CHAPTER 5225
DEPARTMENT OF LABOR AND INDUSTRY
BOILERS AND POWER BOATS

LICENSES

5225.0100 APPLICATION FOR STEAM ENGINEER OR PILOT LICENSE.

Any person desiring to take an examination for a license as a steam engineer or pilot shall make written application therefor under oath, on blanks furnished by the boiler inspector. The application shall be accompanied by a corroborating affidavit of at least one employer or a steam engineer possessing not less than a second class engineer's license, or pilot, as the case may be, certifying to the applicant's experience as stated in his application. If such affidavits are not obtainable, satisfactory evidence of the applicant's experience must be furnished.

Statutory Authority: *MS s 175.171*

5225.0200 LICENSE FEES.

The fee for the examination for an engineer's license shall be: chief engineer, $16; first-class, $11; second-class, $11; special, $5; and for a license as a pilot, $5. These fees shall also apply to all subclasses of licenses named in Minnesota Statutes, section 183.51, subdivision 1, clause (1), which come within these respective classes.

Statutory Authority: *MS s 175.171; 183.545*

NOTE: Under Minnesota Statutes, section 183.545, subdivisions 2 and 4, license fees have been changed.

5225.0300 EXPIRATION AND RENEWALS.

Subpart 1. **Timing.** All licenses for engineers and pilots, unless sooner revoked, shall be for a period of one year from the date of issuance, with privilege of renewal without examination upon application therefor to 444 Lafayette Road, 5th floor, and payment of a fee not later than ten consecutive days after the expiration of such license. The renewal license shall be given a consecutive issue number and the same monthly date as the original issue. Applications for renewal shall not be presented prior to 30 days of the expiration date of the license. Engineers who fail to renew their licenses within the ten days of grace herein provided for shall be subject to the following subparts 2 and 3.

Subp. 2. **Expirations within less than five years.** Licenses which have expired less than five years prior to date of application for renewal may be renewed without the necessity of an examination upon filing an application therefor, accompanied by the fee required in part 5225.0200. Applications shall be marked "expired renewal" and do not have to be signed.

Subp. 3. **Expirations of five years or more.** Licenses which have expired five years or more prior to the date of application for renewal may be renewed by filing an application therefor, accompanied by the fee required by part 5225.0200, and passing an examination.

Statutory Authority: *MS s 175.171*

5225.0400 BASIC LICENSE REQUIREMENT.

No person shall have charge of as engineer or operate any steam boiler plant who does not possess a license of the class required to operate such steam boiler plant.

Statutory Authority: *MS s 175.171; 183.501*

5225.0500 EXAMINATIONS.

Subpart 1. **Preparation of written examination.** The examination questions shall be prepared by the chief or deputy chief of the Division of Boiler Inspection. All examinations shall be written unless the applicant is unable to write, in which case the examination may be oral, provided a written record of the same is made, and examination papers shall be kept on file for a period of at least one year.

Subp. 2. **Minimum grade.** No license of the class applied for shall be granted to any applicant who fails to obtain a grade of 75 percent in an examination therefor, nor shall any other class be granted.

Subp. 3. **Effect of failure.** Applicants who fail to pass an examination shall not be eligible to take another examination for the same class of license within the following periods thereafter: special 30-horsepower engineer's (third class) or pilot's license, 30 days; first and second class license, 60 days; chief's license, 90 days.

Failure of an applicant to obtain a passing mark shall not affect the status of any license previously granted to him, but the fee paid for such examination shall not be refunded.

Statutory Authority: *MS s 175.171*

5225.0600 PROHIBITION AGAINST FALSE STATEMENTS IN APPLICATION.

Any deliberate false statement in an application, or in any affidavit presented in connection therewith, shall render the license issued thereon void.

Statutory Authority: *MS s 175.171*

5225.0700 LOSS OR DESTRUCTION OF LICENSE.

Upon presentation of a statement of fact showing that a license has been lost, destroyed, or not received, a substitute license may be issued by the chief of the Division of Boiler Inspection without cost to the licensee. The chief may require the presentation to be by affidavit if he deems the circumstances warrant it.

Statutory Authority: *MS s 175.171*

5225.0800 COMPLAINTS ABOUT LICENSE HOLDERS.

Subpart 1. **Investigation.** Upon the filing of a complaint in writing in the office of the commission by a boiler inspector charging the holder of a license of any grade with failing to use ordinary care or precaution in the operation of any boiler or pressure vessel, or being habitually under the influence of intoxicating liquor while on duty, or conducting himself in such a manner while on duty as to endanger life, limb, or property, the chief of the Division of Boiler Inspection shall make such inquiry or investigation as he deems necessary.

Subp. 2. **Report to commission.** If after such inquiry or investigation the chief of the Division of Boiler Inspection believes that the holder of the license should be penalized for the alleged misconduct, he shall so report to the commission.

Subp. 3. **Order to show cause.** Upon receipt of the report of the chief of the Division of Boiler Inspection the commission shall issue a written order upon the party accused of such misconduct to show cause why the license issued to him should not be suspended or revoked and canceled. Such order to show cause shall be served by registered mail. It shall state the nature of the charges made against the licensee and shall be noticed for hearing as may be ordered by the commission at a stated time and place within five days after the date of its service or as soon thereafter as possible. A copy of the order shall also be mailed to the employer or owner of the boiler or pressure vessel.

Subp. 4. **Hearing.** The commission may, in its discretion, continue such hearing for the purpose of taking such testimony as any affected party may desire to submit. At such hearing the accused may be represented by counsel if he desires. When the matter has been fully presented the commission shall draw such findings of fact and make such order or determination as all the facts and circumstances warrant. Such findings of fact and order shall be served by mail on the interested parties.

Subp. 5. **Complaints in affidavit form.** When complaint is made to the chief of the Division of Boiler Inspection by anyone other than a district or a deputy boiler inspector charging the holder of a license with such misconduct as to endanger life, limb, or property, such complaint shall be in affidavit form, detail the nature of the complaint, name the witnesses the complainant will produce to substantiate the complaint, and give a brief summary of the testimony that will be submitted. The procedure to be followed thereafter will be the same as with the complaints filed by district or deputy boiler inspectors.

Statutory Authority: *MS s 175.171*

5225.0900 DISPLAY OF LICENSE.

Licenses granted shall be placed in a glassed frame and be displayed in a conspicuous place in the engine or boiler room, or pilot's station.

Statutory Authority: *MS s 175.171*

5225.1000 BOILER HORSEPOWER RATING.

Inspectors, in rating the boiler horsepower of a plant, shall use the manufacturer's normal boiler horsepower of each boiler and compute the total horsepower as that of the combined horsepower of all boilers connected with the header, whether all such boilers are in use or not. If the manufacturer's rating cannot be found, ten square feet of heating surface (fire side of tube) shall be considered equivalent to one boiler horsepower. It shall be the duty of all boiler inspectors, including those employed by the insurance companies, to promptly report to the chief of the Division of Boiler Inspection any plant in which the engineer has no license or his license is of a lower class than that required by law for the horsepower of said plant.

Statutory Authority: *MS s 175.171; 183.51, subd 15*

5225.1100 ABSENCE FROM PLANT.

A shift engineer in a high pressure boiler plant of 150 boiler horsepower or more in operation shall not leave said plant for more than 15 minutes at any one time or be more than 200 feet away therefrom without leaving on duty an engineer with a licensee not lower than one grade below that required for the shift engineer.

Statutory Authority: *MS s 175.171*

5225.1200 INSURANCE COMPANY INSPECTORS.

Subpart 1. **License requirement.** Inspectors in the employ of the insurance companies shall possess a chief engineer's license or a certificate of competency from the National Board of Boiler and Pressure Vessel Inspectors, and shall place on inspection reports the serial number of their license or certificate.

Subp. 2. **Examination.** State or insurance company boiler inspectors seeking a license as authorized shop inspectors on new construction of steam boilers and/or pressure vessels shall qualify by passing a written examination prepared by the National Board of Boiler and Pressure Vessel Inspectors. Such examinations shall be held at Saint Paul, Minnesota, by the Division of Boiler Inspection at such times as it may prescribe. Applicants so qualifying shall be given a National Board of Boiler and Pressure Vessel Inspectors' commission serial number, which serial number shall be registered in the office of the chief of the Division of Boiler Inspection. Inspectors having National Board of Boiler and Pressure Vessel Inspectors' commissions obtained in other states shall be registered without another examination.

Statutory Authority: *MS s 175.171*

5225.1300 OPERATORS OF RAILROAD LOCOMOTIVES.

Operators of railroad locomotives which are utilized for such stationary purpose as generating steam for power or heating are required to have the proper class of engineer licenses issued by the Division of Boiler Inspection.

Operators of railroad locomotives engaged in intrastate or interstate commerce and operators of boilers in private residences and dwellings of not more than four families are not required to possess engineers' licenses issued by the Division of Boiler Inspection.

Statutory Authority: *MS s 175.171*

5225.1400 VIOLATIONS.

Failure of any licensee to comply with any of the foregoing regulations shall constitute grounds for suspending the offending engineer's license for from ten to 30 days, and for repeated or grave offenses an engineer's license may be revoked.

Statutory Authority: *MS s 175.171*

INSPECTIONS

5225.2000 INCORPORATIONS BY REFERENCE.

The engineering standards of boiler and unfired pressure vessels safety shall be those established by the current edition, and current published revisions and interpretations, of the construction codes of the American Society of Mechanical Engineers, which are hereby adopted, included and made a part of parts 5225.1400 to 5225.3500.

The National Board of Boiler and Pressure Vessel Inspectors recommended rules for repairs of power boilers and unfired pressure vessels by riveting and fusion welding are hereby adopted, included, and made a part of parts 5225.1400 to 5225.3500.

Statutory Authority: *MS s 183.465; 183.466*

5225.2100 STAMPS ON BOILER AND PRESSURE VESSELS.

Every boiler or pressure vessel for use in this state shall conform in every detail to the boiler and pressure vessel laws of the state and rules adopted by the Department of Labor and Industry, and when correctly constructed in accordance therewith shall be stamped with the respective ASME code symbol, or the National Board symbol (NB) or Minnesota Special (MINN. SPC) as the case may be, by an inspector holding a National Board commission. The chief of the Division of Boiler Inspection may, at the request of the manufacturer, designate any inspector possessing the qualifications required by part 5225.2000 to make the requested shop inspection, for which the manufacturer shall pay the statutory fee, plus cost of transportation and subsistence as established by the Department of Administration.

Statutory Authority: *MS s 175.171*

5225.2200 ITEMS REQUIRING INSPECTION.

The authorized boiler inspector shall inspect all steam boilers, generators, fired or unfired pressure vessels, appurtenances connected thereto for their safe operation and all pressure piping connecting them to the appurtenances, and all piping up to the first stop valve, or the second valve when two are required. They shall be properly prepared for inspection and the inspector given at least 48 hours' notice before the time set for the inspection.

Any pressure piping to steam boiler, generator, or pressure vessel appurtenances such as water column, blowoff valve, feedwater regulator, superheater, economizer, stop valves, etc., which are to be shipped connected to the steam boiler, generator, or pressure vessel as a unit, shall be hydrostatically tested with the steam boiler, generator, or pressure vessel, by an authorized inspector, and if approved so noted on the data sheet.

Statutory Authority: *MS s 175.171*

5225.2300 EXEMPTIONS.

Boilers and pressure vessels under the direct jurisdiction of the United States government, those insured which have a current state exemption certificate posted on or near them, those in private residences and dwellings of not more than four families, and railroad locomotives used in intrastate or interstate commerce, pressure vessels used for storage of air, gas, or liquid and gas, having an internal or external pressure of 15 pounds or less per square inch, irrespective of size, or five cubic foot capacity or less for pressures not exceeding 30 pounds per square inch, headers or enlargement of a pipe the cross-sectional area of which is not greater than four times the combined area of the inlets, shall be exempt from state inspection. Locomotives used for plant or industrial transportation, stationary power or heating shall be subject to inspection by the state.

Statutory Authority: *MS s 175.171; 183.56*

5225.2400 TITLE TRANSFER TO USED BOILERS OR VESSELS.

Before the transfer of the title to a used boiler or pressure vessel and its future use in another location, the owner thereof shall cause the same to be inspected by the state (or insurance company) boiler inspector, and in computing its safe working pressure the inspector shall use a safety factor of at least six on noncode boilers and pressure vessels having a butt strap joint and at least seven on lap seam or welded joint.

Statutory Authority: *MS s 175.171*

5225.2500 LOW WATER DEVICES.

Subpart 1. **Requirements.** After one year from the adoption of this rule all automatically fired low-pressure steam boilers must be equipped with low-water cutouts or low-water alarm devices. This rule is not retroactive. It applies to new installations only made after October 26, 1945.

Subp. 2. **Definition of heating plant.** A heating plant is a heating system in which heat is transferred from the boiler to the heating units by means of steam at, above, or below atmospheric pressure of 15 pounds per square inch.

Statutory Authority: *MS s 175.171*

5225.2600 REPORTING REPAIRS.

The owner or person in charge of a steam boiler, generator, or pressure vessel shall notify the boiler inspector of each major repair or alteration made thereto, and the inspector shall then compute the safe working pressure by virtue of said repair or alteration. In the event the boiler is insured, the owner or person in charge thereof shall notify the insurer.

Statutory Authority: *MS s 175.171*

5225.2700 REPAIRS BY INSPECTORS PROHIBITED; EXCEPTION.

Boiler inspectors shall not make any of the repairs they order to boilers. If, however, no competent mechanic is available in the locality in which the boiler is located, the chief of the Division of Boiler Inspection may grant permission to the inspector to make emergency or minor repairs.

Statutory Authority: *MS s 175.171*

5225.2800 SEALING BOILERS OR PRESSURE VESSELS.

If an inspection of a boiler or pressure vessel shows it to be in an unsafe condition, the inspector shall seal it against further use until the repairs necessary to make it safe for use are made. The owner or user may appeal to the chief of the Division of Boiler Inspection, who shall immediately investigate and either confirm, modify, or rescind said order of repair. The owner or user may, upon written request, be granted a hearing before the commissioner, where he shall have an opportunity to appear and show cause why he should not comply with the decision of the chief of the Division of Boiler Inspection. The commissioner shall confirm, modify, or rescind all orders issued, or may make such requirements as he deems necessary for repairs to be made to correct the unsafe condition. The chief of the Division of Boiler Inspection may in his discretion allow the boiler or pressure vessel to remain in use pending disposition of the appeal.

Statutory Authority: *MS s 175.171*

5225.2900 SALES BY INSPECTORS PROHIBITED.

Boiler inspectors shall not sell, nor be interested in the sale directly or indirectly of articles or accessories used in the maintenance of boilers and steam machinery, to the owners of the boilers or pressure vessels which they inspect.

Statutory Authority: *MS s 175.171*

5225.3000 PROFESSIONAL CONDUCT OF INSPECTORS.

Boiler inspectors shall at all times extend courteous treatment to those whom they serve and to the public, and make special effort to avoid controversy by referring disputes to the office of the chief of the Division of Boiler Inspection. Inspectors shall not commence any legal proceedings relating to the enforcement of boiler, license, or inspection laws prior to submitting the matter to the chief of the Division of Boiler Inspection; nor shall they divulge to any person their personal opinions of findings pertaining to their duties as inspectors or disclose to the public any matter of a private nature in the possession of the division.

Statutory Authority: *MS s 175.171*

5225.3100 INSURED COVERAGE REPORT.

Every insurance company insuring a boiler or pressure vessel shall notify the chief of the Division of Boiler Inspection in writing immediately of such coverage. It shall also mail a duplicate of such notification to the assured, who shall, until receipt of exemption certificate, post such notice in a conspicuous place near the boiler or pressure vessel. The person, firm, or corporation operating the insured boiler or pressure vessel shall procure and post an exemption certificate within a period of 60 days from the date of coverage, and keep same posted in a conspicuous place near the insured object. If such certificate is not posted within said 60 days from date of coverage the boiler inspector shall make the usual and customary inspection of such boiler or pressure vessel and charge the statutory fee therefor.

Statutory Authority: *MS s 175.171*

5225.3200 APPEALS.

Any person aggrieved by any action or decision of a boiler inspector may appeal therefrom to the chief of the Division of Boiler Inspection by filing written notice of such appeal with that officer, who, after notice and hearing, may affirm, modify, or rescind such action or decision. The parties affected by any action or decision of the chief of the Division of Boiler Inspection may appeal therefrom to the Department of Labor and Industry.

Statutory Authority: *MS s 175.171*

5225.3300 GROUNDS FOR SUSPENSION OR DISMISSAL.

The failure of any inspector to comply with any of the foregoing rules may constitute sufficient grounds for the temporary suspension of such inspector; repeated neglect to comply with same shall be sufficient grounds for dismissal from the service.

Statutory Authority: *MS s 175.171*

5225.3400 STANDARDS FOR BOILERS.

Subpart 1. **Blowdown.** The blowdown from a boiler or boilers that enters a sanitary sewer system or blowdown which is considered a hazard to life or property shall pass through some form of blowoff equipment that will reduce pressure and temperature as required hereinafter. The temperature of the water leaving the blowoff equipment shall not exceed 150 degrees Fahrenheit. The pressure of the blowdown leaving any type of blowoff equipment shall not exceed five pounds per square inch gage. If this pressure is exceeded additional vent area shall be provided. If during the blowdown the water seal level cannot be maintained, the water outlet line shall be reduced one pipe size. The rules of this section are not intended to apply to boiler blowoff tanks which are connected to boilers that operate at 400 pounds per square inch or over.

Subp. 2. **Blowoff tank.** A boiler blowoff tank shall be designed and correctly fabricated in accordance with the ASME Unfired Pressure Vessel Code for at least 25 percent of the safe working pressure of the boilers to which it is connected, but in no case need a tank be constructed for a working pressure more than 100 pounds per square inch. The minimum thickness of the shell plate and heads shall be three-eighths inch, and shall be of a volume equal to at least twice the volume of water removed from the boiler when the normal water level is reduced not less than four inches.

Subp. 3. **Water outlet.** The water outlet connection shall be connected to the tank so that the tank will remain half full of water after each blowdown, and this vertical leg shall extend to within six inches of the bottom of the tank and the top of this water seal shall also have a three quarter-fourths inch opening to act as a syphon breaker.

Subp. 4. **Size opening.** The size opening of the blowoff line inlet, water outlet, and vent shall have an area ratio of at least 1:15 (to the nearest pipe size. Table 1 in part 5225.3500 gives ratio of openings).

Subp. 5. **Inlet.** The inlet shall enter the shell at a tangent and shall be above the surface of the water in the tank. A wearing plate of steel of the same thickness as the shell shall be attached to the inside of the shell opposite the inlet opening.

Subp. 6. **Vent pipe.** The vent pipe shall be connected to the uppermost part of the tank and carried without any intervening stop valve or other obstruction as direct as possible to the outside atmosphere. It shall discharge at a point of safety not less than seven feet above adjacent areas or walkways.

Subp. 7. **Access opening.** The tank shall have a suitable access opening, a manhole if practical; if not possible, then handholes, for inspection and cleaning of the interior. All pipe connections shall be made as direct as possible and shall be equipped, where practical, with sweep bends having a radius of at least four times the diameter of the pipe. Where conditions make the use of sweep bends prohibitive, long sweep fittings may be used. If couplings are welded in the openings they shall be extra heavy.

Subp. 8. **Drain.** The tank shall be fitted with a drain connection which is at least 2-1/2 inch standard pipe size and with a cold water supply which is at least one inch pipe size. The drain line should contain fittings to facilitate cleaning.

Subp. 9. **Clearance from floor or ground.** The tank shall be provided with supporting legs which shall give a distance of at least 12 inches from the bottom of the tank to the floor. Blowoff tanks placed under ground shall be installed in a properly walled pit having space of not less than 18 inches between the tank and the wall.

Subp. 10. **Pressure gage.** The tank shall be fitted with a pressure gage graduated from 0 to 30 pounds, the minor graduations indicating a pressure not greater than one pound. The pressure gage shall be connected to a siphon, the opening of which shall be at least one-fourth inch inside diameter.

Subp. 11. **Water gage glass.** The tank shall be fitted with a water gage glass of at least one-half inch diameter. The lower connection to the glass shall be made at a point about four inches below the water line and the upper connection about six inches above the water line.

Subp. 12. **Thermometer well.** The tank shall be fitted with an opening for a thermometer well, located close to the water outlet connection and in contact with the water in the tank. If the outlet is not fitted with a water cooling device, the retained water shall be reduced to at least room temperature before blowing down a boiler.

Subp. 13. **Permissible types of tanks.** Blowdown centrifugal separator, closed, and other types of blowoff tanks are permissible when approved by the chief of the Division of Boiler Inspection.

Statutory Authority: *MS s 175.171*

5225.3500 TABLE NO. 1.

Boiler Blowoff Inlet	Water Outlet	Vent
* 3/4	3/4	2
1	1	2-1/2
1-1/4	1-1/4	3
2	2	5
2-1/2	2-1/2	6

To be used only with boilers of 100 square feet of heating surface or less.

Statutory Authority: *MS s 175.171*

BOILER SAFETY

5225.4000 BLOWOFF TANKS.

Suggested sizes of blowoff tanks are given in the following table:

Up to three HP pipe not to exceed 18 inches in diameter has been used, provided the volume of the water seal is at least equal to one gauge of water of the boiler to which it is connected and vapor space at least 50 percent of the volume and boiler pressure not over 100 pounds per square inch.

Boiler Rating	Tank Size
3 to 10 H.P.	24" x 36"
11 to 25 H.P.	24" x 48"
26 to 50 H.P.	30" x 36"
51 to 75 H.P.	30" x 48"
76 to 150 H.P.	36" x 54"
151 to 250 H.P.	36" x 60"
251 to 600 H.P.	42" x 66"
Over 600 H.P.	48" x 72"

Statutory Authority: *MS s 183.465*

5225.4100 SAFETY VALVES.

Each boiler shall have at least one safety valve and if more than 500 square feet of water heating surface it shall have two or more safety valves.

Every safety valve shall be connected to the boiler independent of any other stream connections, and attached as close as possible to the boiler, without any unnecessary pipe or fitting and shall stand in an upright position. No valve of any description shall be placed between the required safety valve or valves and the boiler, nor on the discharge pipe between the safety valve and the atmosphere. All safety valves shall discharge at a point of safety not less than seven feet from running boards, platforms, or adjacent areas.

Statutory Authority: *MS s 183.465*

5225.4200 WATER GAGE.

When the boiler operating pressure exceeds 100 psi, the watergage glass shall be fitted with a gate or plug-valved drain to the ash pit or other safe discharge point.

The lowest visible part of the water gage glass shall be at least two inches above the lowest permissible water level, which level shall be not less than one inch above the fire surface. If the lowest water gage shutoff valve is more than

seven feet above the floor or platform from which it is operated, the operating mechanism shall indicate by its position whether the valve is opened or closed.

Statutory Authority: *MS s 183.465*

5225.4300 WATER COLUMN SHUTOFFS.

When shutoffs are used in pipe connections between a boiler and water column or between a boiler and the shutoff valves required for the gage glass they shall be either outside-screw-and-yoke or leverlifting type gate valves or stopcocks with levers permanently fastened thereto and marked in line with their passage, or such other through-flow construction as to prevent stoppage by deposits of sediment, and to indicate by the position of the operating mechanism whether they are in open or closed position; and such valves or cocks shall be locked or sealed open. Where stopcocks are used they shall be a type with the plug held in place by a guard or gland.

Apparatus which does not permit the escape of an appreciable amount of steam therefrom, may be placed in the pipes connecting a water column or gage glass to a boiler.

The steam and water connections to a water column, including all pipe, fittings, valves, and drains, shall be such that they are readily accessible for internal inspection and cleaning by providing a cross or fitting with a back outlet at each right-angle turn, or by using pipe bends or fittings which will permit the passage of a rotary cleaner. The water column shall be fitted with at least a three-fourths inch pipe size cock or drain with a suitable connection to the ash-pit, or other safe point of waste.

Statutory Authority: *MS s 183.465*

5225.4400 STEAM GAGE.

Each steam gage shall be connected to a siphon of at least one-fourth inch pipe size and be fitted with a cock provided with a tee or lever handle arranged to be parallel to the pipe in which it is located when the cock is open. If the pipe is longer than ten feet a shutoff valve or cock arranged so that it can be locked or sealed open may be used near the boiler.

The dial of the steam gage shall be graduated to approximately double the pressure at which the safety valve is set but in no case to less than 1-1/2 times this pressure.

Statutory Authority: *MS s 183.465*

5225.4500 VALVES AND FITTINGS.

Valves and pipe fittings shall conform to the American standards for the maximum allowable working pressure. Fusion welded joints are permitted if the welding procedure and operator are qualified.

All valves and fittings on all feedwater piping from the boiler up to and including the first stop valve and the check valve shall be equal at least to the requirements of any standard accepted by the ASME code for pressure 1.25 times the maximum allowable working pressure of the boiler.

All valves and fittings for feed-water piping between the required check valve and the globe or regulating valve, and including any bypass piping up to and including the shutoff valves in the bypass, shall be equal at least to the saturated requirements of any standard accepted by the ASME code for a pressure rating equal to the expected operating pressure required to feed the boiler for a saturated steam temperature corresponding to the minimum set pressure of any safety valve on the boiler drum or the actual temperature of the water, whichever is greater.

Valves and fittings made of any material permitted by the ASME code for pressure ratings of 125 pounds or more and marked as required by the code may be used for feed line and blowoff service up to 80 percent of the rated pressure.

Statutory Authority: *MS s 183.465*

5225.4600 STOP VALVES.

Each steam-discharge outlet, except safety-valve, reheater inlet and outlet, or superheater inlet connections, shall be fitted with a stop valve located at an accessible point in the steam-delivery line and as near to the boiler nozzle as convenient and practicable. When such outlets are over two inches pipe size, the valve or valves used on the connection shall be the outside-screw-and-yoke rising-spindle type so as to indicate at a distance by the position of its spindle whether it is closed or open. A plug-cock-type valve may be used provided the plug is held in place by a guard or gland, and it is equipped to indicate at a distance whether it is closed or open and it is equipped with a slow-opening mechanism.

Statutory Authority: *MS s 183.465*

5225.4700 COMMON MAIN CONNECTION.

When boilers are connected to a common steam main, the steam connection from each boiler having a manhole opening shall be fitted with two stop valves having an ample free-blow drain between them. The stop valves shall consist preferably of one automatic nonreturn valve, set next to the boiler and a second valve of the outside-screw-and-yoke type; or, two valves of the outside-screw-and-yoke type shall be used.

Statutory Authority: *MS s 183.465*

5225.4800 BLOWOFF PIPING.

Each boiler shall have a bottom blowoff pipe fitted with a valve or cock in direct connection with the lowest water space practicable.

All fittings between the boiler and valves shall be of steel for pressure over 100 psi. For pressures up to 200 psi cast iron valves may be used if they meet the requirements of the American Standard for 250 pounds; and if of steel shall be equal to the requirements of the American Standards as given in the ASME code. For pressures over 200 psi the valves or cocks shall be of steel and at least equal to the ASME code standard.

Statutory Authority: *MS s 183.465*

5225.4900 BLOWOFF VALVES.

On all stationary boilers, when the allowable working pressure exceeds 100 psi, each bottom blowoff pipe shall have two slow-opening valves, or one slow-opening valve and a quick-opening valve or a cock complying with the ASME code requirement.

The bottom blowoff pipes of every traction and/or portable boiler shall have at least one slow-or-quick-opening blowoff valve or cock conforming to the ASME code requirement.

Blowoff valves and cocks shall be located in some convenient and accessible place, using extension valve stems if necessary to secure safe operation.

Statutory Authority: *MS s 183.465*

5225.5000 FEED PIPING.

The feed-pipe shall be provided with a check valve near the boiler and a valve or cock between the check valve and the boiler, and when two or more boilers are fed from a common source, there shall be a globe or regulating valve on the branch to each boiler between the check valve and the source of supply. Wherever globe valves are used on feed piping, the inlet shall be under the disk.

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, shall be considered only as a stop valve, and a check valve shall be installed as provided in the first paragraph of this part.

Statutory Authority: *MS s 183.465*

5225.5100 FEEDWATER SUPPLY.

A boiler having more than 500 square feet of water heating surface (50 BHP) shall have at least two means of feeding, one of which shall be a pump, inspirator, or injector. Where a source of feed is available at a sufficient pressure six percent higher than that at which the safety valve is set to blow, this may be considered one of the means. For boilers other than those fired with spreader-type stokers or with gaseous, liquid, or pulverized fuels, if pumps only are used, one shall be steam driven.

When electrically-driven feed pumps are used and there is no other reliable independent source of electrical supply, there shall be maintained ready for service steam-driven feed pumps or injectors (inspirators) of sufficient capacity to safeguard the boilers in case of failure of electric power.

Statutory Authority: *MS s 183.465*

5225.5200 ELECTRICALLY HEATED GENERATORS.

All appliances required for electric steam generators shall be attached in accordance with the following:

A cable at least as large as one of the incoming power lines to the generator shall be provided for grounding the generator shell. This cable shall be permanently fastened on some part of the generator and shall be grounded in an approved manner. A suitable screen or guard shall be provided around high tension bushings and a sign posted warning of high voltage. This screen or guard shall be so located that it will be impossible for anyone working around the generator to accidentally come in contact with the high tension circuits. When adjusting safety valves, the power circuit to the generator shall be open. The generator may be under steam pressure but the power line shall be open while the operator is making the necessary adjustments.

Each kilowatt of electrical energy consumed by an electric steam generator, operating at maximum rating, shall be considered the equivalent of one square foot of heating surface of a fire tube boiler when determining the required amount of safety valve capacity.

Statutory Authority: *MS s 183.465*

NAVIGATION OF POWER BOATS ON INLAND STATE WATERS

5225.6000 SCOPE.

Parts 5225.6000 to 5225.7200 shall be followed by vessels navigating the lakes and rivers of Minnesota.

Statutory Authority: *MS s 183.38; 183.41*

5225.6100 DEFINITIONS.

Subpart 1. **Approved life preserver.** An "approved life preserver" shall be either a vest-like article with straps and buckles attached thereto that will fit around the body directly below the arms so as to keep the upper part of the person above water or a cushion with at least two straps attached thereto. Both of these shall be made of kapok or cork and shall be designed to keep a dead weight of 20 pounds afloat for at least 24 hours. The materials used must comply with the United States Coast Guard specifications.

Subp. 2. **Boat.** "Boat" means any vessel navigating inland waters of the state, propelled by machinery, carrying passengers or cargo for hire and operated by a licensed pilot.

Subp. 3. **Under way.** A vessel is "under way" within the meaning of these rules when it is not at anchor, or made fast to the shore or ground.

Subp. 4. **Visible.** The word "visible" in these rules, when applied to lights, shall mean visible on a dark night with a clear atmosphere.

Statutory Authority: *MS s 183.38; 183.41*

5225.6200 LIGHTS.

The rules concerning lights shall be complied with in all weathers from sunset to sunrise, and during such time no other lights which may be mistaken for the prescribed lights shall be exhibited. If operated between sunset and sunrise, a vessel shall be equipped with a green light on the starboard side and a red light on the port side of the bow of the boat and shielded so they cannot be seen across the bow, and a white stern light visible from any angle within 360 degrees. Such boats shall have ready a lantern or flash light which shall be temporarily exhibited in sufficient time to avoid collision.

Statutory Authority: *MS s 183.38; 183.41*

5225.6300 COURSE AND SPEED.

When two vessels are crossing, so as to involve risk of collision, the vessel which has the other on its own starboard side shall keep out of the way of the other. When a machinery driven vessel and a sailing vessel or rowing boat are proceeding in such direction as to involve risk of collision, the power driven vessel shall keep out of the way of the sailing vessel or rowing boat. Where, by any of these rules, one of the two vessels is to keep out of the way, the other vessel shall keep its course and speed. Every vessel which is directed by these rules to keep out of the way of another vessel shall, if possible, avoid crossing ahead of the other. Every vessel which is directed by these rules to keep out of the way of another vessel shall, on approaching it, if necessary, slacken its speed or reverse or stop.

Power vessels, when under way, shall keep a safe distance from rowing or other small boats.

Statutory Authority: *MS s 183.38; 183.41*

5225.6400 NARROW CHANNELS.

In narrow channels every vessel shall, when it is safe and practical, keep to that side of the fairway or mid-channel which lies on the starboard side of such vessel. Sailing vessels or power boats shall keep out of the way of boats fishing with nets or lines. This rule shall not give to any vessel or boat the right of obstructing a fairway or channel used by vessels other than fishing vessels or boats.

Statutory Authority: *MS s 183.38; 183.41*

5225.6500 EQUIPMENT.

When in use, every vessel subject to these rules shall carry oars or pole, an anchor, a fire extinguisher, and at least one approved life preserver for each passenger.

Statutory Authority: *MS s 183.38; 183.41*

5225.6600 APPROACHING DOCK.

All power boats must slow down at least 200 feet from dock or landing place. When about to land, the boat must head straight in, against the wind if possible, and if practicable avoid curving or circling into landing place.

Statutory Authority: *MS s 183.38; 183.41*

5225.6700 REPORTS OF DAMAGE.

Pilots of motor boats shall report in writing to the office of the chief of the Division of Boiler Inspection any accident causing damage in excess of $100. They shall also promptly report any other pilot who does not properly discharge the duties of a pilot and any person who flashes a light into the face of a pilot or otherwise commits an act that endangers the safety of a motor boat.

Statutory Authority: *MS s 183.38; 183.41*

5225.6800 TOWING ROW BOATS.

Every owner or lessee of a sailing or power vessel carrying passengers for hire which tows trailer rowboats shall see that the rowboats towed are provided with oars, even when they are equipped with outboard motors.

Statutory Authority: *MS s 183.38; 183.41*

5225.6900 ENGINE MUFFLERS.

Vessels propelled by an internal combustion engine shall at all times be so equipped as to completely and effectually "muffle" the sound of such engine by diverting its exhaust under water, or otherwise. Every vessel subject to these rules may be operated with mufflers or cutouts while actually competing in any race licensed to be held by the council or other governing body of the city, village, or town adjacent or nearest to that portion of the body of water on which such race is to be held.

Statutory Authority: *MS s 183.38; 183.41*

5225.7000 CONSTRUCTING RULES.

In obeying and constructing these rules due regard shall be had to all dangers of navigation and collision, and to any special circumstances which may render a departure from parts 5225.6000 to 5225.7200 necessary in order to avoid immediate danger.

Statutory Authority: *MS s 183.38; 183.41*

5225.7100 CONSEQUENCES OF NEGLECT.

Nothing in parts 5225.6000 to 5225.7200 shall exonerate any vessel, or the owner or pilot or crew thereof, from the consequences of any neglect to keep proper lookout, or of the neglect of any precaution which may be required by the ordinary practice of good navigation, or by special circumstances of the case.

Statutory Authority: *MS s 183.38; 183.41*

5225.7200 PASSENGER CAPACITY.

The capacity of all steam and gasoline vessels not otherwise provided for shall be determined by the following rules, to wit: multiply the length (in feet), the breadth of the planking or plating, and the depth inside at the place of minimum depth. The product of these dimensions multiplied by .6, excluding fractional part of such product, shall be deemed the capacity of cubic feet. To determine the number of persons a boat is permitted to carry on the inland waters of this state, divide such product by eight and drop any resulting fraction.

Example: The carrying capacity of a boat 18 feet in length, 5-1/2 feet in breadth, and 2-1/4 feet in depth shall be determined as follows:

$$18 \times 5\text{-}1/2 \times 2\text{-}1/4 \times .6 = \frac{134}{8} = 16 \text{ persons}$$

Then estimate the weight of all equipment and machinery and divide by 150. To this quotient add one and subtract this sum from the number secured by the above formula.

Example: Weight of equipment and machinery, 450 lbs.

450 ÷ 150 = 3 + 1 = 4

16 - 4 = 12 passengers

Statutory Authority: *MS s 183.38; 183.41*