 millimeters]. On a compound gauge, effective stops must be set at the limits of the gauge readings on both the pressure and vacuum sides of the gauge. Repealed effective January 1, 2024~~

History: Effective June 1, 1994.

General Authority: NDCC 26.1-22.1-14

Law Implemented: NDCC 26.1-22.1-14

45-12-09-09. Water gauge glasses.

- ~~1. Each steam boiler must have one or more water gauge glasses attached to the water column or boiler by means of valved fittings not less than one-half-inch [12.70-millimeter] pipe size, with the lower fitting provided with a drain valve of the straight type with opening not less than one-fourth inch [6.35 millimeters] diameter to facilitate cleaning. Gauge glass replacement must be possible under pressure. Water glass fittings may be attached directly to a boiler.~~
- ~~2. The lowest visible part of the water gauge glass must be at least one inch [25.4 millimeters] above the lowest permissible water level recommended by the boiler manufacturer. With the boiler operating at this lowest permissible water level, there must be no danger of overheating any part of the boiler. Transparent material other than glass may be used for the water gauge provided that the material will remain transparent and has proved suitable for the pressure, temperature, and corrosive conditions expected in service. Repealed effective January 1, 2024~~

History: Effective June 1, 1994.

General Authority: NDCC 26.1-22.1-14

Law Implemented: NDCC 26.1-22.1-14

45-12-09-10. Stop valves and check valves.

- ~~1. If a steam boiler may be closed off from the heating system by closing a steam stop valve, there must be a check valve in the condensate return line between the boiler and the system.~~
- ~~2. If any part of a steam 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 pipe from that part of the system.~~
- ~~3. If more than one boiler is connected to a system, they must each be equipped with main stops on the discharge and return side, in such a manner not affecting operation of any other boiler.~~
- ~~4. When single boilers are located above the system and can be drained without draining the system, stop valves are optional. Repealed effective January 1, 2024~~

History: Effective June 1, 1994.

General Authority: NDCC 26.1-22.1-14

Law Implemented: NDCC 26.1-22.1-14

45-12-09-11. Feedwater connections.

- ~~1. Feedwater connections must be independent of any water gauge connections and be made to the condensate return pipe or reservoir of the condensate return tank.~~
- ~~2. Alternatively, makeup water or water treatment may be introduced through an independent connection. The water flow from the independent connection may not discharge directly against parts of the boiler exposed to direct radiant heat from the fire. Makeup water or water treatment may not be introduced through openings or connections provided for inspection or cleaning, safety valve, safety relief valve, blowoff, water column, water gauge glass, pressure gauge, or temperature gauge.~~
- ~~3. When there is more than one boiler connected to a system, each boiler must have an independent feedwater line.~~
- ~~4. There must be a stop valve and a check valve in the feedwater line at the boiler. For hot water heating boilers, the check valve must be a backflow preventer approved by the state plumbing board.~~
- ~~5. Hot water heating boilers, not equipped with an approved low-water fuel cutoff, must be equipped with an automatic feeding device or pressure reducing valve method of feeding, in addition to a manual bypass capable of feeding the boiler at a pressure of six percent above safety relief valve setting. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994; amended effective January 1, 2000; October 1, 2002; July 1, 2012; January 1, 2014.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-09-12. 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 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 one and one-half nor more than three and one-half times the pressure at which the safety relief valve is set. The gauge must be provided with effective stops for the indicating pointer at the zero point and at the maximum pressure point.~~
- ~~3. Piping or tubing for pressure or altitude gauge connections must be of nonferrous metal when smaller than one-inch [25.4 millimeter] pipe size. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994; amended effective January 1, 2000.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-09-13. Thermometers.

~~Each hot water boiler must have a thermometer located and connected so that it is easily readable when observing the water pressure or altitude. The thermometer must be located so that it will at all times indicate the temperature in degrees Fahrenheit [Celsius] of the water in the boiler at or near the outlet. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

Law Implemented: NDCC 26.1-22.1-14

45-12-09-14. Temperature control.

~~Each automatically fired hot water boiler must be protected from over temperature by two temperature-operated controls.~~

- ~~1. Each individual automatically fired water boiler must have a safety limit control that will cut off the fuel supply to prevent water temperature from exceeding the maximum allowable temperature at the boiler outlet. The water temperature safety control must be constructed to prevent a temperature setting above the maximum allowable temperature and be of the manual reset type.~~
- ~~2. Each individual hot water boiler or each system of commonly connected boilers without intervening valves must have a control that will cut off the fuel supply when the water temperature reaches an operating limit, which must be less than the maximum allowable temperature. Repealed effective January 1, 2024~~

~~**History:** Effective June 1, 1994; amended effective January 1, 2000; January 1, 2006.~~

~~**General Authority:** NDCC 26.1-22.1-14~~

~~**Law Implemented:** NDCC 26.1-22.1-14~~

45-12-09-14.1. Pressure control.

~~Each automatically fired steam boiler must be protected from overpressure by two pressure-operated controls.~~

- ~~1. Each automatically fired steam boiler must have a safety limit control that will cut off the fuel supply to prevent steam pressure from exceeding the fifteen pounds per square inch [103 kilopascals] maximum allowable working pressure of the boiler. Each control must be constructed to prevent a pressure setting above fifteen pounds per square inch [103 kilopascals] and be of the manual reset type.~~
- ~~2. Each individual steam boiler or each system of commonly connected steam boilers must have a control that will cut off the fuel supply when the pressure reaches an operating limit, which must be less than the maximum allowable pressure.~~
- ~~3. Shutoff valves of any type may not be placed in the steam pressure connection between the boiler and the controls described in subsections 1 and 2. These controls must be protected with a siphon or equivalent means of maintaining a water seal that will prevent steam from entering the control. Repealed effective January 1, 2024~~

~~**History:** Effective June 1, 1994; amended effective January 1, 2006.~~

~~**General Authority:** NDCC 26.1-22.1-14~~

~~**Law Implemented:** NDCC 26.1-22.1-14~~

45-12-09-15. Provisions for thermal expansion in hot water systems.

- ~~1. All hot water heating systems incorporating hot water tanks or fluid relief columns must be so installed as to prevent freezing under normal operating conditions.~~
- ~~2. Systems with open expansion tank. If the system is equipped with an open expansion tank, an indoor overflow from the upper portion of the expansion tank must be provided in addition to an open vent, the indoor overflow to be carried within the building to a suitable plumbing fixture or to the basement.~~

3. ~~Closed-type systems. If the system is of the closed type, an airtight tank or other suitable air cushion must be installed that will be consistent with the volume and capacity of the system, and must be suitably designed for a hydrostatic test pressure of two and one-half times the allowable working pressure of the system. Expansion tanks for systems designed to operate above thirty pounds per square inch [206.85 kilopascals] must be constructed in accordance with the American Society of Mechanical Engineers Code, section VIII, division 1. Except for prepressurized tanks, provisions must be made for draining the tank without emptying the system. Provisions must also be made for changing of all tanks without emptying the system.~~
4. ~~Expansion tank capacities for gravity hot water systems. Based on two-pipe system with average operating water temperature one hundred seventy degrees Fahrenheit [76.7 degrees Celsius], using cast iron column radiation with heat emission rate one hundred fifty British thermal units per hour per square foot [158.25 x 10 to the 3rd power joules per .0929 square meter] equivalent direct radiation.~~

Square Feet of Installed Equivalent Direct Radiation		Tank Capacity, Gallons	
Up	to	350	18
Up	to	450	21
Up	to	650	24
Up	to	900	30
Up	to	1,100	35
Up	to	1,400	40
Up	to	1,600	2-30
Up	to	1,800	2-30
Up	to	2,000	2-35
Up	to	2,400	2-40

5. ~~Expansion tank capacities for forced hot water systems. Based on average operating water temperature one hundred ninety-five degrees Fahrenheit [90 degrees Celsius], a fill pressure twelve pounds per square inch gauge [82.74 kilopascals] and a maximum operating pressure thirty pounds per square inch gauge [206.84 kilopascals].~~

System Volume, Gallons	Nonpressurized Tank Capacity Gallons		Prepressurized Tank Capacity Gallons	
100	15		9	
200	30		17	
300	45		25	
400	60		33	
500	75		42	
1,000	150		83	
2,000	300		165	

Note: System volume includes volume of water in boiler, radiation, and piping, not including the expansion tank.

~~6. Expansion tanks for hot water supply systems must be constructed in accordance with the American society of mechanical engineers code, section VIII, division 1 if over five gallons in size of water and air. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994; amended effective January 1, 2016.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-09-16. Return pump.

~~Each condensate return pump where practicable must be provided with an automatic water level control set to maintain the water level within the limits of two gauge cocks. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-09-17. Repairs and renewals of fittings and appliances.

~~Whenever repairs are made to fittings or appliances or it becomes necessary to replace them, all work must comply with all requirements for new installations. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-09-18. Low-water fuel cutoff.

- ~~1. Each automatically fired hot water heating boiler must have an automatic low-water fuel cutoff that has been designed for hot water service and which can be tested without draining the system or the boiler. It must be so located as to automatically cut off the fuel supply prior to the surface of the water falling below the lowest safe water level as established by the boiler manufacturer.~~
- ~~2. A coil-type or watertube boiler requiring forced circulation to prevent overheating of the coils or tubes must have a flow-sensing device installed in the boiler or piping in lieu of the required low-water fuel cutoff that will cut off the fuel supply when the circulation flow is interrupted. Functioning of the low-water fuel cutoff due to a low water condition must cause safety shutdown and lockout. Where a reset device is separate from the low-water fuel cutoff, a means shall be provided to indicate actuation of the low-water fuel cutoff. The manual reset may be the instantaneous type, or may include a time delay of not more than three minutes after the fuel has been cut off.~~
- ~~3. Low-water fuel cutoff requirements for steam boilers are addressed by section 45-12-03-07. Repealed effective January 1, 2024~~

~~History: Effective June 1, 1994; amended effective January 1, 2006.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

45-12-09-19. Modular hot water heating boilers.

- ~~1. Individual modules must be limited to a maximum input of four hundred thousand British thermal units [4.22 x 10 to the 8th power joules] per hour (gas), three gallons [11.36 liters] per hour (oil), or one hundred fifteen kilowatt-hours (electricity).~~
- ~~2. Each module of a modular hot water heating boiler must be equipped with the following:~~

a. ~~Pressure/altitude gauge (see section 45-12-09-12).~~

- b. ~~Thermometer (see section 45-12-09-13).~~
 - c. ~~Operating temperature control (see subsection 2 of section 45-12-09-14).~~
 - d. ~~Safety relief valve (see section 45-12-09-07).~~
 - e. ~~Drain valve (see section 45-12-09-20).~~
3. ~~The assembled modular hot water heating boiler must be equipped with the following:~~
- a. ~~High-limit temperature control (see subsection 1 of section 45-12-09-14).~~
 - b. ~~Low-water fuel cutoff (see section 45-12-09-18).~~
 - c. ~~Makeup feedwater connection (see section 45-12-09-11).~~
 - d. ~~Expansion tank provisions (see section 45-12-09-15).~~
 - e. ~~Stop valves (see section 45-12-09-10).~~ Repealed effective January 1, 2024

History: Effective June 1, 1994; amended effective October 1, 2002.

General Authority: NDCC 26.1-22.1-14

Law Implemented: NDCC 26.1-22.1-14

45-12-09-20. Bottom blowoff and drain valves.

1. Each steam boiler having a capacity over twenty-five gallons [94.6 liters] must have a bottom blowoff connection fitted with a valve or cock connected to the lowest water space practicable with a minimum size as shown below:

Minimum Required Safety Valve Capacity in Pounds of Steam/Hour		Steam Boiler Blowoff Piping Valve Size, Inches (Min.)	
Up	to 500		3/4
501	to 1,250		1
1,251	to 2,500		1 1/4
2,501	to 6,000		1 1/2
6,001	and larger		2

2. ~~Each hot water boiler and each steam boiler having a capacity not exceeding twenty-five gallons [94.6 liters] must have a drain valve connected to the lowest water space practicable. The minimum size of this drain valve is three-quarter inch [1.9 centimeters].~~ Repealed effective January 1, 2024

History: Effective June 1, 1994.

General Authority: NDCC 26.1-22.1-14

Law Implemented: NDCC 26.1-22.1-14

45-12-09-21. Emergency shutoff switches.

1. ~~A manually operated emergency shutoff switch or circuit breaker must be located just outside the boiler room door and marked for easy identification. Consideration should be given to the type and location of the switch to safeguard against tampering. If the boiler room door is on the building exterior, the switch must be located just inside the door. If there is more than one door to the boiler room, there must be a switch located at each door.~~

~~2.—The emergency switch or circuit breaker must disconnect all power to the burner controls.~~

~~3. This requirement is limited to single and modular boilers exceeding 400,000 Btu/hr input installed after January 1, 2006. Repealed effective January 1, 2024~~

History: ~~Effective January 1, 2006.~~

General Authority: ~~NDCC 26.1-22.1-14~~

Law Implemented: ~~NDCC 26.1-22.1-14~~

CHAPTER 45-12-10 UNFIRED PRESSURE VESSELS

Section

45-12-10-01	Construction and Installation Standards - Exceptions
45-12-10-02	Application of Standards - Repairs
45-12-10-03	Allowance for State Specials
45-12-10-04	Change of Service From Anhydrous Ammonia to Propane

45-12-10-01. Construction and installation standards - Exceptions.

~~Unfired pressure vessels may not be installed in North Dakota unless such vessels have been constructed in accordance with the American society of mechanical engineers boiler and pressure vessel code, section VIII, division 1, 2, or 3, and bear the American society of mechanical engineers stamping as proof of such construction.~~

~~Manufacturers shall register unfired pressure vessels with the national board of boiler and pressure vessel inspectors. Unfired pressure vessels must bear the required stamping of the national board.~~

~~The requirements of this section apply to all pressure vessels within the scope of the American society of mechanical engineers boiler and pressure vessel code, section VIII, division 1, 2, or 3, with these exceptions:~~

- ~~1. Pressure vessels under federal control.~~
- ~~2. Pressure vessels that do not exceed four cubic feet [30 United States gallons] in volume and two hundred fifty pounds per square inch gauge [1723.70 kilopascals] in pressure.~~
- ~~3. Pressure vessels that do not exceed one and one-half cubic feet [11.22 United States gallons] in volume and six hundred pounds per square inch gauge [4136.88 kilopascals] in pressure.~~
- ~~4. Unfired pressure vessels installed or ordered prior to November 1, 1987. However, these unfired pressure vessels must be maintained in a safe operating condition using ANSI/NB-23 and ANSI/API-510 as guidelines. Unfired pressure vessels referenced by this section must be protected with the American society of mechanical engineers stamped pressure relief devices as defined in section VIII of the American society of mechanical engineers boiler and pressure vessel code. Existing pressure relief devices installed on unfired pressure vessels referenced by this section will be considered acceptable if the pressure relief device is set for the correct pressure, if the usage is correct, and if the device is in a satisfactory operating condition.~~
~~Repealed effective January 1, 2024~~

History: Effective June 1, 1994; amended effective April 1, 1996; January 1, 2000; October 1, 2002; January 1, 2006; April 1, 2010; July 1, 2012; January 1, 2014; January 1, 2016.

General Authority: NDCC 26.1-22.1-14

Law Implemented: NDCC 26.1-22.1-14

45-12-10-02. Application of standards - Repairs.

~~These rules apply only to new construction, except as noted below:~~

- ~~1. Reinstalled pressure vessels must meet the rules for new construction. Exception: National board registration is required only for those vessels ordered and constructed after November 1, 1987.~~
- ~~2. Repairs to unfired pressure vessels and to safety and safety relief valves for those vessels:~~

a. ~~Repairs to safety valves and safety relief valves must be such that valve function is not impaired and the repaired valve will perform to the standards for which it was originally~~

constructed. It is recommended that these repairs be made by a firm in possession of a valid "VR" certificate of authorization from the national board of boiler and pressure vessel inspectors.

- b. ~~Repairs to unfired pressure vessels must be such that vessels repaired will be returned to a safe and satisfactory operating condition, provided there is not deviation from the original design. It is recommended that these repairs be made by a firm in possession of a valid "R" certificate of authorization from the national board of boiler and pressure vessel inspectors.~~
- c. ~~The national board inspection code and the American petroleum institute code (ANSI/API-510, 2006 edition) cover repair and alteration procedures. ANSI/API-510 may be used to cover the maintenance inspection, repair, alteration, and rerating procedure for pressure vessels used by the petroleum and chemical process industries. It is intended that ANSI/NB-23 cover installations other than those covered by ANSI/API-510.~~

~~3. Alterations to unfired pressure vessels:~~

- a. ~~Alterations, as defined in ANSI/NB-23, must be made by a national board "R" certificate holder.~~
- b. ~~Alterations may also be made by an organization operating under the provisions of ANSI/API-510, provided the alteration is within the scope of ANSI/API-510. Repealed effective January 1, 2024~~

~~**History:** Effective June 1, 1994; amended effective April 1, 1996; January 1, 2000; October 1, 2002; January 1, 2006; January 1, 2008; July 1, 2012.~~

~~**General Authority:** NDCC 26.1-22.1-14~~

~~**Law Implemented:** NDCC 26.1-22.1-14~~

45-12-10-03. Allowance for state specials.

~~If, due to a valid impediment to compliance with the American society of mechanical engineers code in its entirety, an unfired pressure vessel cannot bear the American society of mechanical engineers and national board stamping, details in the English language, and specifications and calculations, approved by a registered professional engineer experienced in pressure vessel design, must be submitted to the chief inspector by the owner or user. Approval as "state special" must be obtained from the chief inspector before construction is started. Repealed effective January 1, 2024~~

~~**History:** Effective June 1, 1994.~~

~~**General Authority:** NDCC 26.1-22.1-14~~

~~**Law Implemented:** NDCC 26.1-22.1-14~~

45-12-10-04. Change of service from anhydrous ammonia to propane.

~~Unfired pressure vessels that have been previously used in anhydrous ammonia service may be converted to liquid petroleum service only with all of the following conditions being met:~~

- 1. ~~The pressure vessel is American society of mechanical engineers code constructed and national board registered.~~
- 2. ~~The pressure vessel has a manhole opening for access or a manhole opening is provided as an alteration.~~
- 3. ~~The pressure vessel is in satisfactory condition internally and externally using the national board inspection code to determine acceptable condition.~~

~~4. The pressure vessel has passed a wet fluorescent magnetic particle test made by an individual possessing a valid American society for nondestructive testing level II or III certificate issued in accordance with the requirements of the American society for nondestructive testing, incorporated. Repealed effective January 1, 2024~~

~~History: Effective January 1, 2016.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-14~~

**CHAPTER 45-12-11
HOBBY BOILER OPERATOR LICENSING**

Section

45-12-11-01	Definitions
45-12-11-02	License Required
45-12-11-03	Existing Operator Licenses
45-12-11-04	Application
45-12-11-05	Term of the License
45-12-11-06	License Renewal
45-12-11-07	Hobby Boiler Operation
45-12-11-08	License Denial or Revocation

45-12-11-01. Definitions.

1. ~~"Commissioner" means the insurance commissioner.~~
2. ~~"Hobby boiler" means a hand-fired steam boiler that operates above fifteen pounds per square inch [103.42 kilopascals] gauge pressure operated during a parade, an exhibition, or a threshing show where the public is invited and not otherwise exempt from North Dakota Century Code section 26.1-22.1-06. Repealed effective January 1, 2024~~

History: Effective January 1, 2008.

General Authority: NDCC ~~26.1-22.1-14~~

Law Implemented: NDCC ~~26.1-22.1-09, 26.1-22.1-14~~

45-12-11-02. License required.

1. ~~Except as provided in subsection 3, no individual may operate a hobby boiler in this state unless licensed under this chapter.~~
2. ~~The commissioner may not issue a hobby boiler license to an individual unless the individual:~~
 - a. ~~Files a written application with the commissioner on a form prescribed by the commissioner;~~
 - b. ~~Passes an examination developed by the commissioner and pays an examination fee of twenty-five dollars;~~
 - c. ~~Provides evidence of the successful completion of one hundred twenty hours of apprenticeship training with a licensed hobby boiler operator. Training must include the following:~~
 - (1) ~~Basic boiler, steam engine, and piping fundamentals;~~
 - (2) ~~Initial firing of the boiler with wood or coal or both and warmup of the steam engine;~~
 - (3) ~~Basic operation of the boiler and steam engine to include operation of:~~
 - (a) ~~Blower valve;~~
 - (b) ~~Main steam valve;~~
 - (c) ~~Throttle valve and governor;~~
 - (d) ~~Injector and pump operation to include feedline stop and check valves;~~
 - (e) ~~Gauge glass, gauge cocks, and water column;~~

- ~~(f) Safety valve and fusible plug basics;~~
- ~~(g) Blowdown valve use; and~~
- ~~(h) Steam engine operation and drain valves;~~
- ~~(4) Normal shutdown procedures;~~
- ~~(5) Emergency shutdown procedures;~~
- ~~(6) Driving and steering to include the use of the reversing lever and stopping procedures; and~~
- ~~(7) Lining up for belt operation.~~

~~Attendance at one hobby boiler training seminar approved by the commissioner may substitute for up to forty hours of apprenticeship training;~~

~~d. Is at least sixteen years of age; and~~

~~e. Pays a twenty-five dollar license fee.~~

- ~~3. A license is not required under this chapter if the hobby boiler operator is not a resident of this state and is qualified by reason of possessing a valid license from another state or Canadian province and this license has been approved by the commissioner. Repealed effective January 1, 2024~~

~~History: Effective January 1, 2008.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-09, 26.1-22.1-14~~

45-12-11-03. Existing operator licenses.

~~An individual who has operated a hobby boiler within this state as of July 1, 2007, may receive a license without complying with subdivisions b and c of subsection 2 of section 45-12-11-02. "Operated a hobby boiler" means demonstrated operating experience in boiler operations and maintenance that include sufficient training, observation, and personal participation to enable the individual to safely operate a hobby boiler. Repealed effective January 1, 2024~~

~~History: Effective January 1, 2008.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-09, 26.1-22.1-14~~

45-12-11-04. Application.

~~An individual applying for a hobby boiler operator license must complete an application in the form provided by the commissioner, pay any required fee, and provide a notarized affidavit signed by a licensed North Dakota hobby boiler operator attesting to the applicant's completion of one hundred twenty hours of training regarding the operation of a hobby boiler. The notarized affidavit need not be provided if it has already been provided by the applicant in connection with a previous application or if the applicant is applying for an existing operator license under section 45-12-11-03. Repealed effective January 1, 2024~~

~~History: Effective January 1, 2008.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-09, 26.1-22.1-14~~

45-12-11-05. Term of the license.

~~A hobby boiler operator license is valid for six years except that an initial license expires on January first of the year after the license has been in effect for five years. Repealed effective January 1, 2024~~

~~History: Effective January 1, 2008.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-09, 26.1-22.1-14~~

45-12-11-06. License renewal.

~~An individual may apply to renew a hobby boiler operator license for six years by submitting to the commissioner a renewal request along with a twenty five dollar renewal fee in advance of the license expiration date. Repealed effective January 1, 2024~~

~~History: Effective January 1, 2008.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-09, 26.1-22.1-14~~

45-12-11-07. Hobby boiler operation.

- ~~1. Notwithstanding any other provision of this section and with the exception of the operation of miniature boilers, two licensed operators or a licensed operator and an apprentice operator must be in attendance on a hobby boiler during a parade or plowing demonstration or during belt operation. At least one licensed operator must be in attendance on a hobby boiler at all other times except when it is considered safe for a hobby boiler operator to leave the hobby boiler as described in subsection 2.~~
- ~~2. A hobby boiler operator is required to be in attendance on a hobby boiler any time the steam pressure is above fifteen pounds per square inch [103.42 kilopascals] gauge and rising unless:
 - ~~a. The water is above the one-third level in the gauge glass;~~
 - ~~b. The fire is extinguished or banked;~~
 - ~~c. All draft doors are closed;~~
 - ~~d. The main steam outlet valve or dome valve is closed; and~~
 - ~~e. The boiler pressure is at least twenty pounds per square inch [137.90 kilopascals] gauge below the safety valve set pressure and the boiler pressure is decreasing. Repealed effective January 1, 2024~~~~

~~History: Effective January 1, 2008.~~

~~General Authority: NDCC 26.1-22.1-14~~

~~Law Implemented: NDCC 26.1-22.1-09, 26.1-22.1-14~~

45-12-11-08. License denial or revocation.

- ~~1. The commissioner may deny an application for a hobby boiler operator's license if the applicable requirements of North Dakota Century Code chapter 26.1-22.1 and this chapter are not met or if an applicant is not capable of operating a hobby boiler in a safe manner.~~
- ~~2. The commissioner may revoke a hobby boiler operator's license if the applicable requirements of North Dakota Century Code chapter 26.1-22.1 and this chapter are not met, if an operator operates a hobby boiler carelessly or negligently or otherwise endangers the health and safety of others.~~

~~3. An applicant or licenseholder may appeal the denial or revocation of a license by filing a written appeal with the commissioner within ten days of receipt of written notice of such a decision. Upon receipt of a timely appeal, an administrative hearing may be conducted in the manner provided in North Dakota Century Code chapter 28-32. Repealed effective January 1, 2024~~

History: ~~Effective January 1, 2008.~~

General Authority: ~~NDCC 26.1-22.1-14~~

Law Implemented: ~~NDCC 26.1-22.1-09, 26.1-22.1-14~~

