

STATE OF NEW JERSEY



New Jersey Administrative Code (N.J.A.C.) 12:90 BOILERS, PRESSURE VESSELS AND REFRIGERATION

Chapter Authority

N.J.S.A. 34:1-20, 34:1-47, 34:1A-3 and 34:7-18; and Reorganization Plan 002-2002

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Department of Labor and Workforce Development
Labor Standards and Safety Enforcement
Division of Public Safety and Occupational Safety & Health
Bureau of Boiler and Pressure Vessel Compliance

1 John Fitch Plaza
P.O. Box 392
Trenton, NJ 08625-0392

Telephone: (609) 292-2921

Fax: (609) 984-1577

Email: BPVRCompliance@dol.nj.gov

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N.J.A.C. §12:90

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Chapter 90, Boilers, Pressure Vessels and
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SUBCHAPTER 1. GENERAL PROVISIONS

12:90-1.1 Title and citation

This chapter shall be known and may be cited as *N.J.A.C. 12:90*, Boilers, Pressure Vessels and Refrigeration.

12:90-1.2 Authority

These rules are promulgated pursuant to the authority of the Operating Engineers and Firemen Licensing Act, *N.J.S.A. 34:7-1* et seq. and the Boiler, Pressure Vessel and Refrigeration Act, *N.J.S.A. 34:7-14* et seq.

12:90-1.3 Purpose

(a) The purpose of this chapter is to provide reasonable standards for:

1. The protection of life and property in the use of boilers, pressure vessels and refrigeration systems; and
2. The licensing of engineers and boiler operators.

12:90-1.4 Scope

(a) This chapter shall apply to:

1. The design, construction, alteration, repair, operation, use and inspection of boilers, pressure vessels and refrigeration systems; and
2. The examination and licensing of operating engineers, boiler operators and operators of long boom cranes.

12:90-1.5 Documents incorporated by reference

The availability of standards and publications referred to in this chapter is explained in *N.J.A.C. 12:90-9*.

12:90-1.6 Validity

Should any section, paragraph, sentence or word of this chapter be declared for any reason to be invalid, such decision shall not affect the remaining portions of this chapter.

SUBCHAPTER 2. DEFINITIONS

12:90-2.1 Definitions

The following words and terms, when used in this chapter, shall have the following meanings, unless the context clearly indicates otherwise.

"Act" ("Inspection Act") means the Boiler, Pressure Vessel and Refrigeration Act, *N.J.S.A. 34:7-14* et seq.

"Act" ("Licensing Act") means the Operating Engineers and Firemen Licensing Act, *N.J.S.A. 34:7-1* et seq.

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

"ANSI" means American National Standards Institute.

"API" means the American Petroleum Institute.

"API-ASME Code" means the American Petroleum Institute-American Society of Mechanical Engineers Code for Unfired Pressure Vessels for Petroleum Liquids and Gases that existed from 1934 through 1956, and is applicable to Class II unfired pressure vessels described in *N.J.A.C. 12:90-5.5*.

"API certified inspector" means an inspector who is certified by API to perform functions specified in API-510.

"API-510" means the pressure vessel inspection code for maintenance, inspection, repair, alteration, and rerating procedures for pressure vessels used by the petroleum and chemical process industries.

"Approved" means acceptable to the Commissioner of Labor and Workforce Development.

"ASHRAE" means the American Society of Heating, Refrigerating, and Air-Conditioning Engineers.

"ASHRAE 15" means the Safety Code for Mechanical Refrigeration published by the American Society of Heating, Refrigerating and Air-Conditioning Engineers.

"ASHRAE 34" means the standard on Designation and Safety Classification of Refrigerants published by the American Society of Heating, Refrigerating, and Air-Conditioning Engineers.

"ASME" means the American Society of Mechanical Engineers.

"ASME Code" means the Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers.

"Authorized inspection agency" means one of the following:

1. The State of New Jersey;
2. An inspection agency authorized to write boiler and pressure vessel Insurance and having inspectors that are authorized with a valid certificate of competency to inspect; or
3. An owner-user of pressure vessels who maintains an established inspection department, whose organization and inspection procedures comply with the requirements of the National Board or the American Petroleum Institute, as applicable, and which is registered with the Bureau of Boiler and Pressure Vessel Compliance (BBPVC).

"Board" means the Board of Boiler and Pressure Vessel and Refrigeration Rules appointed under *N.J.S.A. 34:1-38.1*.

"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 external use by the direct application of heat. The term "boiler" shall include fired or waste heat units for heating or vaporizing liquids other than water where these units are separate from processing systems and are complete within themselves.

1. "Low pressure boiler" means a boiler complying with *N.J.A.C. 12:90-4.2(b)4*.
2. "Heating boiler" means a steam or vapor boiler operating at a pressure not exceeding 15 psig, or a hot water boiler operating at a temperature not exceeding 250 degrees Fahrenheit.
3. "Hot water heating boiler" means a boiler in which no steam is generated, from which hot water is circulated for heating purposes and then returned to the boiler; and which operates at a pressure not exceeding 160 psig or a temperature of 250 degrees F or both at or near the boiler outlet.
4. "High pressure boiler" means a power boiler in which steam or other vapor is generated at a pressure of more than 15 psig. High pressure boiler also means a high temperature, high pressure water boiler or heat recovery steam generator.
5. "High temperature water boiler" means a water boiler operating at a pressure exceeding 160 psig or a temperature exceeding 250 degrees Fahrenheit.
6. "Heat recovery steam generator" means a high pressure boiler in which steam or other vapor is generated and where steam is super heated. The term 'heat recovery steam generator' shall include both fired and indirect fired units whose heat source is derived from duct burners and/or waste exhaust gasses.

7. "Hot water supply boiler" means a low pressure hot water boiler having a volume exceeding 120 gallons or a heat input exceeding 200,000 BTU/Hour (58.6 KW) or an operating temperature exceeding 200 degrees Fahrenheit, that provides hot water to be used externally to itself.

8. "Unfired boiler" means an unfired pressure vessel in which steam is generated except for evaporators, heat exchangers or vessels in which steam is generated by the use of heat resulting from operation of a processing system containing a number of pressure vessels such as used in the manufacture of chemical and petroleum products.

"Boiler horsepower" means the evaporation of 34.5 pounds of water from and at 212 degrees Fahrenheit or its equivalent and in the absence of reliable means of determination shall mean five square feet of boiler heating surface, or 10 kilowatts input, or 40,000 BTU input.

"BTU" means a British thermal unit or the quantity of heat required to raise the temperature of one pound of water one degree Fahrenheit.

"Building of public assembly" means an assembly building, Use Group A, which is a place of assembly as defined by Section 302.0 of the BOCA Basic National Building Code-1984.

"Bureau of Boiler and Pressure Vessel Compliance" means the Bureau of Boiler and Pressure Vessel Compliance of the Division of Public Safety and Occupational Safety and Health, New Jersey Department of Labor and Workforce Development.

"Certificate of Competency" means a certificate issued to a person who has passed the inspection examination prescribed by the Examining Board.

"Certificate inspection" means an inspection, the report of which is used by the Chief Inspector as justification for issuing, withholding or revoking the Certificate of Inspection as provided for in *N.J.S.A. 34:7-24*.

"Certificate of Inspection" means the document which is issued by the Chief Inspector indicating that the pressure retaining item meets the requirements of this chapter.

"Chief engineer" means a properly licensed person who, to establish responsibility, supervises or takes the lead over one or more of the licensed operators of high pressure boilers, power plants or refrigeration systems working in the same plant.

"Chief Inspector" means the Chief of the Bureau of Boiler and Pressure Vessel Compliance.

"Commissioner" means the Commissioner of Labor and Workforce Development or his or her authorized agent.

"Continuous processing operation" means a continuously operating processing or environmental control unit within the petroleum refining or chemical manufacturing industry where an associated boiler or similar equipment cannot be taken out-of-service outside of a scheduled, pre-planned periodic shut down of the entire continuous processing operation without incurring significant safety, environmental or economic harm.

"Division of Public Safety and Occupational Safety and Health" means the Division of Public Safety and Occupational Safety and Health of the New Jersey Department of Labor and Workforce Development.

"Examiner" means an individual identified as a member of the examining board pursuant to *N.J.S.A. 34:1-38.1*.

"External inspection" means an inspection made when a boiler or pressure vessel is in operation.

"Field inspection of unfired pressure vessels" means external or internal pressure vessel inspections as required by the National Board Inspection Code or API-510, other than for new construction, repair or alteration.

"Fireman" means a boiler operator.

"Flammable" when used to describe a refrigerant means one that is classified as A2, B2, A3, or B3 according to ASHRAE 34. For refrigerant blends assigned dual classifications for their "as formulated" and conditions, the "worst case of fractionation" classification shall apply.

"Highly toxic" means a chemical that produces a lethal dose or lethal concentration that falls within any of the following categories:

1. A chemical that has a median lethal dose (LD50) of 50 milligrams or less per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each; or
2. A chemical that has a median lethal dose (LD50) of 200 milligrams or less per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between two and three kilograms each; or
3. A chemical that has a median lethal concentration (LC50) in air of 200 parts per million by volume or less of gas or vapor, or two milligrams per liter or less of mist, fume or dust, when administered by continuous inhalation for one hour (or less if death occurs within one hour) to albino rats weighing between 200 and 300 grams each. (Mixtures of these materials with ordinary materials, such as water, might not warrant classification as highly toxic. While this system is basically simple in application, any hazard evaluation which is required for the precise categorization of this type of material shall be performed by experienced, technically competent persons.)

"In-service" means the term as it is defined in the National Board Inspection Code or API-510, Pressure Vessel Inspection Code, as applicable.

"In-service inspection" means an external or internal inspection made by an Inspector in order to determine that the pressure-retaining item complies with the requirements

of this chapter.

"Inspector" means the Chief Inspector, State Inspector, Agency Inspector or Owner-User Inspector.

"Insurance company inspector" means an employee of an insurer who is trained and specializing in the inspection of boiler or pressure vessels for safety reasons to represent the interests of the insurer.

"Internal inspection" means as complete an examination as can reasonably be made of the internal surfaces of a boiler or pressure vessel when manhole plates, handhold plates, or other inspection opening closures are removed.

"Kilowatt" means a unit of electrical power equal to 1000 watts.

"License" means a certificate documenting acceptance of a person as competent to operate specified equipment.

"Long boom crane" means a hoisting machine with a boom length of over 99 feet.

"Mechanical Inspection Bureau" means the bureau established pursuant to *N.J.S.A. 34:1-38.1* et seq. (1917) and is synonymous with the Bureau of Boiler and Pressure Vessel Compliance.

"Model steam boiler" means a boiler that is individually fabricated for non-commercial use, and is used primarily for demonstration, exhibition or education purposes, including antique boilers or steam pumpers.

"National Board Commission" means the commission issued by the National Board of Boiler and Pressure Vessel Inspectors to a holder of a certificate of competency who desires to make shop or field inspections in accordance with the National Board for such commission.

"National Board Inspection Code" means the manual for boiler and pressure vessel inspectors published by the National Board of Boiler and Pressure Vessel Inspectors.

"NBBPVI" means the National Board of Boiler and Pressure Vessel Inspectors.

"Occupied building" means a building which is occupied by persons other than custodial or security personnel. A building is not deemed to be occupied solely on the basis of attendance by custodial or security personnel.

"Occurrence" means any event which reduces the pressure-containing capability of, or requires immediate repair to, a boiler or pressure vessel, exclusive of normal wear on the equipment.

"Owner or user" means any person, firm or corporation legally responsible for the safe operation of any boiler, pressure vessel, or refrigeration system.

"Owner-user inspector" means an inspector who possesses an owner-user Certificate of Competency issued by the Bureau of Boiler and Pressure Vessel Compliance and is employed by a registered owner-user inspection agency.

"Pressure vessel" (See unfired pressure vessel).

"Prime mover" means a turbine, pump or other steam driven device which produces work (energy).

"Psig" means pounds per square inch gauge.

"Refrigeration plant" means a system or plant that is a combination of interconnected refrigerant containing parts constituting one closed refrigerant circuit in which a refrigerant is circulated for the purpose of extracting heat.

"Shift engineer" means a properly licensed person operating a boiler, power plant or refrigeration system.

"Shop inspection" means an inspection performed when any boiler or pressure vessel is being constructed, fabricated or undergoing welded repair. Such inspections shall include audits and joint reviews as required and assigned by the ASME, API, and National Board including owner-user certification audits.

"State inspector" means an employee of the Bureau of Boiler and Pressure Vessel Compliance who is authorized to inspect boilers or pressure vessels or other equipment.

"Total capacity" means the sum of the horsepower at ratings of all boilers comprising the system based on the minimum safety valve relieving capacity as required by the ASME Code.

"Toxic" means a chemical that produces a lethal dose or lethal concentration that falls within any of the following categories:

1. A chemical that has a median lethal dose (LD50) of more than 50 milligrams per kilogram, but not more than 500 milligrams per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each;
2. A chemical that has a median lethal dose (LD50) of more than 200 milligrams per kilogram but not more than 1,000 milligrams per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between two and three kilograms each; or
3. A chemical that has a median lethal concentration (LC50) in air of more than 200 parts per million but not more than 2,000 parts per million by volume of gas or vapor, or more than two milligrams per liter but not more than 20 milligrams per liter of mist, fume or dust, when administered by continuous inhalation for one hour (or less if death occurs within one hour) to albino rats weighing between 200 and 300 grams each.

"Unfired pressure vessel" means a vessel in which the pressure is obtained from an external source, or by the application of heat from a direct or indirect source.

"Welded repair" means work necessary to restore a boiler or pressure vessel to a condition suitable for safe operation at the design conditions. If any repair changes the design temperature or pressure, the requirements for rerating shall be satisfied. A repair can be the addition or replacement of pressure or non-pressure parts that do not change the rating of the boiler or pressure vessel.

SUBCHAPTER 3. ADMINISTRATION

12:90-3.1 Scope of subchapter

This subchapter shall apply to the administrative functions required to be performed by the owner or user of any boiler, pressure vessel or refrigeration system within the scope of this chapter, including, without limitation, model steam boilers.

12:90-3.2 Right of entry

(a) For the purpose of examination or inspection of any boiler, pressure vessel, refrigeration plants, power plant or other equipment, the Commissioner may enter such premises at all reasonable hours in accordance with *N.J.S.A. 34:1-15*.

(b) Any person, corporation or firm violating any provision of (a) above shall, for each offense, be liable for a penalty of \$ 50.00 pursuant to *N.J.S.A. 34:1-16*.

12:90-3.3 Equipment requiring a licensed operator

(a) Any person operating the equipment listed below shall have the appropriate license as specified in *N.J.A.C. 12:90-3.4* through *3.8*.

1. Any steam boiler, steam generator, hot water boiler for service over 250 degrees Fahrenheit, or similar equipment potentially capable of generating steam having a safety valve or valves set higher than 15 pounds per square inch gauge and rated over six horsepower;
2. A steam or hot water heating plant with an indicated or rated capacity that exceeds either 499 square feet of heating surface or 100 boiler horsepower or 1,000 kilowatts or 4,000,000 BTU input regardless of pressure or temperature conditions, and only when the building or building being served is deemed occupied;
3. Any steam turbine, steam engine or other prime mover, rated over six horsepower;
4. Any refrigerating plant using a refrigerant which is flammable, highly toxic or toxic and rated over 24 tons of refrigerating capacity;
5. Any hoisting machine with a boom length exceeding 99 feet; or
6. Hot-oil generators or equipment using fluids other than water to produce steam indirectly.

12:90-3.4 Licenses for high pressure boilers

(a) This section shall apply to the grades of licenses required to operate a high pressure boiler.

(b) The chief engineer and shift engineer of a high pressure boiler shall hold at least the license designated in Table 3.4

**Table 3.4
Licenses for High Pressure Boilers**

<u>Horsepower Over</u>	<u>Boiler Horsepower Not Over</u>	<u>Chief Engineer's License ⁽¹⁾</u>	<u>Shift Engineer License</u>
	3,000	1-A Gold seal 1 st grade Engineer	1-C Blue seal 3 rd grade Engineer
1,000	3,000	1-B Red seal 2 nd grade Engineer	1-C Blue seal 3 rd grade Engineer
500	1,000	1-C Blue seal 3 rd grade Engineer	Black Seal Boiler Operator in charge
100	500	Black seal Boiler Operator	Black seal Boiler Operator in charge in charge
6	100 ⁽²⁾	—	Boiler Operator Special

Notes to Table

(1) When required by *N.J.A.C. 12:90-3.9(f)*, (g), (h) and (i).

(2) Applies only to fully automatic boilers over six but not over 100 boiler horsepower.

12:90-3.5 Licenses for low pressure boilers

(a) This section shall apply to the licenses required to operate a low pressure boiler.

(b) A licensed person shall be required to operate a low pressure steam or hot water heating plant in which the rated capacity exceed 100 horsepower or 499 square feet of heating surface or 4,000,000 BTU input or 1,000 kilowatts regardless of pressure or temperature conditions, and only when the building or building being served is deemed occupied.

(c) A person with a low pressure license may operate low pressure boilers of unlimited horsepower.

12:90-3.6 (Reserved)

12:90-3.7 Licenses for power generating plants

(a) This section shall apply to the various grades of licenses required to operate the steam driven prime movers in power generating plants.

(b) The chief engineer, shift engineer and boiler operator of a power generating plant should hold at least the licensed designated in Table 3.7.

**Table 3.7
Licenses for Power Generating Plants**

Power Generating Plant Prime Mover		Chief Engineer's License ⁽¹⁾	Shift Engineer's License	Boiler Operator's License
Horsepower Over	Horsepower Not Over			
500 and over		1-A Gold Seal 1 st grade Engineer	1-C Blue Seal 3 rd grade Engineer	Black Seal Boiler Operator in charge
100	500	1-B Red Seal 2 nd grade Engineer	1-C Blue Seal 3 rd grade Engineer	Black Seal Boiler Operator in charge
6	100	1-C Blue Seal 3 rd grade Engineer	1-C Blue Seal 3 rd grade Engineer	Black Seal Boiler Operator in charge ⁽²⁾

Notes to Table

- (1) When required by N.J.A.C. 12:90-3.9(f), (g), (h) and (i).
 (2) When required for boiler operation.

12:90-3.8 Licenses for refrigeration plants

(a) This section shall apply to the various grades of licenses required to operate refrigeration plants using highly toxic, toxic or flammable refrigerants.

(b) The chief engineer or shift engineer of a refrigeration plant shall hold at least the license designated in Table 3.8.

**Table 3.8
License for Refrigeration Plants**

Ton over	Refrigeration Plant Capacity	Chief Engineer's License ⁽¹⁾ (2)	Shift Engineer's License ⁽²⁾
	Tons not over		
	300	2-A gold seal 1 st grade engineer	2-C blue seal 3 rd grade engineer
65	300	2-B red seal 2 nd grade engineer	2-C blue seal 3 rd grade engineer
24	65	2-C blue seal 3 rd grade engineer	2-C blue seal 3 rd grade engineer

Notes to Table

- (1) When required by N.J.A.C. 12:90-3.9(g), (h) and (i).
 (2) When steam driven prime movers are employed as part of the refrigeration plant, the engineer shall hold the appropriate engineer's license.

12:90-3.9 Chief engineer and scope of certain licenses

(a) When more than one licensed person is required to operate a high pressure boiler, refrigeration plant or power generating plant, whether or not the operators are employed

on the same shift, the management of the plant shall designate one lead person, commonly called a chief engineer to establish responsibility for operations. Chief engineers are not required for low pressure plants.

(b) The engineer designated as chief engineer shall be permitted to serve as chief engineer in one plant location only and must be a full-time employee of the company responsible for the operation of the high pressure boilers, power generating or refrigeration plants. In the case where the chief engineer is a contract employee, the employee shall be under full time control of facility management responsible for the equipment. The designation shall be in writing and be on file at the plant location where the chief engineer is employed.

(c) The designated chief engineer may also be a shift engineer.

(d) The chief engineer designated in (a) above shall hold the proper grade and classification of license as provided by *N.J.A.C. 12:90-3.4* through 3.8.

(e) The Bureau of Boiler and Pressure Vessel Compliance may recognize an engineer holding a license one grade lower than that required to serve as acting chief engineer on a temporary basis provided:

1. Every reasonable effort has been made by the employer to obtain a properly licensed chief engineer;
2. The candidate has submitted an acceptable application for examination for the higher grade license;

i. The requirement of (e)2 above may be waived for acting chief status if it is based upon an increase in plant size which mandates a higher grade license as provided in *N.J.A.C. 12:90-3.4* through 3.8, but it shall not exceed the period established in the eligibility requirements for the higher grade license; and

3. The employer has submitted a request in writing for the acting chief engineer status.

(f) A boiler operator holding a boiler operator in charge license may act as chief engineer of an installation of 500 boiler horsepower or less. He or she 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 or she may act as boiler operator, under the direction of, and responsible to, a properly licensed engineer in charge of his or her shift. (See Tables 3.4 and 3.7)

(g) 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 or she may also act as operating engineer, under the supervision of a properly licensed chief engineer, in installations exceeding the above limits. (See Tables 3.4, 3.7 and 3.8)

(h) 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 or she may also act as operating engineer, under the supervision of

a properly licensed chief engineer, in installations exceeding the above limits. (See Tables 3.4, 3.7 and 3.8)

(i) An engineer holding an A or first grade license of the proper classification may act as chief engineer in any plant. See Tables 3.4, 3.7 and 3.8)

12:90-3.10 Duties of licensed persons

(a) This section shall apply to the duties of persons licensed in accordance with this chapter.

(b) Licensed persons on watch shall give constant attention and remain within sight and/or natural sound of high pressure boilers and refrigeration plants or be stationed in a control room where the licensed person has direct and immediate intervention capabilities.

(c) Each low pressure boiler operator shall not jeopardize the safe operation of a low pressure heating boiler and shall remain on the premises.

(d) The length of time that the licensed person can be away from the equipment varies according to its nature, size and load conditions. At a minimum, the operator shall monitor the conditions of the low pressure boiler plant twice every 24 hours, with no less than seven hours between each equipment check.

(e) The owner or management shall not require a licensed person to stay away from the equipment to the detriment of the safe operation of the equipment described in (b) and (c) above.

(f) A boiler operator's log shall be maintained in each plant containing over 100 horsepower. Every operator on the shift shall review the log and, at the end of each shift, shall sign the log. All logs shall include the date, name of the operator(s) on duty, and time of relief. Any personnel who are training to obtain their licenses under the requirements of *N.J.A.C. 12:90-8.4* shall include within the log the actual time spent as a trainee. When the operator of a low pressure plant is not in the boiler room, as permitted in (c) above, the operator shall indicate in the log periodic tours of the boiler plant as required in (d) above.

1. High pressure boiler operator logs shall contain at a minimum the information as outlined in ASME Section VII, Recommended Guidelines for the Care and Operation of Power Boilers, paragraph 6.632, incorporated herein by reference.
2. Low pressure boiler operator logs shall contain at a minimum the information as outlined in ASME Section VI, Recommended Guidelines for the Care and Operation of Heating Boilers, paragraph 6.09(b), incorporated herein by reference.
3. The boiler operator's logbook shall be kept in a hardbound book of the consecutively numbered type. In lieu of a hardbound book, the log may be kept on

electronic media recording devices and be accessible for review or printing upon request.

4. Other pertinent data referenced by the above noted ASME Guidelines means information that would impact the normal safe operations of a plant.

(g) Persons licensed in accordance with this chapter for the operation of low pressure boilers shall comply with the following standards, which are incorporated herein by reference, as amended and supplemented:

1. ASME Section VI, Recommended Rules for the Care and Operation of Heating Boilers, 2010 Edition.

2. ASME CSD-1, Control and Safety Devices for Automatically Fired Boilers, 2012 Edition.

(h) Persons licensed in accordance with this chapter for the operation of high pressure boilers shall comply with the following standards, which are incorporated herein by reference, as amended and supplemented:

1. ASME Section VII, Recommended Rules for the Care of Power Boilers, 2010 Edition;

2. ASME CSD-1, Control and Safety Devices for Automatically Fired Boilers, 2012 Edition;

3. NFPA 37, Standards for the Installation and Use of Stationary Combustion Engines and Gas Turbines, 2006 Edition;

4. NFPA 2, Hydrogen Technologies Code, 2011 Edition;

5. NFPA 55, Compressed Gases and Cryogenic Fluids Code, 2013 Edition; and

6. NFPA 85, Boiler and Combustion Systems Hazard Code, 2011 Edition.

(i) Persons licensed in accordance with this chapter for the operation of refrigeration plants shall comply with the following standards, which are incorporated herein by reference, as amended and supplemented:

1. ANSI/ASHRA Standard 15, Safety Code for Refrigeration Systems, 2007 Edition;

2. ANSI/IIAR 5-2013, Start-up and Commissioning of Closed Circuit Ammonia Refrigeration Systems;

3. ANSI/IIAR Standard 2-2008 Equipment, Design, and Installation of Closed-Circuit Ammonia Mechanical Refrigerating Systems; and

4. ANSI/IIAR Standard 7-2013 Developing Operating Procedures for Closed-Circuit Ammonia Mechanical Refrigerating Systems.

12:90-3.11 Duties of others involved

(a) Each person involved with equipment within the scope of this chapter including, among others, engineers, contractors, suppliers, owners, or operators shall:

1. Be conversant with this chapter;
2. Have all required certificates and licenses posted in a conspicuous place and available for inspection at all times; and
3. Ensure that all boiler and pressure vessels under the scope of *N.J.S.A. 34:7-14* through 7-26 are registered with the Bureau of Boiler and Pressure Vessel Compliance and/or the National Board of Boiler and Pressure Vessel Inspectors.

(b) Users of boilers, pressure vessels, refrigeration systems and other equipment subject to the inspection and licensing acts, shall be guided by their authorized inspectors relative to the jurisdiction of the Bureau of Boiler and Pressure Vessel Compliance for purposes of registration, certification, licensing, repairs and alterations.

(c) No person shall contract for or purchase new or used boilers or unfired pressure vessels which do not comply with the applicable ASME Code except as provided for in *N.J.A.C. 12:90-5.3* through 5.10. The applicable ASME Code shall be specified in such transactions.

(d) When writing the Bureau of Boiler and Pressure Vessel Compliance in reference to a boiler, unfired pressure vessel, refrigeration plants or other equipment, the New Jersey State inspection registration number in the upper left corner of the registration certificate, the manufacturer's serial number, the National Board number and the name of the manufacturer shall be stated in the correspondence.

(e) Following an occurrence to a boiler or pressure vessel, the owner or user shall promptly notify the Chief of the Bureau of Boiler and Pressure Vessel Compliance by submitting a detailed report of the occurrence. In the event of a personal injury or any explosion, notice shall be given immediately to the Chief of the Bureau of Boiler and Pressure Vessel Compliance by telephone or by facsimile or by any other expeditious electronic notification method. The telephone number for these notices is (609) 984-0626. The telefacsimile number for these notices is (609) 984-1577. Neither the boiler or pressure vessel, nor parts thereof, shall be removed or disturbed before permission has been given by the Chief, except for the purpose of saving human life and limiting consequential damage.

12:90-3.12 Qualification of inspectors

(a) Except as provided in (c) below, all inspectors shall be issued a Certificate of Competency after satisfactorily passing an examination based on this chapter and the references provided in *N.J.A.C. 12:90-9*. This Certificate of Competency is valid only while the inspector is in the

employ of the authorized inspection agency indicated on the Certificate of Competency.

(b) Any inspector who shall perform boiler inspections under the requirements of *N.J.A.C. 12:90-4.10* (and/or *N.J.A.C. 12:90-5.14*) shall receive a Certificate of Competency after submitting an application for a Certificate of Competency and meeting the following requirements:

1. An application for a New Jersey Certificate of Competency shall be completed in its entirety, signed and dated by the applicant, and the applicant's signature shall be notarized. The application shall include the applicant's name, address, city and state with zip code, county, telephone number, education, place of employment, National Board and other state commissions held and a statement of experiences. The application shall be accompanied by a \$100.00 application fee; and
2. A copy of the inspector's current National Board Commission card, if available, with a letter from the authorized inspection agency requesting the Certificate of Competency shall be submitted; and
3. A passing grade of at least 70 percent shall be obtained on a written examination administered by the Bureau of Boiler and Pressure Vessel Compliance.

(c) Any inspector whose duties shall be limited to shop inspections that require a New Jersey Certificate of Competency can apply for a "Shop Inspection" Certificate of Competency based solely on holding a valid Commission issued by the National Board of Boiler and Pressure Vessel Inspectors. The application shall meet the following requirements:

1. An application for a New Jersey Certificate of Competency shall be completed, signed and dated by the applicant and this signature shall be notarized. The application shall include the applicant's name, address, city and state with zip code, county, telephone number, education, place of employment, National Board and other state commissions held and a statement of experiences. The application shall be accompanied by a \$100.00 application fee; and
2. A copy of the inspector's current National Board Commission card with a letter from the authorized inspection agency requesting the Certificate of Competency shall be submitted; if the inspector does not have a National Board Commission, a "Shop Inspection" Certificate of Competency can be issued upon notification from the National Board of Boiler and Pressure Vessel Inspectors that the applicant obtained a passing grade on the National Board examination, when such examination was taken in the State of New Jersey.

(d) Any inspector whose duties shall be limited to owner-user inspections under *N.J.A.C. 12:90-5.12*, 5.13 or 5.14 shall receive a Certificate of Competency after submitting an application for a Certificate of Competency and meeting the requirements under (d)1 through 3 below.

1. An application for a New Jersey Certificate of Competency shall be completed, signed and dated by the inspector, and this signature shall be notarized. The application shall include the applicant's name, address, city and state with zip code, county, telephone number, education, place of employment, National Board and other

state commissions held and a statement of experiences. The application shall be accompanied by a \$100.00 application fee.

2. A copy of the inspector's current National Board Commission card or API Pressure Vessel Inspector Certification with a letter from the owner/user inspection agency requesting the Certificate of Competency shall be submitted.
3. A passing grade of at least 70 percent shall be obtained on a written examination administered by the Bureau of Boiler and Pressure Vessel Compliance.
4. Persons who hold an API Pressure Vessel Inspector Certification by means of API-510, Appendix B, Section B.2.2 and who have not passed a written examination as described in API-510, Appendix B, Section B.1 shall be limited to conducting field inspection of unfired pressure vessels as owner-user inspectors under *N.J.A.C. 12:90-5.14* and shall not be qualified to approve pressure vessel repairs or alterations under *N.J.A.C. 12:90-5.12* or conduct shop inspections under *N.J.A.C. 12:90-5.13*.

(e) Persons having a National Board Commission or an API Certification shall be tested only on their knowledge of New Jersey boiler, pressure vessel and refrigeration rules set forth in this chapter, as applicable to the functions for which application is made.

12:90-3.13 Renewal of Certificates of Competency

(a) All Certificates of Competency shall be issued initially for a period of at least one year, expiring on December 1 of the following year.

(b) When applying for the renewal of a Certificate of Competency, the authorized inspection agency or owner/user inspection agency shall submit a renewal fee of \$40.00 for a one-year renewal or \$80.00 for a three-year renewal.

(c) Whenever a Certificate of Competency has not been renewed within three years of its expiration, the inspector shall be required to apply for a new Certificate of Competency, as set forth in *N.J.A.C. 12:90-3.12*.

(d) When transferring a Certificate of Competency from one authorized inspection agency to another authorized inspection agency, a \$20.00 transfer fee shall be submitted. The expiration date of the Certificate of Competency shall be retained.

(e) A Certificate of Competency may be revoked or suspended by the Commissioner upon receiving evidence of incompetence, negligence, intoxication while on duty, drug use or other reason establishing that the inspector is unfit to hold a Certificate of Competency, after notice is given to the inspector and a hearing afforded him or her before one or more members of the Examining Board. In case revocation or suspension is imposed, the inspector may appeal the

determination in accordance with *N.J.A.C. 12:90-9*. The Commissioner may authorize the suspension of a Certificate of Competency in the interest of health and safety pending the outcome of the appeal.

SUBCHAPTER 4. BOILERS

12:90-4.1 Scope of subchapter

(a) This subchapter shall apply to the design, construction, inspection, installation, repair and alteration of steam or hot water boilers, including, without limitation, model steam boilers, except as provided in (b) below.

(b) This subchapter shall not apply to:

1. Steam boilers having adequate relief devices set to discharge at a pressure not greater than 15 psig when such boilers serve dwellings of less than six family units or other dwellings with accommodations for less than 25 persons;
2. Hot water boilers having relief devices set to discharge at a pressure not greater than 160 psig and hot water boilers limited to temperatures not exceeding 250 degrees Fahrenheit when such boilers serve dwellings of less than six family units or other dwellings with accommodations for less than 25 persons;
3. Any steam or hot water boiler having less than 10 square feet of surface;
4. Any steam or hot water boiler having a heat input of less than 10 kilowatts or less than 40,000 BTU per hour;
5. Any steam or hot water boiler under the jurisdiction and control of the United States Government when actively regulated by a Federal agency; and
6. Any steam or hot water boiler used solely for the propulsion of a motor vehicle regulated by the Motor Vehicle Act, Title 39 of the Revised Statutes.

12:90-4.2 Compliance with referenced standards

(a) Construction and installation of boilers used solely for building service are regulated by the New Jersey Uniform Construction Code, *N.J.A.C. 5:23-3.20*, Mechanical Subcode. All boilers shall be maintained, altered, repaired and inspected in accordance with the standards in this subsection, which are incorporated herein by reference, as amended and supplemented. Except for boilers used solely for building service which are regulated by the New Jersey Uniform Construction Code, *N.J.A.C. 5:23-3.20*, Mechanical Subcode, all boilers shall be constructed and installed in accordance with the standards referenced in this subsection.

1. The applicable sections of the ASME Boiler and Pressure Vessel Code -- 2015 edition listed below, or their equivalent:
 - i. Section I, Power Boilers;

ii.. Section II, Materials;

iii. Section III, Rules for the Construction of Nuclear Facility Components;

iv. Section IV, Heating Boilers;

v. Section VI, Care and Operation of Heating Boilers;

vi. Section VII, Care of Power Boilers;

vii. Section IX, Welding and Brazing Qualifications;

viii. Section XI, Rules for In-service Inspection of Nuclear Power Plant Components--Division 1;

ix. Case Interpretation and Addenda of each section listed above, except as provided in (e) below.

2. NBBPVI National Board Inspection Code--2013 Edition.

3. ASME CSD-1, Controls and Safety Devices for Automatically Fired Boilers, 2012 Edition.

4. N.F.P.A. 58, Liquefied Petroleum Gas Code, 2011 Edition

5. N.F.P.A. 85, Boiler and Combustion Systems Hazard Code, 2011, Edition.

(b) Each person engaged in the design, construction, fabrication, installation, repair and alteration of boilers shall protect the public by complying with the standards prescribed in (a) above.

(c) Only standards relating to public safety (that is, substantive rules) are adopted by any incorporation by reference as prescribed in (a) above.

(d) Where any conflict occurs between the standards prescribed in (a) above and this chapter, this chapter shall prevail.

(e) All Sections of the ASME Code referenced in (a)1 above shall become mandatory six months after approval by the ASME Council as do published addenda and Code Cases, unless specific exception is taken by the Bureau of Boiler and Pressure Vessel Compliance administratively subject to confirmation by the Board.

(f) A code of construction which is a national or international standard and is recognized by regulation and by the country of origin, when applicable, shall be acceptable as an alternate code of construction under this subchapter, provided that it has been fully and finally approved and accepted as an alternate code of construction by the NBBPVI.

12:90-4.3 Classification of boilers

Boilers shall be classified as low pressure or high pressure boilers.

12:90-4.4 High pressure boilers

High pressure boilers shall comply with Section I, Power Boilers of the ASME Code.

12:90-4.5 Low pressure boilers

(a) Low pressure boilers shall comply with Section IV, Heating Boilers of the ASME Code.

(b) Existing low pressure boilers installed prior to the effective date of the standards referenced in (a) above may remain in use while the Bureau of Boiler and Pressure Vessel Compliance is in receipt of favorable and current inspection reports.

(c) Low pressure boilers as described in (b) above shall be converted before the next annual inspection to conform to the standards referenced in (a) above with regard to appliances, auxiliaries and safety devices.

(d) Each automatically fired hot water boiler falling within the terms of *N.J.S.A. 34:7-14(a)* shall have an automatic low-water fuel cutoff which has been designed for hot water boiler service when such boiler exceeds a heat input of 400,000 BTU per hour except that such low water cut off shall not be required for hot water supply boilers.

(e) When low pressure boilers are connected to a common header, the connections from each boiler having a manhole opening shall be fitted with two stop valves having adequate free-blow drains which shall be located between the stop valves.

1. One of these stop valves shall be placed as near the boiler nozzle as practicable and the other valve placed where the interconnection joins the common header.
2. Where such protection has not been provided in existing installations or where such stop valves may be omitted optionally on hot water boilers where full open internal inspection is less frequently performed, no entry shall be made through the manway for any purpose until all system boilers have been depressurized and vented.

12:90-4.6 Relief device settings

All boilers shall have relief devices set to discharge at the rated relieving capacity and pressure in accordance with the requirement contained in the applicable ASME Code.

12:90-4.7 Steam boiler blowdown tanks and receivers

(a) This section shall apply to the construction and installation of steam boiler blowdown tanks and receivers.

(b) Pressure or unvented blowdown tanks:

1. A blowdown tank subject to possible maximum steam boiler pressure shall be constructed for the boiler pressure and stamped ASME and registered with the National Board.
2. A blowdown tank shall be used whenever the blowdown from any steam boiler is disposed in a sewerage or other interconnected system, and placed between the boiler and the sewer or such system.

(c) Atmospheric or vented blowdown tanks:

1. The outlet from the blowdown tank shall be not less than twice the area of the boiler blowdown pipe and made to extend internally to within six inches of the bottom of the tank.
2. A vent pipe, at least twice the diameter of the inlet, shall lead to the outside atmosphere. Vents shall be as direct as possible to the outside atmosphere and discharge at a point not less than seven feet above grade. No valve, water pocket, or other obstruction shall be in this line.

(d) Construction of blowdown tanks:

1. The minimum metal thickness of blowdown tanks, whether of the pressure or atmospheric type, shall be not less than 5/16 inch.
2. All blowdown tanks, whether of the closed or vented type, shall have approved openings for cleaning and inspection, and shall be capable of a maximum discharge at 150 degrees Fahrenheit at five psig.
3. The capacity of blowdown systems shall be sufficient to prevent discharges from exceeding 150 degrees Fahrenheit at five psig.

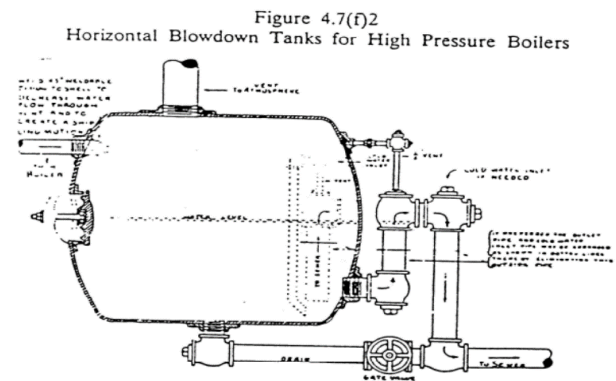
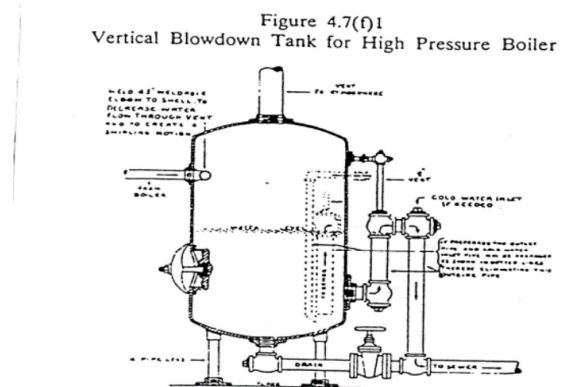
(e) Centrifugal type separators:

1. Centrifugal type separators shall be built and stamped in accordance with the ASME Code and may be used as provided in (e)2 and (e)3.
2. Separators may be used when a safe point of discharge is available and the pressure and temperature conditions at the point of discharge need not be considered.
3. Separators may be used as an auxiliary to a blowdown tank but may not be used in lieu of a conventional blowdown tank in those installations requiring a blowdown tank.

(f) Drawings of acceptable blowdown tanks and equipment:

1. Shown below are acceptable blowdown tanks and equipment as [Figures 4.7\(f\)1 and 4.7\(f\)2](#).

(g) Repairs and alterations to blowdown tanks and separators shall be in accordance with *N.J.A.C. 12:90-5.12*.



12:90-4.8 Welded repairs and alterations to boilers

(a) Welded repairs and alterations to boilers shall comply with:

1. The original construction standard, or
2. The construction standard referenced in *N.J.A.C. 12:90-4.2(b)* provided that requirement is not less stringent than the original construction standard, and
3. The National Board Inspection Code--1995 edition and all subsequent editions and addenda.

(b) Welded repairs to boilers shall be performed by a contractor possessing a valid National Board repair authorization or New Jersey repair authorization.

(c) The ASME Code validity of piping repairs shall be maintained to the boundaries defined in Section I, Power Boilers for high pressure boilers and to the required stop valve connection for low pressure heating boilers.

(d) All plans for welded repairs to boilers or connected piping shall be approved prior to the start of welded repairs by a National Board commissioned inspector with a valid New Jersey Certificate of Competency who is employed by an authorized insurance company or

the State of New Jersey and performed under their guidance and certified at the completion of the welded repairs.

(e) A record of welded repairs shall be filed with the Bureau of Boiler and Pressure Vessel Compliance when requested.

(f) Alterations to boilers shall be performed by a National Board Alteration Certificate holder. The ASME does not authorize repairs under the certificate of authorization(s) that they issue and, therefore, the ASME stamp holder is not authorized to perform repairs.

(g) An alteration report and a copy of the original manufacturer's data report shall be filed with the National Board of Boiler and Pressure Vessel Inspectors or the Bureau of Boiler and Pressure Vessel Compliance if the boiler is not registered with the National Board. Fees for registration of these reports shall be \$4.00 for each boiler and shall be forwarded to the Bureau of Boiler and Pressure Vessel Compliance for registration.

1. When registered, one copy of the manufacturer's data report shall be returned to the user of the boiler.
2. If reports are not filed, the boiler shall be subject to State inspection and State inspection fees shall be assessed.

12:90-4.9 Qualification of authorized repair firms

(a) This section shall apply to the procedures required to obtain a New Jersey R symbol as a New Jersey authorized welded repair firm for welded repairs.

(b) A letter of application shall be addressed to the Bureau of Boiler and Pressure Vessel Compliance by a responsible officer to the firm requesting welded repair authorization. The letter of application shall identify the New Jersey address and location of the welded repair firm to be considered for authorization, and shall include evidence that an authorized inspection agency, other than the New Jersey Department of Labor and Workforce Development, Bureau of Boiler and Pressure Vessel Compliance, has agreed to provide inspection service as required.

(c) A review of the firm's facilities and quality control system shall be conducted jointly by an Examiner of the Bureau of Boiler and Pressure Vessel Compliance and a supervisory representative of the authorized inspection agency.

(d) The Bureau of Boiler and Pressure Vessel Compliance shall authorize the repair firm and, in conjunction with the authorized inspection agency of record, monitor the firm's repair activities in accordance with established administrative policy.

(e) Administrative policy guidelines shall be made available to applicants, users, inspection agencies, and other interested parties.

(f) Welded repairs performed by an authorized welded repair firm shall be deemed to preserve intact the validity of the

original construction standard of the boiler upon which the work was performed while the boiler is in the State of New Jersey.

(g) Alterations or modifications altering the original design shall not be performed by the holder of a New Jersey repair certification, but shall be performed by a National Board Alteration Certificate of Authorization holder.

(h) Welded repair shops shall be located within jurisdictional New Jersey.

(i) Nothing herein shall be intended to prohibit welded repair by a National Board authorized repair firm or to require additional qualification of such shops under these rules.

12:90-4.10 Inspection of boilers

(a) All steam or hot water boilers or similar equipment potentially capable of generating steam as described in (b) below shall be inspected and be subjected to a hydrostatic test, if necessary, at least once each year at 12-month intervals. This inspection shall be a complete internal and external inspection as construction conditions will permit. All hot water heating boilers shall be inspected internally at 24-month intervals and shall be inspected externally every 12 months.

(b) Steam or hot water boilers subject to the inspection of (a) above shall include those listed in (b)1, (b)2 and (b)3 below, except as provided in (c) below:

1. Steam or hot water boilers having 10 or more square feet of heating surface;
2. Steam or hot water boilers having a heat input of 10 kilowatts or more; or
3. Steam or hot water boilers having a heat input of 40,000 BTU per hour or more.

(c) Steam or hot water boilers serving dwellings of less than six family units or other dwellings with accommodations for less than 25 persons need not comply with the annual internal and external inspection of (a) above.

(d) In addition to the annual internal and external inspection of (a) above, there may be an external inspection, if found necessary. This external inspection shall be made as near to the expiration of six months after the annual inspection date as practicable.

(e) Inspection shall be made more frequently if conditions warrant.

(f) The boiler to be inspected shall be open, clean, cool and ready for the inspector.

12:90-4.11 Ultrasonic testing

(a) The commissioner may accept ultrasonic test reports as a form of internal inspection for the purpose of compliance with *N.J.S.A. 34:7-14* under certain specific instances upon receipt of application.

(b) Ultrasonic testing shall 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, fulltime "in service" inspection program;
3. Ultrasonic inspection, in-lieu-of the annual out-of-service and open internal and external inspection, shall be accepted only when it is made within a 12-month period following the internal and external inspection or for a continuous processing operation when it is made within a 12-month period of the previous OB & PVC approved boiler inspection extension. The maximum period between out-of-service and open internal and external inspections shall not exceed 5 years;
4. The insurer or the authorized inspection agency indicates acceptance of the ultrasonic testing; and
5. A history of the boiler including such items as operational characteristics, results of inspections, corrosion rates and ultrasonic procedures shall be required.
6. The owner/user shall have a documented in-service inspection, operation and maintenance program. At the discretion of the BB&PVC, this program shall be subject to field audit prior to approval of the boiler inspection extension.

12:90-4.12 Fee and visit charge for shop inspection

(a) The fee for a shop inspection shall be the higher of either (a)1 or 2 below:

1. A fee of \$100.00 for each boiler inspected; or
2. A daily visit charge of \$320.00 for any shop inspection of four hours or less and \$600.00 for any shop inspection exceeding four hours.

12:90-4.13 Fee for field inspection

- (a) An insurance company making an annual field inspection shall pay a fee of \$ 50.00 for each boiler inspected. The insurance company shall pay the fee to the Commissioner of Labor and Workforce Development within 30 days of performing the inspection.
- (b) The owner or user may request a field inspection by the State.
- (c) The fee for a State field inspection for each annual internal-external inspection, which shall include a hydrostatic test if found necessary, shall be paid to the Commissioner of Labor and Workforce Development as follows:

1.	Ten and not over 60 square feet	\$80.00
2.	Sixty and not over 1,000 square feet	\$110.00
3.	1,000 square feet and over	\$150.00

(d) In addition to the annual internal-external inspection, there may be an external inspection for which the owner or user shall pay to the Commissioner of Labor and Workforce Development a fee of \$100.00.

12:90-4.14 Registration of boilers

(a) Boilers shall be registered with the Bureau of Boiler and Pressure Vessel Compliance, and a State boiler inspection certificate shall be issued.

(b) Every boiler approved for use in the State shall be assigned a registration number, which shall be located in the upper left-hand corner of the boiler certificate.

1. This number shall also be attached to the front of the boiler in such a manner as to be plainly visible.

(c) The State boiler inspection certificate shall be properly framed and posted in the boiler room, engine room, engineer's office, or plant office and be readily available for examination.

(d) Damaged, altered, defaced or lost certificates must be replaced by request through the Bureau of Boiler and Pressure Vessel Compliance for replacement. The fee for replacement shall be \$16.00.

12:90-4.15 (Reserved)

New Rule, R.1996 d.588, effective December 16, 1996. See: 28 N.J.R. 4060(a), 28 N.J.R. 5224(a).
 Repealed by R.1999 d.304, effective September 7, 1999. See: 31 N.J.R. 1556(a), 31 N.J.R. 2604(b).

12:90-4.16 (Reserved)

New Rule, R.1996 d.588, effective December 16, 1996. See: 28 N.J.R. 4060(a), 28 N.J.R. 5224(a).
 Amended by R.1999 d.304, effective September 7, 1999. See: 31 N.J.R. 1556(a), 31 N.J.R. 2604(b).

SUBCHAPTER 5. UNFIRED PRESSURE VESSELS

12:90-5.1 Scope of subchapter

(a) This subchapter shall apply to the design, construction, inspection, installation, repair and alteration of unfired pressure vessels, except as provided in (b) below.

(b) This subchapter shall not apply to:

1. Unfired pressure vessels having an internal or external operating pressure not exceeding 15 psig;
2. Unfired pressure vessels having an inside diameter not exceeding six inches;
3. Unfired pressure vessels used as a hot water supply tank heated by steam or any other indirect means when such unfired pressure vessels serve dwellings of less than six family units or other dwellings with accommodations for less than 25 persons when none

of the following limitations on the unfired pressure vessel are exceeded:

- i. A heat input of 200,000 BTU per hour;
 - ii. A water temperature of 200 degrees Fahrenheit;
 - iii. A nominal water capacity of 120 gallons.
4. Any unfired pressure vessel under the jurisdiction and control of the United States Government when actively regulated by a Federal agency;
 5. Any unfired pressure vessel used solely for the propulsion of a motor vehicle regulated by the Motor Vehicle Act, Title 39 of the Revised Statutes;
 6. Any unfired pressure vessel that does not exceed a design pressure of 300 psi and a design temperature of 210 degrees Fahrenheit containing water with air under pressure, the compression of which serves only as a cushion; and
 7. Piping components from the first threaded, welded or flanged fitting.

12:90-5.2 Compliance with referenced standards

(a) Unfired pressure vessels shall be constructed, installed, maintained, repaired and inspected in accordance with the standards referenced in (b) and (c) below.

(b) The applicable sections of the ASME Boiler and Pressure Vessel Code--2013 edition and all subsequent editions and addenda are adopted as safety standards under this subchapter and shall apply according to the provisions listed below.

1. Section II, Material Specifications;
2. Section III, Nuclear Power Plant Components;
3. Section VIII, Unfired Pressure Vessels;
4. Section IX, Welding and Brazing Qualifications;
5. Section X, Fiberglass-Reinforced Plastic Pressure Vessels;
6. Section XI, Rules for Inservice Inspection of Nuclear Power Plant Components Division 1;
7. All Code Cases, Interpretations and Addenda for each section, except as provided in (g) below.

(c) The National Board Inspection Code--1995 edition and all subsequent editions and addenda and API 510--1995 edition and all subsequent editions and addenda are adopted as safety standards under this subchapter and shall apply according to the provisions of each, as applicable.

(d) Each person engaged in the design, construction,

fabrication, installation, repair or alteration of unfired pressure vessels shall protect the public by complying with the standards prescribed in (b) and (c) above.

(e) Only standards relating to public safety (that is, substantive rules) are adopted by any incorporation by reference as prescribed in (b) and (c) above.

(f) Where any conflict occurs between the standards prescribed in (b) and (c) above and these rules, these rules shall prevail.

(g) All Sections of the ASME Code referenced in (b) above become mandatory six months after approval by the ASME Council as do published addenda and Code Cases unless specific exception is taken by the Bureau of Boiler and Pressure Vessel Compliance administratively subject to confirmation by the Board.

(h) A code of construction which is a national or international standard and is recognized by regulation and by the country of origin, when applicable, shall be acceptable as an alternate code of construction under this subchapter, provided that it has been fully and finally approved and accepted as an alternate code of construction by the NBBPVI.

12:90-5.3 Classification of unfired pressure vessels

(a) Unfired pressure vessels shall be classified as Class I, Class II, Class III, or Class IV unfired pressure vessels.

(b) Specific unfired pressure vessels shall meet or exceed the minimum provisions of its class.

12:90-5.4 Class I unfired pressure vessels

(a) Class I unfired pressure vessels shall conform in all respects to the pertinent sections of the ASME Code that are valid at the time of construction.

(b) All shop inspections of Class I unfired pressure vessels shall be conducted by qualified inspectors who shall satisfy the requirements of the ASME Code and shall be in possession of a valid National Board of Boiler and Pressure Vessel Inspector's Commission, or an owner-user inspector holding a valid New Jersey Certificate of Competency and an API certification as otherwise allowed.

(c) All Class I unfired pressure vessels shall be stamped and identified as prescribed by the ASME Code.

(d) Class I unfired pressure vessels shall also be stamped and registered with the National Board except as stipulated in *N.J.A.C. 12:90-5.13(d)*.

12:90-5.5 Class II unfired pressure vessels

Unfired pressure vessels designated as Class II unfired pressure vessels shall be existing unfired pressure vessels constructed prior to January 1, 1957 in accordance with the API-ASME joint code for unfired pressure vessels and registered with the State prior to January 1, 1957.

12:90-5.6 Class III unfired pressure vessels

Unfired pressure vessels designated as Class III unfired pressure vessels may in the future be either new or used non-code pressure vessels and will be identified as New Jersey Approved Pressure Vessels meeting the requirements of *N.J.A.C. 12:90-5.9*.

12:90-5.7 Class III unfired pressure vessels--New Jersey Standard

Pressure vessels identified as New Jersey Standard shall retain their identification through their life period. No additional fabrication of this standard shall be allowed.

12:90-5.8 Class III unfired pressure vessels--New Jersey Special

Pressure vessels identified as New Jersey Special shall retain their identification through their life period. No additional fabrication to this classification shall be allowed.

12:90-5.9 Class III unfired pressure vessels--New Jersey Approved

(a) This section shall apply to a procedure to obtain approval for a non-code vessel as a Class III unfired pressure vessel known as New Jersey Approved.

(b) The application for a New Jersey Approved unfired pressure vessel shall meet the following requirements:

1. To expedite handling of a request for non-code construction review, all materials shall be gathered and submitted, in as complete a form as possible, by the user;
2. When it is necessary to defer filing of some material, such omission shall be prominently noted in the letter of application;
3. All written material shall be in the English language; provided, however, that written material that is in a language other than English may be submitted along with an English translation that is certified to be correct;
4. All letters of application shall be accompanied by payment of \$3,000 for each non-code design. Additional fees shall be required for designs submitted for a single project and shall be repetitive for each user-application of the design;
5. Following final inspection and test, the manufacturer shall complete an appropriate manufacturers' data report form. This form shall be certified by the New Jersey authorized inspector who will identify his New Jersey Certificate of Competency license number; and
6. Reference to conformance to the ASME Code shall be deleted where such appears on the form. The completed form, in duplicate, together with a facsimile of the stamping, shall be filed for registry with the Bureau of Boiler and Pressure Vessel Compliance.

(c) The New Jersey Approved unfired pressure vessel may require periodic reinspection.

(d) Compliance with (e) through (m) below shall be required to establish ASME Code equivalency.

(e) The maximum allowable working pressure of the New Jersey Approved unfired pressure vessel at a given temperature may be limited to a maximum of 80 percent of that to which the vessel can be subjected in accordance with the ASME Code.

(f) Drawings, fully descriptive of the unfired pressure vessel, with special attention to clarity of weld details and nozzles and other openings, shall be submitted.

(g) Identification of materials within ranges of chemical and physical characteristics shall match with those listed in the appropriate ASME Code section.

(h) Full computations shall be provided, using appropriate formulae as required, by the applicable code section. All computations shall be labeled and ASME Code reference given. Where ASME Code formulae do not apply, the rationale of alternate methods of computation shall be clearly demonstrated. Finite Element Analysis is an acceptable alternative method to demonstrate design rationale.

(i) Evidence of appropriate welding procedures and operator's tests shall be supplied. If such is unavailable from the manufacturer, verification of sound welding shall be made as required by the Bureau of Boiler and Pressure Vessel Compliance.

(j) All material shall be reviewed by a New Jersey registered professional engineer, who shall verify its equivalency to the basic requirements of the ASME Code.

(k) The user's letter of application shall briefly outline the nature of the substance to be contained by the unfired pressure vessel, proposed pressure and temperature conditions and heating, cooling or pressurizing medium.

(l) All of the foregoing documentation shall be forwarded to the Bureau of Boiler and Pressure Vessel Compliance by the user of the vessel with a letter requesting that New Jersey Approved classification be assigned, if warranted.

(m) When approved, the unfired pressure vessel shall be stamped New Jersey Approved.

12:90-5.10 Class IV unfired pressure vessels

(a) Pressure vessels designated as Class IV unfired pressure vessels shall be user-inspected, where applicable, warranted and expressly approved.

(b) To qualify as such, a user-inspector shall be continuously employed as a full-time inspector by the inspection division of a user maintaining an adequate unfired pressure vessel design and inspection section.

(c) A user-inspector shall be approved by and registered with the Bureau of Boiler and Pressure Vessel Compliance, which reserves the right to withdraw such approval at its discretion.

(d) The Bureau of Boiler and Pressure Vessel Compliance shall be

furnished, upon request, such copies of design, material specification calculations and allied data as available or needed. The Bureau of Boiler and Pressure Vessel Compliance shall retain its prerogative of supervision over user-inspection, joint inspection and reinspection as it may deem necessary.

(e) When approved, Class IV unfired pressure vessels shall be constructed and stamped in accordance with the user-inspection provisions of the ASME Code.

12:90-5.11 Design criteria

(a) Machines having internal pressure containing parts incidental to the prime purpose of the machine may be exempt from the ASME Code, if the design criteria of the machine results in the strength of the pressure containment portion exceeding that which would be required if designed in accordance with the ASME Code.

(b) Impervious graphite materials may be used in the fabrication of heat exchangers under the New Jersey Approved classification pending acceptance of this material under the ASME Code.

(c) Manufacturers desiring to fabricate vessels utilizing impervious graphite materials shall be required to substantiate the design of such vessels and the composition of the graphite material under the New Jersey Approved classification.

12:90-5.12 Welded repairs and alterations to unfired pressure vessels

(a) Welded repairs and alterations to unfired pressure vessels shall comply with:

1. The original construction standard; or
2. The construction standard referenced in *N.J.A.C. 12:90-5.2(b)* provided that requirement is not less stringent than the original construction standard; and
3. The National Board Inspection Code--1995 edition and all subsequent editions and addenda, or API-510--1995 edition and all subsequent editions and addenda, as applicable.

(b) Welded repairs to unfired pressure vessels shall be performed by an entity possessing a National Board repair authorization, or a New Jersey repair authorization.

(c) A record of welded repairs shall be filed with the Bureau of Boiler and Pressure Vessel Compliance when requested.

(d) Alterations to unfired pressure vessels shall be performed by a National Board Alteration Certificate Holder, or by a New Jersey authorized repair entity when that entity is also an owner-user entity (registered owner-user inspection agency) as defined in API-510.

(e) An alteration report and a copy of the original manufacturer's data report shall be filed with the National

Board of Boiler and Pressure Vessel Inspectors, or the Bureau of Boiler and Pressure Vessel Compliance if the unfired pressure vessel is not registered with the National Board. The fees for registration shall be in accordance with *N.J.A.C. 12:90-5.15(d)*. If the alteration is performed in accordance with API-510, filing under this subsection is not required; however, the owner-user shall maintain the alteration report for the life of the vessel.

(f) All plans for welded repairs and alterations to pressure vessels shall be approved prior to the start of work by a National Board-commissioned inspector with a valid New Jersey Certificate of Competency who is employed by an authorized inspection agency or the State of New Jersey. Approval may also be given by an owner-user inspector holding a valid New Jersey Certificate of Competency and a National Board owner-user commission or an API certification, subject to the limitation stated in *N.J.A.C. 12:90-3.12(d)4*.

12:90-5.13 Shop inspection of unfired pressure vessels

(a) Shop inspection of unfired pressure vessels shall be required, except as provided in (b) below.

(b) 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 inspections by qualified inspectors; provided, that they comply in all other respects with this subchapter:

1. Five cubic feet in volume and 250 psig design pressure;
2. One and one-half cubic feet in volume and 600 psig design pressure.

(c) Such vessels shall be of simple, single wall chamber construction.

(d) Vessels exempted from ASME Code inspection by this section shall be stamped with the "UM" symbol, or as otherwise provided for construction other than Class I pressure vessel.

(e) Shell and tube heat exchangers, jacketed vessels and other type vessels which may be subject to differential pressures shall be shop inspected by an authorized inspector.

12:90-5.14 Field inspection of unfired pressure vessels

(a) Each pressure vessel, except for "UM" stamped pressure vessels, shall be subject to either initial in-service inspection (for a newly manufactured pressure vessel) or initial field certificate inspection (for an existing pressure vessel).

(b) The initial field certificate inspection of existing pressure vessels shall take place by October 6, 2011.

(c) After performance of the initial in-service inspection or initial field certificate inspection under (a) above, each pressure vessel, with the exception of pressure vessels that are under the supervision of a registered owner-user inspection agency, shall receive a certificate inspection triennially.

(d) Pressure vessels and unfired boilers that are under the supervision of a registered owner-user inspection agency shall be inspected at intervals required by the National Board Inspection Code or API-510, as applicable.

1. Each owner-user inspection organization shall:

i. Retain on file at the location where equipment is inspected a true record or copy of the report of each inspection which identifies the National Board Commission number or the API-certification number of the inspector who made the inspection; and

ii. Maintain inspection records which will include a list of pressure vessels covered by *N.J.S.A. 34:7-14*, showing the National Board Commission number or the API-certification number of the inspector who made the inspection and such abbreviated description as may be necessary for identification, date of the last inspection of each unit, and the approximate date for the next inspection. Such inspection records shall be readily available for examination by the Office of Boiler and Pressure Vessel Compliance or authorized representative during business hours.

(e) Any pressure vessel or pressure vessels contained within a refrigeration system shall be inspected pursuant to *N.J.A.C. 12:90-6*.

12:90-5.15 Fee and visit charge for shop inspection

(a) The fee for shop inspection shall be either:

1. A daily visit charge of \$320.00 for any shop inspection of four hours or less which is made for the purpose of monitoring the quality control process during fabrication of a pressure vessel. This daily visit charge shall be \$600.00 if the shop inspection exceeds four hours. Audits and joint reviews will be charged by the day/half day rate; or

2. A fee of \$100.00 for each pressure vessel when the purpose of the visit is to inspect specific vessels.

12:90-5.16 Fee for field inspection

(a) An insurance company making a field inspection shall pay a fee of \$ 30.00 for each pressure vessel inspected. The insurance company shall pay the fee to the Commissioner of Labor and Workforce Development within 30 days of performing the inspection.

(b) The owner or user may request a field inspection by the State.

(c) The fee for a State field inspection of a pressure vessel shall be in accordance with the following schedule:

1. \$ 20.00 for vessels not over 30 square feet in size;
2. \$ 40.00 for vessels over 30 but not over 60 square feet in size;
3. \$ 60.00 for vessels over 60 but not over 100 square feet in size; and
4. \$ 80.00 for vessels over 100 square feet in size.

(d) The size of a pressure vessel under (c) above shall be determined by multiplying the extreme diameter of the

pressure vessel by the length of the pressure vessel.

(e) The owner-user may make arrangements for the field inspection of a pressure vessel by an owner-user inspector in lieu of either field inspection by an insurance company under (a) above or field inspection by the State under (c) and (d) above.

(f) Where a pressure vessel is being inspected by an owner-user inspector under (e) above, the owner-user inspector shall inspect the pressure vessel at the interval established for that pressure vessel under either the National Board Inspection Code or the API-510.

(g) Where a pressure vessel is being inspected by an owner-user inspector under (e) above, the owner-user inspector shall on an annual basis record with the Department all inspections performed during the preceding year accompanied by a fee in accordance with the following schedule:

**Owner-User Inspection Agency
Table 5.16**

	Owner-User Object Cost Per Pressure Vessel	Minimum Number Of Pressure Vessels Inspected	Maximum Number Of Pressure Vessels Inspected
1	\$15.00	1	Up to 25
2	\$7.50	26	Up to 100
3	\$6.00	101	Up to 500
4	\$4.50	501	And Over

(h) All fees under (g) above shall be paid to the Commissioner of Labor and Workforce Development.

12:90-5.17 Registration of unfired pressure vessels and fees

(a) Each unfired pressure vessel shall be registered with the Bureau of Boiler and Pressure Vessel Compliance and shall receive a jurisdiction number following inspection by a certified inspector, except for the following:

1. UM pressure vessels exempt from inspection under *N.J.A.C. 12:90-5.13(b)*, or
2. Pressure vessels inspected by an owner-user inspection agency registered with the Bureau of Boiler and Pressure Vessel Compliance under *N.J.A.C. 12:90-5.19*.

(b) When a facility has registered as an owner-user inspection agency in accordance with *N.J.A.C. 12:90-5.19*, the facility shall maintain a listing of each pressure vessel at that facility and shall, during the triennial audit required under *N.J.A.C. 12:90-5.19(e)*, provide the listing of pressure vessels to the Bureau of Boiler and Pressure Vessel Compliance.

12:90-5.18 Qualification of inspectors

All inspectors as listed in this subchapter shall obtain a Certificate of Competency as outlined in *N.J.A.C. 12:90-3.12(a)* through (d) as applicable.

12:90-5.19 Registration of owner-user inspection agencies

(a) All owner-user agencies wishing to conduct field inspection of unfired pressure vessels, pressure relief valve inspection and repair, or welded repairs or alterations shall be registered with the Bureau of Boiler and Pressure Vessel Compliance.

(b) Entities wishing to register as owner-user inspection agencies shall file a Letter of Intent of Certification with the Bureau of Boiler and Pressure Vessel Compliance. This letter shall include a plan and schedule for certification.

(c) Entities who have filed a Letter of Intent of Certification may continue their existing pressure vessel and/or pressure relief valve inspection programs as long as they are actively and in good faith pursuing certification by the Bureau of Boiler and Pressure Vessel Compliance as an owner-user inspection agency.

(d) Owner-user inspection agencies may request registration to conduct field inspection of unfired pressure vessels, inspection and repair of pressure relief valves, or welded repairs and alterations individually or in any combination of these functions.

(e) All owner-user inspection agencies seeking registration with the Bureau of Boiler and Pressure Vessel Compliance shall be audited by the Bureau of Boiler and Pressure Vessel Compliance. Upon successful completion of this initial audit, the owner-user inspection agency shall be registered with the Bureau of Boiler Pressure Vessel Compliance and shall be audited triennially thereafter. This triennial audit may be conducted on an annual basis when a triennial audit evidences deficiencies. The fee for each audit shall be as provided in *N.J.A.C. 12:90-5.15(a)2*.

(f) The initial and triennial audits conducted under (e) above shall encompass only those functions appropriate for registration to conduct field inspection of unfired pressure vessels, inspection and repair of pressure relief valves, or welded repairs and alteration, for those owner-user inspection agencies who do not wish to register under all three functions.

SUBCHAPTER 6. REFRIGERATION SYSTEMS

12:90-6.1 Scope of subchapter

(a) This subchapter shall apply to the design, construction, inspection, installation, repair and alteration of refrigeration systems, except as provided in (b) below.

(b) This subchapter shall not apply to:

1. Systems using refrigerants of flammable, highly toxic or toxic nature of three tons or less of refrigerating capacity;
2. Systems using refrigerants of flammable, highly toxic or toxic nature requiring six driving horsepower or less;
3. Systems using refrigerants of nonflammable and nontoxic nature of 18 tons refrigerating capacity or less;

4. Systems using refrigerants of nonflammable and nontoxic nature requiring 36 driving horsepower or less; and
5. Systems using refrigerants of a nontoxic and nonflammable nature of 15 psig or less, regardless of capacity.

12:90-6.2 Compliance with referenced standards

(a) Refrigeration systems shall be constructed, installed, maintained, repaired and inspected in accordance with standards referenced in (b) below.

(b) ASHRAE 15 is adopted as the safety standard under this subchapter and shall apply according to the provisions thereof. ASHRAE 34 is adopted for refrigerant safety classifications.

(c) Each person engaged directly with refrigeration systems shall protect the public by complying with the standards prescribed in (b) above.

(d) Only standards relating to public safety (i.e. substantive rules) are adopted by any incorporation by reference as prescribed in (b) above.

(e) Where any conflict occurs between the standards prescribed in (b) above and these rules, these rules shall prevail.

12:90-6.3 Relief devices

(a) A relief device of proper size shall be installed on the compressor discharge line, located between the compressor outlet port and the discharge shut-off valve. This relief device may discharge into the suction side.

(b) A relief device shall also be installed to relieve from the vapor space of the liquid receiver, condenser, and other pressure vessels in the system.

(c) Relief devices shall discharge to the atmosphere at a safe point and through a diffuser, except as provided in (a) above and (d) below.

(d) Where discharge to the atmosphere is impracticable or hazardous to the immediate neighborhood, the relief device may discharge into a receptacle through which the refrigerant can be disposed of in a safe manner.

12:90-6.4 Inspection of refrigeration systems

(a) Refrigeration systems shall be inspected annually by an authorized State or insurance company inspector.

(b) It shall be the responsibility of the operator and the inspector to carefully check for indications of irregular, faulty or hazardous conditions.

(c) This inspection shall include the liquid receiver, condenser, all safety valves and their discharge points, gauges, controls and all other items which might be considered potentially critical.

(d) The inspector shall check the license of the operator and the State registration certificate and make note of these items in the inspection report.

(e) Damaged, altered, defaced or lost certificates must be replaced by request through the Bureau of Boiler and Pressure Vessel Compliance. The fee for replacement shall be \$15.00.

12:90-6.5 Fee for field inspection

(a) An insurance company making an annual inspection of refrigeration systems shall pay a \$40.00 fee to the Commissioner of Labor and Workforce Development for each system.

(b) The owner or user may request field inspection by the State.

(c) The fee for an annual field inspection by the State, based on the refrigeration capacity of the system, shall be made payable to the Commissioner of Labor and Workforce Development as follows:

1.	Over three and under 25 tons	\$100.00
2.	Twenty-five tons and over, but less than 300 tons	\$150.00
3.	300 tons and over	\$200.00

SUBCHAPTER 7. PRESSURE RELIEF VALVES

12:90-7.1 Scope of subchapter

This subchapter shall apply to entities wishing to disassemble, inspect or repair pressure relief valves for use on boilers, pressure vessels or refrigeration equipment.

12:90-7.2 Requirements for certification

In order to disassemble, inspect or repair pressure relief valves in the State, or for use in the State, the entity performing the function shall either have a National Board Certificate of Authorization for use of the Valve Repair ("VR") stamp or be a New Jersey registered owner-user inspection agency as set forth in *N.J.A.C. 12:90-5.18*.

SUBCHAPTER 8. LICENSING OF OPERATING ENGINEERS AND BOILER OPERATORS

12:90-8.1 Scope of subchapter

This subchapter shall apply to the procedures required to obtain a license as an operating engineer or fireman.

12:90-8.2 Application for licenses

(a) The application shall be typewritten or neatly and legibly printed in ink.

(b) All applications shall be carefully completed, signed by

the applicant and notarized.

(c) The statements of the applicant shall indicate the actual experience as specified in the eligibility provisions of *N.J.A.C. 12:90-8.4* through *8.13*. Only pertinent, applicable, and full-time experience shall be listed. This experience shall have been completed within seven years of the filing of application.

(d) Incomplete or outdated applications shall not be accepted.

(e) An application for a license shall be made on forms provided by the Bureau of Boiler and Pressure Compliance. Only one classification or change of grade may be requested per application.

(f) An operating engineer with the appropriate classification who worked with the applicant shall endorse the statements on all applications. For those facilities not requiring operation by a third grade engineer or higher classification, endorsement is acceptable from senior management who are directly responsible for the safe operation of the equipment listed on the application, except as provided in (g) below. Endorsement by the engineer or senior management shall attest to the applicant's statement of experience.

(g) Substitution for the endorsement of (f) above may be the holder of:

1. A marine engineer's license with the holder's experience documented by trip discharges;

2. Another State or city license with the holder's experience documented with a letter from the employer identifying operational experience and equipment;

3. A United States service or Merchant Marine discharge establishing the required engineering experience; or

4. Written statements from one or more former or present employer signed by management responsible for the equipment located at its facility. The statement should provide information that is detailed and specific for determining eligibility. At a minimum, it shall contain years of experience of the applicant and describe the type of equipment operated, including manufacturer, capacity, heat input rating and safety valve setting(s).

(h) No license shall be granted to a person less than 18 years of age.

(i) All correspondence relative to licenses or applications shall be addressed to the Bureau of Boiler and Pressure Vessel Compliance.

(j) The Bureau of Boiler and Pressure Vessel Compliance shall be notified of any change of residence. When writing, the license number shall be specified.

(k) The fee for each examination and for any license issued by the bureau shall be \$100.00, and the fee for a raise of grade or additional classification shall be \$80.00. The fee shall be in the form of a check or money order made payable to the Commissioner of Labor and Workforce Development and shall accompany the application.

(l) No annual renewal fee shall be charged for additional classifications on any license.

(m) No liability shall be assumed by the Bureau of Boiler and Pressure

Compliance for loss in the transmission of the fee.

12:90-8.3 Classification of licenses for operators

(a) The letters A, B and C shall be used to identify the engineer's grade of the license. An "A" or gold seal shall designate a first-grade license; "B" or red seal, a second grade license; and "C" or blue seal, a third grade license.

(b) A black seal shall identify a boiler operator.

(c) The license stamped on its face, "in-charge" shall identify a boiler operator in charge.

(d) Boiler operator and firemen classifications shall be identical.

(e) The numbers listed in Table 8.3(e) shall be used to identify the equipment indicated.

Table 8.3(e)

Arabic Number	Equipment
1	steam stationary boiler and steam prime mover
2	refrigeration plants
3	nuclear boiler and prime mover
7	hoisting machine and long boom crane
8	steam portable boiler and steam prime mover
9	steam locomotive crane

(f) Licenses for operators shall be classified as follows:

1. Special limited applications;
2. Low pressure boiler;
3. Operator in charge of high pressure boiler;
4. 1A, 1B, or 1C steam stationary boiler and steam prime mover;
5. 2A, 2B, or 2C refrigeration plants;
6. 3A, 3B, or 3C nuclear boiler and prime mover;
7. 7C long boom crane;
8. 8A, 8B, or 8C steam portable boiler and steam prime mover; and
9. 9A or 9B steam locomotive crane.

12:90-8.4 Eligibility for boiler operator's license (black seal)

To be eligible for a boiler operator's black seal license, the applicant shall have had at least three months experience as a helper, apprentice or assistant to a licensed operator of equipment requiring such license. The Bureau of Boiler and Pressure Vessel Compliance may request a copy of the boiler operator's log for the examiner's review during approval of the application.

12:90-8.5 Eligibility for low pressure boiler operator's license (black seal)

(a) To be eligible for a low pressure boiler operator's examination, the applicant shall:

1. Be able to comply with *N.J.A.C. 12:90-8.4*; or
2. Have had intensive training for 30 full working days in a program established by the responsible management representative and approved by the Bureau of Boiler and Pressure Vessel Compliance within five days of starting the training period. A log shall be established with the licensed operator doing the training, which shall be one-on-one, and the trainee shall have written verification of such training from the management representative responsible for the daily operation of the boiler plant. Any training commenced prior to the approval by the Bureau of Boiler and Pressure Vessel Compliance, with the exception of that encompassed within the five day approval period, shall not be credited toward the 30 days intensive training program.

12:90-8.6 Eligibility for high pressure boiler operator's license

(a) To be eligible for a high pressure boiler operator in charge examination, the applicant shall:

1. Be able to comply with *N.J.A.C. 12:90-8.4*; or
2. Have had intensive training for six weeks in a program established by the Chief Engineer and approved by the Bureau of Boiler and Pressure Vessel Compliance, within five days of starting the training period. A log shall be established with the licensed operator doing the training, which shall be one-on-one, and the trainee shall have written verification of such training from the chief engineer. Any training commenced prior to the approval by the Bureau of Boiler and Pressure Vessel Compliance, with the exception of that encompassed within the five day approval period, shall not be credited toward the six week intensive training program.

(b) If the applicant has had six months experience as a licensed low pressure boiler operator, the three months required in *N.J.A.C. 12:90-7.4* may be reduced to 30 days.

(c) To be eligible for a special license up to 100 horsepower, an applicant requires 30 days experience with such equipment.

12:90-8.7 Eligibility for third grade steam engineer's license (blue seal)

(a) To be eligible for a third grade steam engineer's (1-C or 8-C) examination, the applicant shall have a boiler operator in-charge high pressure license and shall have had at least six months subsequent experience either in the operation of equipment requiring supervision by a third grade engineer, or as an assistant in the operation of equipment requiring a third grade license for shift operation.

(b) Experience obtained outside the State of New Jersey may be considered if the applicant has served at least two years as a boiler operator of high pressure boilers of over 500 horsepower.

12:90-8.8 Eligibility for third grade refrigeration engineer's license (blue seal)

(a) To be eligible for a third grade refrigeration engineer's (2-C) examination, the applicant shall have had at least:

1. Six months experience as an assistant to an operator of a flammable, highly toxic or toxic refrigeration plant;
2. Three months experience as an operator of a flammable, highly toxic or toxic refrigeration plant;
3. Three months experience as an assistant to the operator of a flammable, highly toxic or toxic refrigeration system, provided the applicant has been given intensive training for the period by the licensed operator, and the chief engineer verifies such training and experience by letter;
4. Six months experience as an operator of a nontoxic refrigeration unit of at least 250 tons capacity and three months experience as an assistant to the licensed operator of a flammable, highly toxic or toxic refrigeration plant; or
5. Six months experience as an operator of a nontoxic refrigeration unit of at least 250 tons capacity, and satisfactory proof of completion of sufficient education in operation of a flammable, highly toxic or toxic refrigeration plant in an educational program approved by the Division of Vocational Education of the New Jersey Department of Education and the School Approval Unit of the New Jersey Department of Labor and Workforce Development.

12:90-8.9 Eligibility for nuclear engineer's license

To be eligible for nuclear engineer's (3-C) examination, the applicant shall hold certification from the United States Nuclear Regulatory Commission qualifying him to operate nuclear power equipment.

12:90-8.10 Eligibility for long boom crane operator's license

To be eligible for a hoisting machine long boom crane operator's (7-C) examination, the applicant shall have had at least six months experience as an operator of crane, at least three months of which experience shall be documented as having been with boom length of over 99 feet, or shall have successfully passed the National Commission for the Certification of Crane Operators Examination.

12:90-8.11 Eligibility for second grade engineer's license (red seal)

(a) To be eligible for a second grade engineer's examination, the applicant shall have a third grade license and shall have had at least one year's subsequent practical experience in the operation of equipment requiring supervision by a second grade or first grade engineer.

(b) Experience of an equivalent amount for the grade or classification from some other jurisdiction may be substituted if approved by the Bureau of Boiler and Pressure Vessel Compliance.

12:90-8.12 Eligibility for first grade engineer's license (gold seal)

(a) To be eligible for a first grade engineer's examination in any classification, the applicant shall have:

1. A second grade license and subsequently served one year as chief engineer in a plant requiring supervision by a second grade engineer; or
2. A second grade license with two years subsequent practical experience as an operating engineer in a plant requiring supervision by a first grade engineer; or
3. Equivalent experience and licenses from some other jurisdiction. Documentation regarding the other jurisdiction's licensing and eligibility requirements shall accompany the application.

12:90-8.13 Other eligibility considerations

(a) An applicant for an original license, change of classification or raise of grade may show in writing, as a substitute for up to 50 percent of the experience listed in *N.J.A.C. 12:90-8.4* through *8.12*, non-operating experience, such as servicing, maintenance, repair or installation of equipment; or satisfactory proof of completion of formal education or academic study embracing such equipment.

(b) When an applicant's operating engineer experience and training warrants, the Bureau of Boiler and Pressure Vessel Compliance may determine the classification and grade of license most suitable.

(c) The Bureau of Boiler and Pressure Vessel Compliance may consider an applicant's experience of an equivalent amount for grade or classification from some other jurisdiction. Documentation regarding the other jurisdiction's licensing and eligibility requirements shall accompany the application.

12:90-8.14 Examinations

(a) Examinations shall be held each month in Trenton, and at various other times and places throughout the State when warranted, and shall be conducted by an examiner.

(b) Applicants shall be notified when and where to appear for the examination.

(c) Applicants who are unable to appear on the date noticed shall notify the Bureau of Boiler and Pressure Vessel Compliance at least five days prior to the examination date, with the exception of documented illness or accidents. Postponements shall be granted no more than two times per application. Failure to appear for the examination shall be considered sufficient cause to void the application, unless a satisfactory explanation is given for failing to appear.

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

(e) Examinations for any license shall be conducted in a written form and shall consist of as many questions and be of such nature as the Bureau of Boiler and Pressure Vessel Compliance shall consider appropriate for the license desired. The questions shall pertain to the safe operation of steam and hot water boilers, appliances, auxiliaries and any other equipment common to modern plant operation and as covered by the licensing Act.

(f) An applicant for a special or boiler operator's license may, upon prior request, be examined through a reader or interpreter accompanying the applicant provided the reader or interpreter is

acceptable to the Bureau of Boiler and Pressure Vessel Compliance.

(g) Questions used in the 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 subsection shall be sufficient cause to disqualify the applicant and subject him or her to a maximum fine of \$500.00.

12:90-8.15 Granting of license

(a) A license shall be granted and designated Grade A when an average of 80 percent or more is attained on a Grade A examination.

(b) A license shall be granted and designated Grade B when an average of 70 percent or more is attained on a Grade B examination.

(c) A license shall be granted and designated Grade C when an average of 70 percent or more is attained on a Grade C examination.

(d) All other licenses specified in N.J.A.C. 12:90-3 shall have a minimum passing grade of 65 percent, with the exception of the boiler operator special license specified in *N.J.A.C. 12:90-3.4(b)*, and Table 3.4, which shall be issued on a passing grade of 60 percent.

(e) A license issued after examination covering one or more classifications shall be valid in any plant where the classification is within the scope of the license issued.

(f) Licenses merely bearing the impression of the seal of the Department of Labor and Workforce Development shall be issued as special licenses and are limited to the operation of equipment specified on the face thereof. When required, special licenses may be issued to operators of steam-driven prime movers that do not produce power, and to operators of non-conventional boilers, such as, but not limited to, electric, or conventional high pressure boilers of over six to 100 horsepower.

1. Licenses for waste heat, coil, and electric boilers over 100 horsepower shall be issued as are all other high pressure license certificates, but are limited to use and operation of the equipment type indicated on the face of the license certificate. This license is not interchangeable with any other type of fired or unfired boiler and pressure vessel license.

(g) Duplicate licenses for part-time employment may be issued at the discretion of the Commissioner.

1. The fee for a duplicate license is \$6.00 for one year.
2. A request by the licensee for a duplicate license shall be accompanied by a letter from the company desiring to employ the licensee.

3. The duplicate license shall specify the plant where it is to be used and may be transferred when approved following written request.
4. A Chief Engineer may not request a duplicate part-time license for secondary location employment.

12:90-8.16 Re-examination

(a) An applicant who has failed an examination may not be re-examined for a period of at least three months, but may be allowed one re-examination without additional charge within six months of the original examination. If again unsuccessful, the applicant may be re-examined within three months. If an applicant does not appear after being called for re-examination a third time, the application shall be canceled.

(b) Upon failing the examination for the third time or if an application is canceled, an applicant who wishes to retake the examination shall wait three months before reapplying for examination, at which time a new application form shall be fully completed and submitted to the Bureau with the appropriate fee.

12:90-8.17 Posting of license

(a) All licenses shall be framed and properly posted adjacent to the equipment involved, in the engineer's office or in the plant office, whichever is suitable.

(b) The license shall be available for examination.

(c) A penalty of \$ 500.00 may be imposed for violation of this section.

12:90-8.18 Suspension or revocation of license

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

(b) Any license or identification card shall be surrendered and immediately revoked if, for any purpose, it is loaned, abandoned or allowed to pass from the personal control of the person named as the license holder.

(c) All licenses shall expire unless renewed before or during the anniversary month indicated on the license. Changing of grade or addition of classification shall not change this anniversary date.

(d) A license shall be automatically canceled on the last day of the month in which it expires. Any persons performing the duties of a licensee and holding an expired license shall be subject to a minimum penalty of \$500.00 and a maximum penalty of \$ 5,000 per day. In addition, the supervisor and/or employer may be subject to a similar penalty.

(e) Any person using fraudulent means to obtain a license shall be subject to prosecution and/or a penalty up to \$5,000. Any license acquired through such means shall be invalid.

(f) A licensee whose license is suspended or revoked has the right to request a hearing conducted by one or more members of the Examining Board in accordance with *N.J.S.A. 34:7-3*. Failure to

appear for a hearing when requested shall cause the license to be suspended indefinitely. If the licensee disagrees with the decision, he or she may appeal to the Commissioner pursuant to the requirements of N.J.A.C. 12:90-9.

12:90-8.19 Renewal of license

(a) When applying for the renewal of a license, it shall be necessary to return only the signed identification card with a fee of \$40.00 for a one-year renewal or \$80.00 for a three-year renewal.

(b) A license may be renewed within 60 days prior to the date of its expiration.

(c) An application for a renewal of an expired license shall be approved provided:

1. A fee of \$60.00 is enclosed for one year or \$120.00 for a three-year renewal when the license renewal is late no more than four months past the expiration date;
2. The application is made within three years of the expiration date of the expired license; and
3. All penalties lawfully imposed on the applicant under *N.J.S.A. 34:7-6* have been paid.

(d) An application for renewal of a license expired more than three years shall be treated as an original application. All records pertaining to a license may be destroyed if it has not been renewed for a period of three years and one day after the expiration date.

(e) An altered, defaced or otherwise mutilated license shall be replaced only after review by the Bureau of Boiler and Pressure Vessel Compliance. Photostats, photographs or reproduction of a license shall have no status and shall not be recognized. A fee of \$10.00 shall be submitted for a replacement license.

12:90-8.20 Employment of unlicensed person in emergency

(a) Employers shall immediately request permission from the Bureau of Boiler and Pressure Vessel Compliance, in writing, if for any reason of emergency it becomes necessary to employ an unlicensed person temporarily for a period not to exceed 15 days explaining fully the circumstances.

(b) The Commissioner may extend the time period to a maximum of one year under (a) above provided that a written extension request is received by the Bureau of Boiler and Pressure Vessel Compliance prior to the expiration of the 15 day period in (a) above. Such request shall contain:

1. The reason for the emergency condition;
2. A date certain when a licensed person will be employed;
3. The method used and efforts made in searching for a licensed person;

4. The name of the unlicensed person currently employed and if the unlicensed person has made an application for examination with the Bureau of Boiler and Pressure Vessel Compliance; and
5. Such other information as the Commissioner shall direct.

(c) Late requests for extension are subject to penalties which must be satisfied prior to permission being granted.

(d) If additional time is required after the period granted in (b) above has expired, requests may be considered on a case-by-case basis, and only when documentation has been provided outlining why additional time is required.

(e) If an unlicensed person in (b)4 above who has filed an application with the Bureau of Boiler and Pressure Vessel Compliance fails to appear for an examination as notified or a licensed person is not hired within the extension period set by the Commissioner, the Commissioner may at his or her discretion refer a licensed person from an employment agency or other appropriate source to the employer. A penalty may be imposed of not less than \$ 500.00 nor more than \$ 5,000 per day for each violation as provided in *N.J.S.A. 34:7-6*.

(f) The employer shall notify the Bureau of Boiler and Pressure Vessel Compliance when a licensed person is employed, giving the name, address, and license, grade and number of such employee.

SUBCHAPTER 9. VIOLATIONS AND PENALTIES

12:90-9.1 Violations

(a) This subchapter shall apply to:

1. Findings of violations of *N.J.S.A. 34:7-1* et seq., and the issuing of penalties pursuant to *N.J.S.A. 34:7-6* of, the Act on Licensing of Operating Engineers and Firemen and *N.J.S.A. 34:7-14* et seq., and the issuing of penalties pursuant to *N.J.S.A. 34:7-26* of, the Act on Inspection of Boilers, Pressure Vessels and Refrigeration Systems;

ii. In accordance with *N.J.S.A. 34:7-6* any person who shall violate any of the provisions of the Act on Licensing of Operating Engineers and Firemen shall be liable to a penalty of not less than \$500.00 nor more than \$ 5,000 per day for each violation.

iii. In accordance with *N.J.S.A. 34:7-26*, any owner, lessee, seller or operator of any steam or hot water boiler or similar equipment specified in *N.J.S.A. 34:7-14*, pressure vessel or refrigeration system who shall sell, use, cause or allow to be used such steam or hot water boiler or similar equipment specified in *N.J.S.A. 34:7-14*, shall be liable to a penalty of not less than \$500.00 nor more than \$10,000 for each first offense and not less than \$500.00 nor more than \$25,000 for each subsequent offense, to be collected by a civil action, or at the Commissioner's discretion;

2. Actions affecting licenses issued pursuant to *N.J.S.A. 34:7-3*; and
3. Orders to discontinue use of an unfit vessel pursuant to *N.J.S.A. 34:7-21*.

(b) Any person aggrieved by a determination involving a license revocation or suspension under *N.J.A.C. 12:90-8.18(e)* shall be notified of a right to request a rehearing within 15 calendar days of the date of receipt of the determination.

(c) Any person aggrieved by a finding of violation and/or assessment of penalty made pursuant to *N.J.S.A. 34:7-1* et seq., shall be notified of the right to appeal the determination to the Commissioner within 15 calendar days of receipt of the determination.

(d) Any person aggrieved by an order issued by the Bureau of Boiler and Pressure Vessel Compliance to discontinue use of an unfit vessel notified pursuant to *N.J.S.A. 34:7-21* shall be notified of a right to appeal the determination to the Commissioner within 15 calendar days to the date of receipt of the order.

(e) An appeal must be in writing and received within 15 calendar days following the receipt of the notice or determination. All appeals shall be conducted pursuant to the Administrative Procedure Act, *N.J.S.A. 52:14B-1* et seq., and the Uniform Administrative Procedure Rules, *N.J.A.C. 1:1*. An appellant may be represented by an attorney. If an appeal is not made, the notice shall become

the Final Order of the Commissioner upon the expiration of the 15 calendar day period following receipt of the notice or determination.

12:90-9.2 Settlements

Recipients of a notice or determination may request the initiation of a settlement conference at the time that an appeal is filed. If a party requests a settlement conference, or the Department determines that an informal settlement conference would be useful, a settlement conference shall be scheduled and conducted by the Department within 30 days of the receipt of the request or appeal. See *N.J.A.C. 1:1-8.1(b)*.

12:90-9.3 Final agency decisions

If a settlement is not obtained at the settlement conference, or a settlement conference is not conducted, the appeal shall be transmitted to the Office of Administrative Law (OAL) pursuant to the Administrative Procedure Act. The Commissioner shall issue a Final Order upon the conclusion of such proceeding.

12:90-9.4 Enforcement

The Final Order may be enforced with costs in a summary proceeding commenced by the Commissioner.

12:90-9.5 Appeals

Appeals from the final decision of the Commissioner shall be made to the Appellate Division of the New Jersey Superior Court.

SUBCHAPTER 10. STANDARDS AND PUBLICATIONS INCORPORATED BY REFERENCE IN THIS CHAPTER

§12:90-10.1 Documents incorporated by reference

(a) The full title and edition of each of the standards and publications incorporated by reference in this chapter are as follows:

1. ASME--Boiler and Pressure Vessel Code, 2013 Edition.
2. BOCA National Mechanical Code, 1993 edition and all subsequent editions and addenda, specifically including the revisions identified the Conference Report of Final Action on 1994 Proposed Changes to the BOCA National Codes.
3. NBIC--National Board Inspection Code, 2013 Edition.
4. N.J.S.A. 34:7-1 et seq., Operating Engineers and Firemen Licensing Act.
5. N.J.S.A. 34:7-14 et seq., Boiler, Pressure Vessel and Refrigeration Act.
6. New Jersey Uniform Construction Code, N.J.A.C. 5:23-3.20, Mechanical Subcode.
7. API-510, Pressure Vessel Inspection Code 1995 Edition.

8. ASME CSD-1, Controls and Safety Devices for Automatically Fired Boilers, 2012, Edition.

9. ANSI/ASHRAE 15, Safety Code for Mechanical Refrigeration, 1994.

10. ANSI/ASHRAE 34, Designation and Safety Classification of Refrigerants, 1997 edition.

11. NFPA 54, National Fuel Gas Code, 2012 edition.

12. NFPA 58, Liquefied Petroleum Gas Code, 2011 edition.

13. NFPA 85, Boiler and Combustion Systems Hazard Code, 2011 edition.

14. NFPA 37, Standards for the Installation and Use of Stationary Combustion Engines and Gas Turbines, 2006 edition.

15. NFPA 2, Hydrogen Technologies Code, 2011 edition.

16. NFPA 55, Compressed Gases and Cryogenic Fluids Code, 2013 edition.

17. ANSI/IIAR 5-2013, Start-up and Commissioning of Closed-Circuit Ammonia Refrigeration Systems, 2013 edition.

18. ANSI/IIAR Standard 2-2008 Equipment, Design, and Installation of Closed-Circuit Ammonia Mechanical Refrigerating Systems, 2008 edition.

19. ANSI/IIAR Standard 7-2013 Developing Operating Procedures for Closed-Circuit Ammonia Mechanical Refrigerating Systems, 2013 edition.

12:90-10.2 Availability of documents for inspection

A copy of each of the standards and publications referred to in this chapter is on file and may be inspected at the following office of the Division of Public Safety and Occupational Safety and Health between the hours of 9:00 A.M. and 4:00 P.M. on regular working days:

New Jersey Department of Labor and Workforce
Development
Division of Public Safety and Occupational Safety and
Health
PO Box 392
3rd Floor
Trenton, New Jersey 08625-0392

12:90-10.3 Availability of documents from issuing organizations

Copies of the standards and publications referred to in this chapter may be obtained from the organizations listed below. The abbreviations preceding these standards and publications have the following meanings, and are the organizations issuing the standards and publications listed in *N.J.A.C. 12:90-10.1*.

1. API--American Petroleum Institute
Order Desk
1220 1 Street, Northwest
Washington, D.C. 20005

2. ASHRAE--American Society of Heating,
Refrigerating, and Air-Conditioning Engineers

Publication Sales
1791 Tullie Circle NE
Atlanta, GA 30329
Phone Number: (404) 636-8400
Fax Number: (404) 321-5478
E-mail: orders@ashrae.org

3. ASME--American Society of Mechanical Engineers
United Engineering Center

Three Park Avenue
New York, New York 10017
Publications order:
ASME
22 Law Drive
PO Box 2900
Fairfield, NJ 07007-2900
Phone: (800) 843-2763
Fax: (973) 882-1717
Email: infocentral@asme.org

4. ICC - International Code Council (formerly Building Officials
and Code Administrators International)

4051 West Flossmoor Road
Country Club Hills, IL 60477

5. IIAR-International Institute of Ammonia Refrigeration

1001 North Fairfax Street, Suite 503
Alexandria, VA 22314-1797

6. NBBPVI--National Board of Boiler and Pressure Vessel
Inspectors

1055 Crupper Avenue
Columbus, Ohio 43229

7. NFPA--National Fire Protection Association

1 Battery March Park
PO Box 9101
Quincy, MA 02169
E-mail: custserv@NFPA.org

8. N.J.S.A.--New Jersey Statutes Annotated

Copies available from:

i. Bureau of Boiler and Pressure Vessel Compliance

1 John Fitch Way, 3rd Floor
PO Box 392
Trenton, New Jersey 08625-0392

ii. New Jersey Uniform Construction Code--Bureau of Code Services

New Jersey Department of Community Affairs
Division of Codes and Standards
PO Box 816
Trenton, New Jersey 08625-0816

