



⁴MECHANICAL INSPECTION

BUREAU,

¹New Jersey, ²Department of Labor and Industry,
³Division of Labor Standards,
P. O. Box 1503, Trenton, N. J. 08625

RULES AND REGULATIONS

Ronald M. Heymann
Commissioner

(In accordance with Title 34, Chapters 1 and 7 of the Revised Statutes)

Engineers' and Firemen's Licenses
Boiler Construction and Inspection
Refrigeration Installation and Inspection
Pressure Vessels, Fired and Unfired

AUGUST 1971

NJ/KAB
LI/M4 C.2
1971

**MECHANICAL
INSPECTION BUREAU**

John L. Sullivan, Deputy Director

**BOARD OF BOILER, PRESSURE
VESSEL AND REFRIGERATION RULES**

COMMISSIONER RONALD M. HEYMANN, CHAIRMAN

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GUIDE RULES

1

The Mechanical Inspection Bureau, the Examining Board and the Board of Boiler, Pressure Vessel and Refrigeration Rules were instituted in the interest of safety and efficiency in construction, operation, use and inspection of such steam and power generators, heating plants, hoisting machines, refrigeration equipment, pressure vessels and such additional equipment assigned by statute to their jurisdiction; and to engineering practice in general throughout the State, for the protection of life and property. With that end in view, engineers, contractors, owners, lessees, operators, inspectors and others concerned should advise this Bureau of any existing dangerous hazards or law violations that come to their attention. Such reports will be considered confidential.

2

Operating engineers and firemen are issued licenses in various classifications and grades after examination in accordance with their qualifications. It is the duty of engineers and firemen on watch to give constant attention to the equipment entrusted to their care to the extent that they know at all times it is operating with safety. The length of time during which they can properly be away from this equipment varies according to its nature and size and to load conditions. Under no circumstances should an engineer or fireman be required by the owner or management to stay away from his equipment to the detriment of its safe operation.

It is the responsibility of the licensed operator to determine how long he can stay away and not jeopardize the safe operation of the equipment under his care.

3

Equipment requiring the attention of licensed operators is listed below:

1. Any steam boiler, steam generator, hot water boiler for service over 250°F., or similar equipment potentially capable of generating steam having safety valve or valves set higher than fifteen pounds per square inch gage and rated over six horsepower.

2. A steam or hot water heating plant of which the indicated or rated capacity exceeds either 499 square feet of heating surface or 100 boiler horsepower or 1,000 Kilowatts or 4,000,000 British thermal units input regardless of pressure or temperature conditions, as required by 34:7-1, R.S.
3. Any steam turbine, steam engine or other steam driven prime mover, rated over six horsepower.
4. Any refrigerating system using a refrigerant which is either flammable or toxic and rated over six tons of refrigerating capacity.
5. Any hoisting machine with a boom exceeding 99 feet in length.

4

For purposes of interpretation the following definition of "Buildings of Public Assembly" has been accepted.

"Buildings of Public Assembly, for the purpose of enforcing Sections 34:7-1 and 34:7-14 of the Revised Statutes, shall be those wherein members of the public assembled therein are subjected to a potentially dangerous situation due to the nature or density of the assemblage.

Such buildings shall include those buildings open to the general public such as those used for educational, fraternal, governmental or religious activities, for sports or amusement or as hospitals, eleemosynary or penal institutions."

5

All engineers, contractors, suppliers, owners, operators, inspectors and others concerned should be conversant with the rules and regulations.

6

Always have all required certificates and licenses posted in a conspicuous place and available at all times.

Manufacturer's data reports (and specifications, drawings and calculations when required) for boilers and unfired pressure vessels manufactured or used within the jurisdiction of this State must be filed with the Mechanical Inspection Bureau, Department of Labor and Industry, Trenton, N. J.

Users of boilers, pressure vessels and refrigeration plants and other objects subject to the inspection and licensing acts, should be guided by their authorized inspectors relative to the jurisdiction of the Bureau for purposes of registration, certification and licensing.

When contracting for or purchasing new or secondhand boilers, unfired pressure vessels, or boiler appliances always specify A.S.M.E. Code, which is approved in this State. Copies of the various sections of the Code may be obtained from the American Society of Mechanical Engineers, United Engineering Center, 345 East 47th Street, New York, N. Y. 10017.

When writing this Bureau in reference to a boiler, heating equipment, refrigerating system or unfired pressure vessel, always give New Jersey State inspection registration number in the upper left corner of the registration certificate, manufacturer's serial number, A.S.M.E. or National Board number and name of manufacturer.

When writing in reference to A.S.M.E. Boiler or Unfired Pressure Vessel Code always refer to edition, section, page and paragraph.

Address all communications to the Mechanical Inspection Bureau, Department of Labor and Industry, John Fitch Plaza, P. O. Box 1503,

Trenton, N. J. 08625.

EXAMINING BOARD

John L. Sullivan, Deputy Director and Chief

Allan N. Sherwood Assistant, Chief

George Beach, Jr., Examining Engineer

Dudley L. Hawley, Examining Engineer

ENGINEERS' AND FIREMEN'S LICENSES

1

Application for license must be made on forms provided by the Mechanical Inspection Bureau. The statements on the first or original application should be endorsed by two engineers each holding a valid New Jersey license. Substitution for the signatures of these endorsers may be a Marine Engineer's License, another State or City License, an honorable U. S. Service or Merchant Marine discharge establishing required engineering experience, or written statements from two former or present employers signed by responsible endorsers and showing required engineering experience. Endorsements are not required for "Low Pressure" or "Special" licenses.

2

Applications must be typewritten or legibly printed in ink. All applications must be carefully completed and notarized. Applicant's statement must indicate the actual experience as specified in the eligibility requirements. Nothing but pertinent and applicable paid, lawful and full-time experience should be listed, and should have been completed within seven years of the filing of application.

3

An "Original Application" will not be accepted from a non-resident unless accompanied by a letter from a prospective employer in the State of New Jersey indicating desire to employ applicant should he qualify.

4

An applicant must be a citizen of the United States or have officially declared his intention of becoming a citizen as provided by

34:7-2 R.S. Foreign-born applicants must present citizenship or proof of declaration of intention papers at time of examination.

5

No license will be granted to a person less than eighteen years of age.

6

The fee for examination for "Original License" is ten dollars (\$10.00), for "Raise of Grade" or "Additional Classification" is seven dollars (\$7.00) and must accompany application. No annual renewal fee is charged for additional classifications on any license.

7

FEE FOR APPLICATION FOR LICENSE SHALL BE IN THE FORM OF CHECK OR MONEY ORDER MADE PAYABLE TO THE ORDER OF THE MECHANICAL INSPECTION BUREAU. NO RISK WILL BE ASSUMED BY THIS OFFICE FOR LOSS IN TRANSMISSION OF FEE.

8

All correspondence relative to licenses or applications shall be addressed to the MECHANICAL INSPECTION BUREAU, DEPARTMENT OF LABOR AND INDUSTRY, John Fitch Plaza, P. O. Box 1503, Trenton, N. J. 08625. Notify the Bureau of any change of residence. When writing specify license number.

9

Applicants will be notified when and where to appear for examination. Failure to appear will be considered sufficient cause to discard the application, unless satisfactory reasons are given.

Failure to appear for examination or to obtain a passing grade shall not entitle the applicant to a refund of any fee.

Examinations will be held on the first Wednesday of each month, at Trenton, and at various other points throughout the State when warranted.

License classifications are indicated as follows:

Special	Limited Applications
Boiler Fireman – Low Pressure	
Boiler Fireman in Charge – Low Pressure	
Boiler Fireman – High Pressure	
Boiler Fireman in Charge – High Pressure	
1–(A, B and C)	Steam Stationary – Power and Industrial
2–(A, B and C)	Refrigeration
3–(A, B and C)	Nuclear
4–(A, B and C)	Steam Stationary – Boiler Plant-Heating
7–(C)	Hoisting Machines, Long Boom
8–(A, B and C)	Steam Portable – Various Classifications
9–(A and B)	Steam Portable – Locomotive Cranes

The letters "A", "B" and "C" are used to designate GRADE of license. "A" or Gold Seal, designates a first-grade license; "B" or Red Seal, a second-grade license; and "C" or Blue Seal, a third-grade license. A Black Seal designates Boiler Fireman. If "In-Charge", the license is so stamped on the face.

Licenses bearing merely the impression of the Department Seal are issued as Special Licenses and are limited to operation of equipment specified on the face of same. These licenses may be transferred to similar equipment upon Bureau approval following written request by applicant or employer.

Duplicate licenses may be issued at the discretion of the Examining Board. The fee for a duplicate license is three dollars (\$3.00) for one year. A request for a duplicate license should be accompanied by a letter from the company desiring to employ the licensee. The duplicate license will specify the plant where it is to be used and may be transferred upon Bureau approval following written request.

13

To be eligible for "Fireman" or "Fireman in Charge" exam, either low or high pressure, applicant must have had at least three months' experience as a helper, apprentice or assistant to a licensed operator of equipment requiring such license. A licensed "Fireman" may be eligible for examination for an "In-Charge" license after three months actual service in the operation of boilers requiring such license.

The Examining Board may accept applications for Low Pressure Fireman's license based on thirty days experience if the applicant has been given intensive training for the period by a licensed operator, and the application is accompanied by a letter from the instructor or the employer verifying that the applicant was given such training.

To be eligible for a High Pressure Fireman in Charge license an applicant may be eligible if he obtains six weeks experience in lieu of the normal three months requirement, providing he is given intensive training for the period by the licensed operator, and the Chief Engineer verifies such training by means of a letter attached to the application. If the applicant has had six months experience as a licensed low pressure fireman, the six week period may be reduced to thirty days.

14

To be eligible for a Third Grade steam engineer's examination (1-C, 4-C or 8-C) applicant must have a Fireman in Charge license and show at least six months subsequent experience in the operation of the type of equipment requiring supervision by a Third Grade Engineer, or as an assistant in the operation of equipment requiring a Third Grade license. Experience obtained elsewhere than in New Jersey may be considered on the basis of the applicant having served at least two years as a fireman or one year as a fireman and one year as an assistant to an engineer in the operation of equipment of comparable size as specified above.

To be eligible for a Third Grade refrigeration engineer's examination (2-C) where the refrigerant used is flammable or toxic, applicant must have had at least one year's experience as an operator's assistant; or six months' experience as an operator of such equipment. In lieu of the above experience an applicant may be considered eligible after six months experience as an operator's assistant providing he has been given intensive training for the period by the licensed operator, and the Chief Engineer verifies such training and experience by letter. In lieu of the intensive training as noted above, an applicant may be eligible if he has had at least one year's experience as an operator of a non-toxic refrigeration system of at least 500 tons capacity in addition to the six months as assistant to the licensed operator of equipment using flammable or toxic refrigerant.

To be eligible for a Nuclear engineer's examination (3-C) an applicant must hold certification by the U. S. Atomic Energy Commission qualifying him for operation of Nuclear equipment.

To be eligible for a Hoisting Machine Long Boom Operator's license (7-C) applicant must show at least six months experience as an operator of hoisting machines. At least three months of this must be verified experience on units equipped with long booms.

An applicant for original license, change of classification, or raise of grade, may show in writing, as a substitute for a minor portion of the experience listed above, non-operating experience, such as servicing, maintenance, repair or installation of equipment affected by the license law; or satisfactory proof of completion of sufficient formal education or academic study embracing such equipment.

To be eligible for a Second Grade engineer's examination in any

classification, applicant must have a Third Grade license and show at least one year's subsequent practical experience as an engineer in such grade or show experience of an equivalent amount and grade under some other jurisdiction.

20

To be eligible for a First Grade engineer's examination in any classification, applicant must have a Second Grade license and shall have subsequently served one year as Supervising or Chief Engineer in a plant requiring supervision by a Second Grade engineer, or have two years' subsequent practical experience as an operating engineer in a plant requiring supervision by a First Grade engineer, or show experience of an equivalent amount or grade under some other jurisdiction.

21

When an applicant's engineering experience and training warrants, the Examining Engineer may determine the classification and grade of license most suitable.

22

Examinations for engineer's licenses shall be conducted in a written form and shall consist of as many questions and be of such nature as the Examiner shall consider appropriate for the license desired. The privilege of oral examination, to determine the experience of the applicant, his habits and general fitness to perform the duties of an engineer or fireman, shall be allowed the Examiner.

23

Examination for fireman's license shall consist of such questions as the Examiner shall consider proper and shall pertain to the safe operation of steam and hot water boilers, appliances, auxiliaries and such other equipment covered by statute.

24

An applicant, unable to qualify by written examination, may, upon satisfactory certified written request, be orally examined.

Questions used in an examination shall not be copied by any applicant or retained by the applicant after examination, or taken from the presence of the Examiner during the examination. Violation of this rule will be sufficient cause for cancellation of application. **SMOKING IS NOT PERMITTED DURING EXAMINATION.**

When a license applicant fails to pass an examination in specified classification and grade, the Examiner may, at his discretion, assign to him the classification and grade considered appropriate. Applicant may not be re-examined for a period of at least three months. He may, however, be allowed one re-examination, without additional charge, within six months of the original. If again unsuccessful, he may request additional examinations, provided that each request be accompanied by a fee of five dollars (\$5.00).

A license will be given a designation as Grade "A" when an average of 80% or more is attained on Grade "A" examination.

A license will be given a designation as Grade "B" when an average of 70% or more is attained on Grade "B" examination.

A license will be given a designation as Grade "C" when an average of 60% or more is attained on Grade "C" examination.

No license will be granted on an average of less than 60%.

For interpretative purposes, total capacity shall be defined as the sum of the manufacturer's ratings of all units comprising the system. One Boiler Horsepower shall be considered as the evaporation of 34.5 pounds of water, from and at 212°F., or equivalent. Lacking reliable means of determination, 5 square feet of boiler heating surface or 10 Kilowatts input or 40,000 B.T.U. input shall be deemed as one Boiler Horsepower.

A fireman holding a "Fireman in Charge" license may act as Chief of an installation of 500 boiler horsepower or less. He may assume charge of a shift, under the supervision of a properly licensed Chief Engineer, in installations not over 1,000 boiler horsepower. When the total capacity exceeds 1,000 boiler horsepower, he may act as fireman, under the direction of, and responsible to, a properly licensed Engineer in charge of his shift.

A licensed fireman may operate on a shift as assistant to a licensed engineer or a licensed Fireman in Charge.

An engineer holding a "C" or Third Grade License of the proper classification may act as Chief Engineer of any plant where the total capacity of the equipment involved does not exceed 1,000 boiler horsepower, 100 engine horsepower or 65 Tons refrigerating capacity. He may also act as operating engineer, under the supervision of a properly licensed Chief Engineer, in installations exceeding the above limits.

An engineer holding a "B" or Second Grade License of the proper classification may act as Chief Engineer of any plant where the total capacity of the equipment involved does not exceed 3,000 boiler horsepower, 500 engine horsepower, or 300 Tons refrigerating capacity. He may also act as operating engineer, under the supervision of a properly licensed Chief Engineer in installations exceeding the above limits.

An engineer holding an "A" or First Grade License of the proper classification may act as Chief Engineer in any plant.

Any person using fraudulent means to obtain a license shall be subject to prosecution. Any license acquired through such means shall be invalid.

Any license may be suspended or revoked for incompetence, negligence, intoxication while on duty, or for any other valid reason establishing that the licensee is unfit to hold a license.

Any license or identification card shall be picked up and immediately revoked if, for any purpose, it is loaned, abandoned or allowed to pass from the personal control of the owner.

All licenses shall expire unless renewed on or before the anniversary month of the original license. Changing of grade or addition of classification shall not change this anniversary date.

A LICENSE IS AUTOMATICALLY CANCELLED ON THE DATE OF ITS EXPIRATION. ANY PERSON PERFORMING THE DUTIES OF A LICENSEE AND HOLDING AN EXPIRED LICENSE IS SUBJECT TO THE PENALTY PROVISIONS UNDER R. S. 34:7-6, AS IS HIS SUPERVISOR AND EMPLOYER. LICENSE MAY BE RENEWED WITHIN THIRTY DAYS PRIOR TO THE DATE OF ITS EXPIRATION.

APPLICATION FOR RENEWAL OF AN EXPIRED LICENSE (IF MADE WITHIN THREE YEARS AFTER EXPIRATION DATE, AND IF ALL PENALTIES LAWFULLY IMPOSED ON THE APPLICANT BY THE MECHANICAL INSPECTION BUREAU HAVE BEEN PAID) MUST BE ACCOMPANIED BY A FEE OF FIVE DOLLARS (\$5.00).

APPLICATION FOR RENEWAL OF A LICENSE EXPIRED MORE THAN THREE YEARS SHALL BE TREATED AS AN "ORIGINAL" APPLICATION. ALL RECORDS OF PREVIOUS LICENSE MAY BE DESTROYED.

38

When applying for renewal of license it is necessary to return only the signed identification card with fee of three dollars (\$3.00) for one year renewal or eight dollars (\$8.00) for a three year renewal. Permanent license should remain posted.

39

An altered, defaced or otherwise mutilated license will be renewed only after review by the Bureau. Photostats, photographs or reproductions of a license have no status and shall not be recognized.

40

Employers shall immediately notify the Mechanical Inspection Bureau, in writing, if for any reason of emergency it becomes necessary to employ an unlicensed person temporarily (not to exceed fifteen days) explaining fully the circumstances, and to again notify the Bureau when a licensed man is employed, giving the name, address, and license classification, grade and number of such employee.

41

A license issued after examination covering one or more classifications is valid in any plant where the class of engineering is within the scope of license issued.

42

All licenses must be framed and properly posted adjacent to the equipment involved, or in the engineer's or plant office, whichever is suitable, and must be available when authoritatively required. Penalty may be imposed for violation.

43

Identification cards are issued to all licensees.

FOR THE PURPOSE OF EXAMINATION OR INSPECTION OF ANY STEAM BOILER, PRESSURE VESSEL, REFRIGERATION SYSTEM, POWER PLANT OR OTHER EQUIPMENT INCLUDED IN THESE STATUTES, THE COMMISSIONER OF LABOR AND INDUSTRY OR ANY MEMBER OF THE MECHANICAL INSPECTION BUREAU MAY ENTER SUCH PREMISES AT ALL REASONABLE HOURS.

“Any owner, lessee or operator of any steam or hot water boiler or similar equipment specified in section 34:7-14 of this Title, pressure vessel or refrigeration system who shall use, cause or allow to be used such steam or hot water boiler or similar equipment specified in section 34:7-14 of this Title, pressure vessel or refrigerating system in violation of any provisions of this article shall be liable to a penalty of not less than \$50.00 nor more than \$100.00 for each first offense and not less than \$100.00 nor more than \$500.00 for each subsequent offense, to be collected by a civil action or, in the Commissioner’s discretion, to be imposed by the Commissioner as a compromise. . . .” (34:7-26, R.S.)

BOILER CONSTRUCTION AND INSPECTION

1

“No steam boiler . . . shall be installed or used in this State unless it conforms to such rules, regulations and standards as are from time to time adopted by the Board of Boiler, Pressure Vessel and Refrigeration Rules, and approved by the Commissioner . . .” (34:7-23, R.S.)

2

All steam or hot water boilers or similar equipment covered by these statutes (34:7-14, et seq.) must be constructed and installed in accordance with New Jersey approved standards. To meet these requirements, the boiler should be constructed and installed in accordance with the American Society of Mechanical Engineers Code and stamped either New Jersey Standard, New Jersey Approved, A.S.M.E. or National Board. In the absence of applicable rules “New Jersey Special” construction and stamping may be requested.

All steam or hot water boilers or similar equipment potentially capable of generating steam having 10 square feet or more of heating surface or a heat input of 10 Kilowatts or more or 40,000 B.T.U. per hour, except when such steam or hot water boilers serve dwellings of less than 6-family units or other dwellings with accommodations for less than 25 persons, shall be inspected and be subject to a hydrostatic test, if necessary, at least once in each year, at 12-month intervals. Such inspection shall be as completely internal and external as construction permits. In addition to the annual internal and external inspection, there may be an external inspection, if found necessary, which shall be made as nearly as may be at the expiration of six months from each annual inspection. Inspections may be made more frequently if conditions warrant.

(a) An insurance company making an annual inspection shall pay a fee of five dollars (\$5.00) to the State, payable by and collected from the user by the inspector at the time of inspection for each boiler. (34:7-19, R.S.)

(b) The owner or user may request State inspection. A fee based on boiler heating surface, for each annual internal and external inspection, which shall include hydrostatic test if found necessary, shall be paid to the inspector as follows:

10 and not over 60 sq. ft.	\$ 10.00
Over 60 and not over 1,000 sq. ft.	15.00
Over 1,000 sq. ft.	25.00

In addition to the inspection fee, the travel expense of the inspector must be paid at the time of inspection.

(c) In addition to the annual internal and external inspection, there may be an external inspection for which the owner or user shall pay to the State inspector a fee of ten dollars(\$10.00) in addition to the travel expense, at the time of inspection. (34:7-16, R.S.)

5

The boiler to be inspected must be open, clean, cool and ready for the inspector. The inspector's recommendations must be complied with promptly.

6

Repairs to a boiler or its connected piping must be satisfactory to an authorized boiler inspector employed by an insurance company or the State and performed under his guidance in accordance with National Board Recommended Rules for Repairs. A Record of Welded Repairs should be filed with the Bureau.

7

Every boiler approved for use in the State is assigned a Registration Number, which may be found in the upper left-hand corner of the Boiler Certificate. At the direction of the inspector of the boiler, this number must be stamped directly on the boiler drum, near the manufacturer's stamping, in letters at least $\frac{1}{4}$ " high, or as otherwise directed. This number must also be attached to the front of the boiler, in such a manner as to be plainly visible.

8

The State Boiler Inspection Certificate must be properly framed and posted in the boiler or engine room, engineer's or plant office, whichever is suitable, providing the certificate is available when authoritatively required.

9

STEAM BOILER BLOWDOWN TANKS

The construction and installation of steam boiler blowdown receivers are regulated by the Board of Boiler, Pressure Vessel and Refrigeration Rules. Copies of rules affecting blowdown receivers may be obtained upon application.

“Any owner, lessee or operator of any steam or hot water boiler or similar equipment specified in section 34:7-14 of this Title. . . . who shall use, cause or allow to be used such steam or hot water boiler or similar equipment specified in section 34:7-14 of this Title. . . . in violation of any provision of this article shall be liable to a penalty of not less than \$50.00 nor more than \$100.00 for each first offense and not less than \$100.00 nor more than \$500.00 for each subsequent offense, to be collected by a civil action or, in the Commissioner’s discretion, to be imposed by the Commissioner as a compromise. . . .” (34:7-26, R.S.)

REFRIGERATION INSTALLATION AND INSPECTION

1

“No. . . . refrigeration system shall be installed or used in this State unless it conforms to such rules, regulations and standards as are from time to time adopted by the Board of Boiler, Pressure Vessel and Refrigeration Rules, and approved by the Commissioner. . . .” (34:7-23, R.S.)

2

All refrigeration systems using flammable or toxic refrigerants of over 3 Tons of refrigerating capacity or requiring over 6 driving horsepower, and all systems using non-flammable and non-toxic refrigerants of over eighteen Tons refrigerating capacity or requiring over 36 driving horsepower, having relief devices set over 15 psig., must be inspected annually by an authorized State or insurance company inspector.

3

(a) An insurance company making an annual inspection of refrigeration systems shall pay a fee of five dollars (\$5.00) to the State, payable by and collected from the user by the inspector at the time of inspection for each system.

(b) The owner or user may request State inspection. A fee, based on the size of the system, shall be paid to the State inspector as follows:

Over 3 and under 25 Tons	\$ 15.00
Over 25 Tons of Refrigerating capacity . . .	25.00

In addition to the inspection fee, the travel expense of the inspector must be paid at the time of inspection.

4

It shall be the responsibility of the operator and inspector to carefully check for indication of irregular, faulty or hazardous conditions. This inspection shall include the liquid receiver, condenser, all safety valves and their discharge points, gages, controls and all other items which might be considered potentially critical.

5

The inspector should check operators' licenses where such are required, also State Registration Certificate, and make note of same on inspection report.

6

A relief device of proper size must be installed on the compressor discharge line, located between the compressor outlet port and the discharge shut-off valve; this can discharge into the suction side. Such devices must also be installed to relieve from the gas space of the liquid receiver, condenser and other pressure vessels in the system.

7

These relief devices must discharge to the atmosphere at a safe point and through a diffuser. Where discharge to the atmosphere is impracticable or hazardous to the immediate neighborhood, said discharge may be into a receptacle through which the refrigerant can be safely disposed of.

Refrigeration systems specified in 34:7-15, R.S. shall be installed in accordance with the accepted requirements of the American Standard Safety Code for Mechanical Refrigeration, as published by the American Society of Refrigerating Engineers.

All pressure vessels used for refrigeration systems must meet the requirements of unfired pressure vessel regulations as shown on following pages.

“Any owner, lessee or operator of any . . . refrigeration system who shall use, cause or allow to be used such . . . refrigeration system in violation of any provision of this article shall be liable to a penalty of not less than \$50.00 nor more than \$100.00 for each first offense and not less than \$100.00 nor more than \$500.00 for each subsequent offense, to be collected by a civil action or, in the Commissioner’s discretion, to be imposed by the Commissioner as a compromise. . . .” (34:7-26, R.S.)

PRESSURE VESSELS, FIRED AND UNFIRED

Amending and Supplementing Revision of June 20, 1962

(P. L. 1935, Amended 1960)

“No. . . pressure vessel. . . shall be installed or used in this State unless it conforms to such rules, regulations and standards as are from time to time adopted by the Board of Boiler, Pressure Vessel and Refrigeration Rules, and approved by the Commissioner. . . .” (34:7-23, R.S.)

Scope — These rules and regulations govern the construction, inspection, installation, repair and alteration of pressure vessels.

Classification – Pressure vessels subject to these rules must meet or exceed the minimum requirements of their specific category, designated as CLASS I, CLASS II, CLASS III or CLASS IV.

Class I – Pressure vessels designated as CLASS I must conform in all respects to the pertinent sections of the A.S.M.E. Boiler and Pressure Vessel Code as formulated by the American Society of Mechanical Engineers and valid at the time of construction. All shop inspections of CLASS I vessels must be conducted by qualified inspectors who shall satisfy the requirements of the Code and shall be in possession of a valid National Board of Boiler and Pressure Vessel Inspectors' Commission. ALL CLASS I pressure vessels must be stamped and identified as prescribed by the Code. CLASS I pressure vessels should also be stamped as designated by the National Board.

Class II – Existing pressure vessels constructed previous to January 1, 1957 in accordance with the rules of the API-ASME Code and registered with the State prior to January 1, 1957.

Class III – Pressure vessels designated as CLASS III may fall into either of three groups, identified as NEW JERSEY STANDARD, NEW JERSEY SPECIAL and NEW JERSEY APPROVED.

New Jersey Standard – Constructed in accordance with the provisions of the latest edition of the A.S.M.E. Code Rules approved by the New Jersey Board of Boiler, Pressure Vessel and Refrigeration Rules; inspected by a New Jersey Authorized Inspector and subsequently stamped NEW JERSEY STANDARD.

New Jersey Special – Constructed as far as possible in accordance with the provisions of the A.S.M.E. Code Rules, deviating only in the absence of applicable provisions. Drawings and calculations, fully descriptive of such construction, with Code inapplicability noted, must be approved by the Bureau prior to construction. A Construction Review fee of Two Hundred Dollars is mandatory. All such vessels shall be inspected by a New Jersey Authorized Inspector, in accordance with whatever test provisions the Bureau shall consider appropriate, following which the pressure vessel may be approved and stamped NEW JERSEY SPECIAL.

New Jersey Approved – Existing vessels which have been constructed contrary to the provisions of the A.S.M.E. Code may be adjudged eligible for such classification after appropriate evidence has been considered. A Construction Review fee of Two Hundred Dollars is mandatory. Complete inspection and thorough testing to the satisfaction of a specifically assigned New Jersey Authorized Inspector shall be required, as may be periodic re-inspection. If acceptable, the maximum allowable working pressure at a given temperature may be limited to a maximum of 80% of that to which the vessel can be computed in accordance with the requirements of the ASME Code. If approved the vessel shall be stamped NEW JERSEY APPROVED, under the direction of the Authorized Inspector.

NOTE: A vessel to be eligible for this classification should be a used vessel since provisions for new vessels are included under the CLASS I and NEW JERSEY SPECIAL rules. The history of such used vessel should accompany the initial request by the owner of the plant in which the vessel is in service or is intended to be placed in service.

Class IV – Pressure vessels designated as CLASS IV are “User-Inspected”, where applicable, warranted and expressly permitted by the Mechanical Inspection Bureau. To qualify as such, a “User-Inspector” must be continuously employed as a full-time inspector by the inspection division of a user maintaining an adequate pressure vessel design and inspection section. A user-inspector must be approved by and registered with the Bureau, which reserves the right to withdraw such approval at its absolute discretion. The Bureau shall also be furnished, upon request, such copies of design, material specification calculations and allied data as available or needed in such manner as it may require and shall retain its prerogative of such supervision over user-inspections, joint inspections and/or re-inspections as it may deem necessary. Such vessels may be constructed and stamped in accordance with the “User-Inspection” provisions of the A.S.M.E. Code.

Inspection Fees – Fees not to exceed ten dollars (\$10.00) per vessel shall be charged, provided there be a minimum charge of not less than twenty-five dollars (\$25.00) not more than fifty dollars (\$50.00) per visit, to which shall be added the inspector’s actual travel expense.

State Registration of National Board or State Inspected Vessels – No original registration or registration fee required since registration is forwarded by the National Board or the State Inspector.

Registration Fees – In instances other than those in Item 5, manufacturer's data reports in duplicate, with a fee of two dollars (\$2.00) for each vessel, must be forwarded to the Bureau for approval and registration. One copy, when approved, will be returned to the user of the vessel. Where reports are not filed, the vessel will be subject to inspection and State Inspection fees.

Pressure Vessel Repairs and Alterations – Pressure vessel repairs and alterations shall be performed according to the applicable rules, under the guidance of a National Board Inspector, New Jersey Authorized Inspector or a User-Inspector as defined under paragraph 2, Class IV.

PARTIAL EXEMPTIONS

PE-1 Unfired pressure vessels in which steam is not generated, and which do not exceed the following volume and pressure limits, may be exempted from shop inspection by qualified inspectors, provided that they COMPLY IN ALL OTHER RESPECTS WITH THE REQUIREMENTS OF THESE RULES:

(a) 5 cubic feet in volume and 250 pounds per square inch design pressure.

(b) 1½ cubic feet in volume and 600 psig. design pressure. Such vessels should be of simple, single wall construction. Shell and tube heat exchangers, jacketed vessels and other type vessels which may be subject to differential pressures should be SHOP INSPECTED. Vessels exempted from Code inspection by this rule shall be stamped with "UM" symbol, or as otherwise provided for construction other than "Class I".

EXEMPTIONS

- E-1 Pressure vessels subject to Federal control provided they are under active regulation by a Federal agency.
- E-2 Vessels with a nominal water-containing capacity of 120 gallons or less for containing water under pressure, including those containing air, the compression of which serves only as a cushion.
- E-3 A hot-water supply storage tank heated by steam or any other indirect means when none of the following limitations is exceeded:
- (a) A heat input of 200,000 BTU per hour.
 - (b) A water temperature of 200°F.
 - (c) A nominal water-containing capacity of 120 gallons.
- E-4 Vessels having an internal or external operating pressure not exceeding 15 psig. with no limitation on size.
- E-5 Vessels having an inside diameter not exceeding six inches with no limitation on pressure.

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“Any owner, lessee or operator of any . . . pressure vessel. . . who shall use, cause or allow to be used such. . . pressure vessel. . . in violation of any provision of this article shall be liable to a penalty of not less than \$50.00 nor more than \$100.00 for each first offense and not less than \$100.00 nor more than \$500.00 for each subsequent offense, to be collected by a civil action or, in the Commissioner’s discretion, to be imposed by the Commissioner as a compromise. . . .”
(34:7-26, R.S.)

APPENDIX

Supplemental references to various rules are as follows:

ENGINEERS' AND FIREMEN'S LICENSES

When more than one licensed operator is required in any plant, Management shall designate a Chief Engineer holding the proper grade and classification of license as otherwise required by the Rules and Regulations.

ACTING CHIEF ENGINEER: In instances where every reasonable effort has been made by an employer to obtain a properly licensed Chief Engineer, the Bureau may recognize an engineer holding a license one grade lower than required as Acting Chief Engineer, upon written application by the employer. Such recognition is only allowed on a temporary basis. Similarly the Bureau may grant Acting Engineer status in accordance with guidelines established by the Examining Board.

LICENSE REQUIREMENTS – “HOT OIL GENERATORS”: Whenever so-called “hot-oil” generators or fluids other than water are used to produce steam indirectly, a license is required. The grade of license is as otherwise required under the Rules and Regulations.

Supplemental references to various rules are available on the following subjects:

- Form MI-22(a) – Information as to how to obtain proof of Declaration of Intention of becoming a citizen of the U. S. A.
- Form MI-28 – Grade of license required, based on boiler horsepower, for operation of boilers or similar equipment potentially capable of generating steam.
- Form MI-29 – Grade of license required based on horsepower of steam driven prime movers.
- Form MI-31 – Grade of license required based on total tonnage of toxic refrigeration systems.

BOILER CONSTRUCTION AND INSPECTION

EXISTING LOW PRESSURE BOILERS: Boilers installed prior to the effective date of statutory regulation remain valid while the Bureau is in receipt of favorable and current inspection reports. Such boiler installations shall be converted, as soon as practicable, to conform, insofar as appliances, auxiliaries and safety devices are concerned, to Section IV of the ASME Code entitled "Heating Boilers".

BOILER INSTALLATIONS: Wherever possible, boilers or similar equipment potentially capable of producing steam, shall be installed above grade or at street level. However, if installed in a basement or below grade or street level, there shall be ample ventilation, egresses, space and insulation against fire hazards. Refer also to local authorities and other agencies.

NATIONAL BOARD INSPECTION CODE: Published by and available from the National Board of Boiler and Pressure Vessel Inspectors, 1155 N. High Street, Columbus, Ohio 43201, has been adopted by the New Jersey Board of Boiler, Pressure Vessel and Refrigeration Rules. Specific attention is called to the Recommended Rules for repairs to boilers and pressure vessels, which should be made in accordance with Chapters IV and VI as applicable. Inspectors who have been issued a Certificate of Competency by the Mechanical Inspection Bureau should also be guided by Chapters III, V and VII. Welded repairs and alterations should be made by a contractor holding authorization from ASME for the appropriate Symbol required in order to preserve the Code validity of the boiler or pressure vessel. A record of welded repairs or alterations must be filed with the Bureau.

ULTRASONIC TESTING: The Bureau may consider accepting ultrasonic test reports as a form of internal inspection for the purpose of compliance with Section 34:7-14 R.S. under certain specific instances upon application. It will be considered under the following circumstances:

- (1) When it is operationally impractical to take the boiler out of service during the 12-month period.
- (2) If the user has a regularly scheduled full time "in-service" inspection program.
- (3) Ultrasonic inspection, in lieu of the annual out-of-service and open internal and external inspection, will only be considered when it is made within a 12-month period following the internal and external inspection.

- (4) The insurer or the authorized inspection agency indicates acceptance of the ultrasonic testing.
- (5) A history of the unit in reference to operational characteristics, results of inspections, corrosion rates, ultrasonic procedures, etc. will be required.

SECONDHAND BOILERS: The term "Secondhand Boiler" shall mean a used boiler, the location and ownership of which have been changed subsequent to the original installation. The Bureau may be guided by and may invoke the provisions of paragraphs EBO-2 and EBO-3 of Chapter 111 of the National Board Inspection Code.

STEAM BOILER BLOWOFF TANKS: The rules governing when such tanks are required, the type and construction details are as indicated on Bureau forms ME-25 (8-61), MI-25-A, ME-26 and ME-27.

PRESSURE VESSELS

NEW JERSEY SPECIAL AND NEW JERSEY APPROVED: Applications for consideration by the Bureau of Non-Code vessels to be designated under either of these classifications should follow the format as indicated in form MI-202 (7-68), and should comply with the rules as detailed in form MI-200.

IMPERVIOUS GRAPHITE MATERIALS: Acceptance of such materials under "New Jersey Special" classification, for use in the fabrication of heat exchangers, while acceptance of this material by the ASME Code is pending, may be authorized by the Bureau. Manufacturers desiring to fabricate vessels utilizing such materials are required to substantiate the design of such vessels and the composition of the material in conjunction with the use of such vessels, upon application by a New Jersey user under the provisions of New Jersey Special Classification.

PRESSURE VESSEL CRITERIA: Machines having pressure containing parts incidental to the prime purpose of the machine, may be exempt if the equipment design criteria results in a strength of the pressure containment portion exceeding that which would be required if designed in accordance with ASME Pressure Vessel Code requirements.