

**Schedule "A"**

**Regulations Respecting Power Engineers  
made by the Governor in Council pursuant to  
Section 38 of Chapter 23 of the Acts of 2000,  
the *Crane Operators and Power Engineers Act***

**Interpretation**

**Citation**

**1** These regulations may be cited as the *Power Engineers Regulations*.

**Definitions**

**2** In these regulations,

- (a) "Act" means the *Crane Operators and Power Engineers Act*;
- (b) "accredited university" means a university recognized by the Canadian Engineering Accreditation Board or a degree granting body recognized by the Association of Professional Engineers of Nova Scotia;
- (c) "ASHRAE" means American Society of Heating, Refrigeration and Air Conditioning Engineers;
- (d) "ASME" means American Society of Mechanical Engineers;
- (e) "assistant shift power engineer" means a power engineer who, under the supervision of a shift power engineer, operates or is responsible for a section of a plant;
- (f) "automatic control" means a device that starts, stops and modulates the action of a plant without the intervention of a person;
- (g) "certificate of qualification" means a certificate of qualification issued under subsection 31(3) of the Act;
- (h) "continuous supervision" means, in relation to a plant, that a power engineer or operator is located
  - (i) in the plant within the audible and visual range of the alarm system for the plant, and
  - (ii) in the primary control area of the plant where they can manually control the plant by starting, stopping, restarting or modulating the operations of the plant;
- (i) "CSA" means the Canadian Standards Association;

- (j) "extended alarm system" means an alarm system that
  - (i) extends beyond the room that houses the plant,
  - (ii) audibly and visually warns the power engineer, operator or any other person in the vicinity of the plant of the occurrence of any abnormal operating condition of the plant, and
  - (iii) cannot be shut off until the abnormal condition is rectified or the plant is shut down;
- (k) "fired" means, in relation to a boiler, that the boiler contents are heated by electricity or the product of combustion of a fuel;
- (l) "guarded" means, in relation to a plant, that the plant is equipped and maintained in accordance with the requirements of Sections 17 to 22 of these regulations so that it functions automatically under a continuously attended monitoring system;
- (m) "heating boiler" means
  - (i) any fired steam boiler equipped with a safety valve designed to operate at pressures not exceeding 103 kPa (15 psig), or
  - (ii) any fired high temperature hot water boiler designed to operate at pressures in excess of 1100 kPa (160 psig) or with a water temperature at any boiler outlet in excess of 121°C (250°F);
- (n) "inter-provincial certificate" means a certificate of qualification issued to a person who has successfully completed the examinations prepared by the Standardization of Power Engineers Examinations Committee, established by the Association of Chief Boiler and Pressure Vessel Inspectors;
- (o) "log book" means a bound book with numbered pages used for keeping a record of plant operations and maintenance;
- (p) "minimum supervision" means, in relation to a plant, that a power engineer or operator manually starts the plant when the plant is not operating under automatic control;
- (q) "periodic supervision" means, in relation to a plant, that a power engineer or operator
  - (i) is located on the plant site within range of the extended alarm system for the plant whenever the plant is being operated and any building containing or serviced by the plant is occupied, and

- (ii) manually starts the plant whenever the plant is not operating under automatic control;
- (r) "plant site" means the plant and the land on which the plant is situated that is leased or owned by the owner but does not include land that is separated by a public access route;
- (s) "power boiler" means any fired or unfired steam boiler equipped with a safety valve designed to operate at pressures in excess of 103 kPa (15 psig);
- (t) "Provincial certificate" means a certificate of qualification described in subsections 24(2) and (3), and includes a certificate of qualification issued under subsection 39(1);
- (u) "refrigeration" means the thermodynamic process of using a refrigerant to lower the temperature of an item or an area and maintain it at the lower temperature;
- (v) "restricted temporary certificate" means a certificate of qualification issued under Section 36;
- (w) "sealing" means a measure taken by the Department to isolate equipment so that it will not be operated; and
- (x) "unfired" means, in relation to a boiler, that steam is generated in the boiler without the combustion of a fuel or the direct application of an electrical heat source.

### **Prescribed Plants**

- 3 (1) A single boiler that is
  - (a) a power boiler, with a power rating in excess of 500 kW; or
  - (b) a heating boiler, with a power rating in excess of 1500 kW,is a boiler plant.
- (2) A refrigeration installation that
  - (a) is located in a public assembly, institutional or residential occupancy as defined by CSA B52-99 Mechanical Refrigeration Code, as amended from time to time, and consists of a refrigeration circuit

- (i) containing a Group A1 refrigerant as classified in CSA B52-99, Mechanical Refrigeration Code, as amended from time to time, and having a power rating in excess of 75 kW, or
  - (ii) containing a Group A2, A3, B1, B2 or B3 refrigerant as classified in CSA B52-99, Mechanical Refrigeration Code, as amended from time to time, and having a power rating in excess of 37.5 kW; or
- (b) is located in a commercial or industrial occupancy as defined by CSA B52-99 Mechanical Refrigeration Code, as amended from time to time, and consists of a refrigeration circuit
- (i) containing a Group A1 refrigerant as classified in CSA B52-99 Mechanical Refrigeration Code, as amended from time to time, and having a power rating in excess of 150 kW, or
  - (ii) containing a Group A2, A3, B1, B2 or B3 refrigerant as classified in CSA B52-99 Mechanical Refrigeration Code, as amended from time to time, and having a power rating in excess of 37.5 kW

is a refrigeration plant.

- (3) An air or gas compressor installation that
- (a) uses any type of compressor with a power rating in excess of 350 kW for compressing air or any other non-flammable or non-toxic gas, except oxygen; or
  - (b) uses any type of compressor with a power rating in excess of 37.5 kW for compressing a flammable or toxic gas or oxygen;

is a compressor plant.

- (4) Clause (3)(a) does not apply to centrifical blowers used in an application in which the air or other non-flammable or non-toxic gas is not stored under pressure.

### **Rating of Plant Equipment**

#### **Power rating**

- 4 (1) The Inspector-Examiner shall rate a plant in accordance with this Section.
- (2) Subject to subsection (3), the power rating for any boiler shall be determined by dividing the maximum heat input, as specified by the boiler manufacturer and measured in British Thermal Units per hour, by 3412.

- (3) Where the maximum heat input of the boiler is unavailable, the Inspector-Examiner shall determine the power rating by any of the following methods:
- (a) by multiplying the boiler horsepower, calculated by the manufacturer, by 9.81;
  - (b) where electric power is used as a heat source, by determining the maximum aggregate capacity of all heating elements; or
  - (c) by carrying out an accumulation test on the boiler.
- (4) The power rating for a refrigeration compressor, air compressor or gas compressor shall be the power rating of the electric motor or prime mover driving the compressor.
- (5) The power rating for an electric motor or prime mover used in a plant shall be the maximum power, specified by the manufacturer, that can be delivered at the drive shaft during continuous operation.
- (6) Every owner of a plant may apply to the Inspector-Examiner to have the total plant power rating reduced as a result of non-operating equipment that has been sealed in accordance with these regulations.

**Effect of common distribution system on power rating**

- 5 (1) Subject to subsections (2) and (3), boilers, refrigeration compressors or air or gas compressors that share a common distribution system, shall have their respective power ratings added together and shall be considered a single plant.
- (2) Unfired boilers shall have their respective power ratings added together separate from fired boilers.
- (3) Refrigeration systems that share an evaporator or condensor shall have their power ratings added together.

**Plant Classification and Registration**

**Plant classification**

- 6 The Inspector-Examiner shall classify every plant in accordance with column 1 of Schedule 2 for the corresponding description of the type of plant set out in column 2 of Schedule 2.

**Annual plant registration fee**

- 7 The annual registration fee for a plant shall be the amount set out in item 7 of Schedule 1.

**Term of plant registration certificate**

- 8 A plant registration certificate shall be valid until the earlier of
- (a) one year from the date of issue;
  - (b) the day on which the total power rating of the plant changes such that the plant's classification is changed; or
  - (c) the day on which there is a change in the ownership of the plant.

**Information on renewal of plant registration certificate**

- 9 Upon the annual renewal of the plant registration certificate, every owner of a plant shall provide the Inspector-Examiner with the information that the Inspector-Examiner requests pertaining to the operation of the plant, in order for the Inspector-Examiner to ensure that the plant complies with the Act and these regulations.

**Sealing of equipment upon reclassification**

- 10 Where the Inspector-Examiner reclassifies a plant, the Inspector-Examiner shall seal equipment that is no longer part of the plant.

**Supervision**

**Continuous supervision**

- 11 Subject to Section 12, every owner shall provide continuous supervision of a plant.

**Authorization for reduced supervision**

- 12 On application by an owner, the Inspector-Examiner shall authorize periodic or minimum supervision of a plant if the plant
- (a) is guarded; and
  - (b) is equipped with an extended alarm system.

**Loss of status as guarded plant**

- 13 Where the extended alarm system or one of the control, alarm and safety devices and systems or requirements of a guarded plant is inoperative or ineffective, or the additional conditions imposed by the Inspector-Examiner under subsection 34(3) of the Act are not met, the owner of a plant that is authorized to operate with minimum supervision or periodic supervision pursuant to Section 12 shall provide continuous supervision of that plant.

### **Prohibition**

- 14** No owner shall operate or permit to be operated a plant that is authorized pursuant to Section 12 to be operated under periodic or minimum supervision unless Sections 15 and 16 are complied with.

### **Periodic supervision**

- 15 (1)** Periodic supervision may be authorized pursuant to Section 12 for any of the following plants:
- (a) a power boiler plant with a power rating of 3500 kW or less;
  - (b) a heating boiler plant with a power rating of 10 000 kW or less;
  - (c) any refrigeration plant that uses a Group A1 refrigerant as classified in CSA B52-99 Mechanical Refrigeration Code, as amended from time to time;
  - (d) a refrigeration plant with a power rating of 450 kW or less that uses a Group A2, A3, B1, B2 or B3 refrigerant as classified in CSA B52-99 Mechanical Refrigeration Code, as amended from time to time;
  - (e) a compressor plant with a power rating of 350 kW or less that compresses oxygen or a flammable or toxic gas; or
  - (f) an air or non-flammable or non-toxic gas compressor plant of any power rating.
- (2)** Where a plant is operating under periodic supervision, no power engineer or operator shall leave the plant site without ensuring that
- (a) the plant is operating under automatic control safely and in accordance with the manufacturer's specifications;
  - (b) the plant is guarded; and
  - (c) any building containing or serviced by the plant is unoccupied.
- (3)** The power engineer or operator for every plant that is operating under periodic supervision shall visit the plant at least once in every 12-hour period during which the building containing or serviced by the plant is unoccupied, to ensure that
- (a) the requirements of Sections 17 to 22 respecting control, alarm and safety devices and systems and guarded controls are complied with; and
  - (b) the plant is operating safely and in accordance with the manufacturer's

specifications.

### **Minimum supervision**

- 16 (1)** Minimum supervision may be authorized pursuant to Section 12 for any of the following plants:
- (a) a power boiler plant with a power rating of 1000 kW or less;
  - (b) a heating boiler plant with a power rating of 2000 kW or less;
  - (c) a refrigeration plant that uses a Group A2, A3, B1, B2 or B3 refrigerant as classified in CSA B52-99 Mechanical Refrigeration Code, as amended from time to time, and has a power rating of 150 kW or less;
  - (d) a refrigeration plant that uses a Group A1 refrigerant as classified in CSA B52-99 Mechanical Refrigeration Code, as amended from time to time, and has a power rating of 350 kW or less;
  - (e) a compressor plant that compresses oxygen or a flammable or toxic gas that has a power rating of 150 kW or less; or
  - (f) an air, or a non-flammable or non-toxic gas compressor plant that has a power rating of 750 kW or less.
- (2)** Where a plant is operating under minimum supervision, no power engineer or operator shall leave the plant site without ensuring that the plant is
- (a) operating under automatic control safely and in accordance with the manufacturer's specifications; and
  - (b) guarded.
- (3)** The power engineer or operator for every plant that is operating under minimum supervision shall visit the plant at least once during every 24-hour period to ensure that the requirements of Sections 17 to 22 respecting control, alarm and safety devices and systems and guarded controls are complied with.

### **Requirements for Guarded Plants**

### **Maintenance schedule and testing**

- 17 (1)** Every owner, chief power engineer or chief operator of a guarded plant shall establish a maintenance schedule for the control, alarm and safety devices and systems and the guarded controls required by Sections 17 to 22 and shall maintain them in accordance with the maintenance schedule.

- (2) Every owner, chief power engineer or chief operator of a guarded plant shall test and calibrate, in accordance with the manufacturer's specifications, the control, alarm and safety devices and systems and the guarded controls required by Sections 17 to 22.

#### **Technical requirements for guarded plants**

- 18 (1) Every owner shall equip a guarded plant with
  - (a) an extended alarm system that is capable of initiating an alarm to a continuously attended monitoring system whenever the plant is operating; and
  - (b) an automatic control system that will safely operate the plant when the power engineer or operator in charge stops manually operating the controls.
- (2) Every owner shall ensure that whenever an alarm signal is initiated by the extended alarm system, the power engineer or operator responsible for the plant is immediately notified by the person monitoring the system.
- (3) Every owner shall equip every tripping device referred to in Sections 19 to 22 with a manual reset that is secured to prevent access by any person other than a power engineer or operator.

#### **Guarded power boiler plant**

- 19 Every owner shall equip a guarded power boiler plant with
  - (a) a device that will purge the furnace chamber in accordance with the manufacturer's specifications each time the boiler is put into use;
  - (b) a flame failure tripping device that will detect a flame failure and instantly stop and prevent the supply of fuel to the boiler if a flame failure occurs;
  - (c) a low water level tripping device, separate from any other device that controls the water level in the boiler during normal operation under automatic control, that will instantly stop and prevent the supply of fuel to the boiler if the boiler water falls below the safe operating level specified by the manufacturer;
  - (d) a high water level tripping device, separate from any other device that controls the water level of the boiler during normal operation under automatic control, that will instantly stop and prevent the supply of fuel to the boiler if the water in the boiler exceeds a safe operating level specified by the manufacturer;

- (e) except where the manufacturer's design does not include one, a low combustion air pressure tripping device that will instantly stop and prevent the supply of fuel to the boiler if the combustion air falls below the safe operating pressure specified by the manufacturer;
- (f) a high pressure tripping device that will instantly stop and prevent the supply of fuel to the boiler, if the boiler pressure reaches the lower of
  - (i) the maximum allowable working pressure, or
  - (ii) an established high pressure limit specified by the manufacturer; and
- (g) a "kill switch" device, mounted in a visible and readily accessible location outside the boiler room, that will allow a person to turn the boiler off safely in an emergency.

#### **Guarded hot water heating boiler plant**

**20** Every owner shall equip a guarded high temperature, high pressure, hot water heating boiler plant with

- (a) a high water temperature tripping device that will instantly stop and prevent the supply of fuel to the boiler when the water in the boiler exceeds the safe operating temperature specified by the manufacturer; and
- (b) the devices referred to clauses 19(a), (b), (c), (e), (f) and (g).

#### **Guarded refrigeration plant**

**21 (1)** Every owner shall equip a guarded refrigeration plant with

- (a) a high level liquid tripping device in the evaporator or the refrigerant suction accumulator, that will instantly stop the electric motor or prime mover of the compressor and prevent it from re-starting if the liquid in the refrigerant level exceeds the safe level specified by the manufacturer, unless the design prevents the possibility of liquid refrigerant being drawn into the compressor;
- (b) a high temperature tripping device, located in the coolant discharge line or in the discharge line of the compressor, that will instantly stop the electric motor or prime mover of the compressor and prevent it from re-starting if the coolant or discharge gas exceeds the safe operating temperature specified by the manufacturer;
- (c) a high discharge pressure tripping device that will instantly stop the electric motor or prime mover of the compressor and prevent it from re-starting if the

discharge of the compressor exceeds the safe operating pressure specified by the manufacturer;

- (d) in the case of a pressurized lubricating oil system, a low oil pressure tripping device that will instantly stop the electric motor or prime mover of the compressor and prevent it from re-starting if the oil falls below the safe operating pressure specified by the manufacturer;
  - (e) a "kill switch" device that is mounted in a visible and readily accessible location outside the compressor room that will allow a person to turn the compressor off safely in an emergency; and
  - (f) a machinery room as required by CSA B52-99 Mechanical Refrigeration Code, as amended from time to time.
- (2) Every owner shall equip a guarded ammonia refrigeration system with an ammonia vapour detector that actuates at a value not greater than the TLV/TWA concentration value for ammonia as set out in CSA B52-99 Mechanical Refrigeration Code, as amended from time to time.

### **Guarded compressor plant**

22 Every owner shall equip a guarded compressor plant with

- (a) each of the devices described in clauses 21(1)(c), (d) and (e);
- (b) a high discharge temperature tripping device in the discharge line of the compressor that will instantly stop the electric motor or prime mover of the compressor and prevent it from re-starting if the discharge gas exceeds the safe operating temperature specified by the manufacturer;
- (c) where the compressor is water-cooled,
  - (i) a low water pressure tripping device in the cooling water inlet line, or
  - (ii) a high water temperature tripping device in the cooling water outlet linethat will instantly stop the electric motor or prime mover of the compressor and prevent it from re-starting if the cooling water pressure or temperature is outside the safe operating pressure or temperature specified by the manufacturer;
- (d) where the compressor is air-cooled, a fan motor overload tripping device that will instantly stop the electric motor or prime mover of the compressor and prevent it from restarting if the air cooling fan becomes overloaded; and
- (e) where the compressor is driven by an electric motor, with a motor overload tripping

device that stops the electric motor of the compressor and prevents it from re-starting if the motor becomes overloaded.

### **Log Books**

- 23      **(1)**      Every owner shall provide a log book at each plant site.
- (2)**      Every operator or power engineer in charge of a shift shall, for each shift, record in the log book the following information:
- (a)      the time, date and designation of the shift;
  - (b)      the name and signature of the power engineer or operator providing the required supervision on each shift;
  - (c)      the name of any other power engineer or operator on the shift;
  - (d)      the name of the people on the shift who are in training to be power engineers or operators;
  - (e)      the plant conditions;
  - (f)      any abnormal plant conditions and any corrective actions required or taken;
  - (g)      any order or direction given that is contrary to or in addition to normal operating procedure;
  - (h)      the name of the person giving an order referred to in clause (g), the time at which the order was given and the reason for the order;
  - (i)      the nature and frequency of any preventative maintenance procedures provided for any part of the plant, including the testing and recording of all operational logging, control, alarm and safety systems; and
  - (j)      any repairs to any part of the plant, including the time that the repairs were commenced, the time of their completion and the name of the person who conducted the repairs.
- (3)**      Despite clauses 2(i) and (j), where the information required in those clauses is recorded separately by the owner in records that are readily available to an inspector and the chief power engineer or chief operator, the operator or power engineer does not have to record the information in the log book.

- (4) Every owner shall keep the log book available for inspection by an inspector, for at least 12 months from the date of the last entry in the log book.

### **Certificates of Qualification**

#### **Types of certificates**

- 24 (1) The Inter-provincial certificates of qualification are as follows:
- (a) first class power engineer;
  - (b) second class power engineer;
  - (c) third class power engineer;
  - (d) fourth class power engineer; and
  - (e) second class refrigeration plant operator.
- (2) The Provincial certificates of qualification are as follows:
- (a) first class refrigeration plant operator;
  - (b) second class refrigeration plant operator; and
  - (c) compressor plant operator.
- (3) Except for a Provincial certificate issued under subsection 39(1), the following Provincial certificates of qualification shall only be issued to renew or replace Provincial certificates that were previously issued and remain valid, but will not otherwise be issued:
- (a) first class power engineer;
  - (b) second class power engineer;
  - (c) third class power engineer; and
  - (d) fourth class power engineer.

## **Scope of Qualification**

### **Inter-Provincial first class power engineer**

25 The holder of an Inter-Provincial First Class Power Engineer Certificate of qualification may act as chief engineer or shift engineer for any plant.

### **Inter-Provincial second class power engineer**

26 The holder of an Inter-Provincial Second Class Power Engineer Certificate of qualification may

- (a) act as chief engineer for
  - (i) a fired power boiler plant that has a power rating of not more than 20 000 kW,
  - (ii) an unfired power boiler plant,
  - (iii) a heating boiler plant,
  - (iv) a refrigeration plant, or
  - (v) a compressor plant; and
- (b) act as shift engineer in a plant of any size.

### **Inter-Provincial third class power engineer**

27 The holder of an Inter-Provincial Third Class Power Engineer Certificate of qualification may

- (a) act as chief engineer for
  - (i) a fired power boiler plant that has a power rating of not more than 10 000 kW,
  - (ii) an unfired power boiler plant,
  - (iii) a heating boiler plant,
  - (iv) a refrigeration plant that uses Group A1 refrigerant as classified in CSA B52-99 Mechanical Refrigeration Code, as amended from time to time, and has a total plant power rating of not more than 1000 kW,
  - (v) a refrigeration plant that uses Group A2, A3, B1, B2 or B3 refrigerant as

classified in CSA B52-99 Mechanical Refrigeration Code, as amended from time to time, and has a total plant power rating of not more than 450 kW, or

- (vi) a compressor plant; and
- (b) act as shift engineer for
  - (i) a fired boiler plant that has a power rating of not more than 20 000 kW,
  - (ii) an unfired power boiler plant,
  - (iii) a heating boiler plant,
  - (iv) a refrigeration plant, or
  - (v) a compressor plant.

**Inter-Provincial fourth class power engineer**

**28** The holder of an Inter-Provincial Fourth Class Power Engineer Certificate of qualification may

- (a) act as chief engineer for
  - (i) a power boiler plant that has a power rating of not more than 3500 kW,
  - (ii) a heating boiler plant that has a power rating of not more than 10 000 kW,
  - (iii) a refrigeration plant that uses Group A1 refrigerant as classified in CSA B52-99 Mechanical Refrigeration Code, as amended from time to time, and has a total plant power rating of not more than 750 kW,
  - (iv) a refrigeration plant that uses Group A2, A3, B1, B2 or B3 refrigerant as classified in CSA B52-99 Mechanical Refrigeration Code, as amended from time to time, and has a total plant power rating of not more than 150 kW, or
  - (v) an air compressor plant; and
- (b) act as shift engineer for
  - (i) a fired power boiler plant that has a power rating of not more than 10 000 kW,
  - (ii) an unfired power boiler plant,

- (iii) a heating boiler plant,
- (iv) a refrigeration plant that uses Group A1 refrigerant as classified in CSA B52-99 Mechanical Refrigeration Code, as amended from time to time, and has a total plant power rating of not more than 1000 kW,
- (v) a refrigeration plant that uses Group A2, A3, B1, B2 or B3 refrigerant as classified in CSA B52-99 Mechanical Refrigeration Code, as amended from time to time, and has a total plant power rating of not more than 450 kW, or
- (vi) a compressor plant.

**Provincial first class power engineer**

**29** The holder of a Provincial First Class Power Engineer Certificate of qualification may act as chief engineer or shift engineer for a boiler plant or a compressor plant.

**Provincial second class power engineer**

**30** The holder of a Provincial Second Class Power Engineer Certificate of qualification may

- (a) act as chief engineer for
  - (i) a fired power boiler plant that has a power rating of not more than 20 000 kW,
  - (ii) an unfired power boiler plant,
  - (iii) a heating boiler plant, or
  - (iv) a compressor plant; and
- (b) act as shift engineer for
  - (i) a boiler plant, or
  - (ii) a compressor plant.

**Provincial third class power engineer**

**31** The holder of a Provincial Third Class Power Engineer Certificate of qualification may

- (a) act as chief engineer for
  - (i) a fired boiler plant that has a power rating of not more than 10 000 kW,
  - (ii) an unfired power boiler plant,

- (iii) a heating boiler plant, or
- (iv) a compressor plant; and
- (b) act as shift engineer for
  - (i) a fired boiler plant that has a power rating of not more than 20 000 kW,
  - (ii) an unfired power boiler plant,
  - (iii) a heating boiler plant, or
  - (iv) a compressor plant.

**Provincial fourth class power engineer**

**32** The holder of a Provincial Fourth Class Power Engineer Certificate of qualification may

- (a) act as chief engineer for
  - (i) a power boiler plant that has a power rating of not more than 3500 kW,
  - (ii) a heating boiler plant that has a power rating of not more than 10 000 kW, or
  - (iii) an air compressor plant; and
- (b) act as shift engineer for
  - (i) a fired power boiler plant that has a power rating of not more than 10 000 kW,
  - (ii) an unfired power boiler plant,
  - (iii) a heating boiler plant, or
  - (iv) a compressor plant.

**First class refrigeration plant operator**

**33** The holder of a First Class Refrigeration Plant Operator Certificate of qualification may act as chief operator or shift operator for any size refrigeration plant.

**Second class refrigeration plant operator**

**34** The holder of a Second Class Refrigeration Plant Operator Certificate of qualification may

- (a) act as chief operator for
  - (i) a refrigeration plant that uses Group A1 refrigerant as classified in CSA B52-99 Mechanical Refrigeration Code, as amended from time to time, and has a total plant power rating of not more than 1000 kW, or
  - (ii) a refrigeration plant that uses Group A2, A3, B1, B2 or B3 refrigerant as classified in CSA B52-99 Mechanical Refrigeration Code, as amended from time to time, and has a total plant power rating of not more than 450 kW; and
- (b) act as shift operator for any size refrigeration plant.

**Compressor plant operator**

**35** The holder of a Compressor Plant Operator Certificate of qualification may act as chief operator or shift operator for a compressor plant.

**Restricted Temporary Certificate of Qualification**

- 36** **(1)** On application by an employer to the Inspector-Examiner on behalf of an employee of that employer, the Inspector-Examiner shall issue a Restricted Temporary Certificate of qualification to a person
- (a) where the employer provides, in writing, adequate justification for the candidate's inability to undertake the required written examinations for certification as a power engineer or operator for that plant;
  - (b) where the person possesses the required practical experience required under the Act and these regulations;
  - (c) where the person successfully passes an oral examination administered by an inspector relating to the operation of the registered plant for which the Restricted Temporary Certificate of qualification will apply; and
  - (d) upon payment of the fee set out in item 9 of Schedule 1.
- (2)** A certificate of qualification issued under subsection (1) shall
- (a) be restricted to the registered plant of the employer;

- (b) be non-transferable;
- (c) not exceed a Second Class Refrigeration Plant Operator Certificate of qualification or a Provincial Third Class Power Engineer Certificate of qualification;
- (d) be valid for 1 year from date of issue and may be renewed upon re-application; and
- (e) not entitle the holder of the certificate to be the chief power engineer or chief operator of a plant.

### **Renewal and Reinstatement**

#### **Annual renewal fee**

- 37** The annual renewal fee for a certificate of qualification shall be the amount set out in item 2 of Schedule 1 and shall be paid 1 year after the date of issue or the date of the most recent renewal.

#### **Reinstatement of expired certificate of qualification**

- 38 (1)** Where a person's certificate of qualification has expired, in order to apply for reinstatement, the person shall
- (a) reapply under the Act; and
  - (b) pay the annual renewal fee and reinstatement fee set out in items 2 and 5 of Schedule 1, respectively.
- (2)** Where a person's certificate of qualification has remained expired for a period of more than 4 years, in order to apply for reinstatement, the person shall
- (a) reapply under the Act;
  - (b) write an examination prepared by the Inspector-Examiner; and
  - (c) pay the annual renewal fee and reinstatement fee set out in items 2 and 5 of Schedule 1, respectively.

### **Recognition of other Jurisdictions and Organizations**

- 39 (1)** Subject to subsection (2), on application from a person who holds a certificate of qualification from another jurisdiction or organization, the Inspector-Examiner shall issue a Provincial certificate of qualification to a person who

- (a) provides evidence of their experience and qualifications that are sufficiently equivalent to the requirements for the certificate set out in the Act and these regulations;
  - (b) provides evidence as to their identity; and
  - (c) pays the fee set out in item 2 of Schedule 1.
- (2) A candidate from another jurisdiction who holds a valid certificate from the other jurisdiction that is equivalent to an inter-provincial certificate of qualification shall, upon meeting the requirements of clauses 1(a), (b) and (c), be issued an inter-provincial certificate of qualification.

### **Educational and Practical Experience Requirements and Equivalents**

#### **Minimum educational requirements**

- 40 (1) Subject to subsection (2), every power engineer and operator who applies for a certificate of qualification shall have successfully completed grade 12 from a Nova Scotia high school or the equivalent.
- (2) The successful completion of a course in power engineering acceptable to the Inspector-Examiner at the same level as the class of certificate for which the person is applying, may be approved by the Inspector-Examiner as equivalent to the requirement under subsection (1).

#### **Equivalencies accepted**

- 41 (1) In place of some or all of the educational and practical qualifications required under these regulations, the Inspector-Examiner shall accept
- (a) relevant service or training in the Canadian Forces or the equivalent; or
  - (b) successful completion of courses in a technical or trade school recognized by the Inspector-Examiner;
  - (c) experience in the construction, operation, repair, or testing of a plant relevant to the certificate of qualification being applied for; or
  - (d) the completion in whole or part of a correspondence course or formal course of study in power engineering recognized by the Inspector-Examiner.
- (2) A certificate of apprenticeship issued under the *Apprenticeship and Trades Qualifications Act* is equivalent to the educational and practical qualifications required under these regulations.

## **Practical Experience Required for Certificates of Qualification**

### **Inter-Provincial First Class Power Engineer Certificate of qualification**

- 42 (1)** Every applicant for an Inter-Provincial First Class Power Engineer Certificate of qualification shall, in addition to having an Inter-Provincial Second Class Power Engineering Certificate of qualification, have the following practical experience:
- (a) 30 months experience as a chief power engineer in a second class boiler plant;
  - (b) 30 months experience as a shift power engineer in a first class boiler plant;
  - (c) 42 months of operating experience as an assistant shift power engineer in a first class boiler plant;
  - (d) 15 months of the experience described in clauses (a), (b), or (c), and 30 months of experience in the design, construction, installation, repair or maintenance of equipment of a boiler plant; or
  - (e) 15 months of the experience described in clauses (a), (b) or (c), and 15 months of experience as a professional engineer in the design, maintenance or operation of a boiler plant.

### **Inter-Provincial Second Class Power Engineer Certificate of qualification**

- (2)** Every applicant for an Inter-Provincial Second Class Power Engineer Certificate of qualification shall, in addition to having an Inter-Provincial Third Class Power Engineer Certificate of qualification, have the following practical experience:
- (a) 24 months experience as a chief power engineer in a third class boiler plant;
  - (b) 24 months experience as a shift power engineer in a second class boiler plant;
  - (c) 24 months of operating experience as an assistant shift power engineer in a first class boiler plant;
  - (d) 12 months of the experience described in clauses (a), (b), or (c), and at least 24 months of experience in the design; construction, installation, repair or maintenance of equipment of a boiler plant; or
  - (e) 12 months of the experience described in clauses (a), (b) or (c), and 12 months of experience as a professional engineer in the design, maintenance or operation of a boiler plant.

**Inter-Provincial Third Class Power Engineer Certificate of qualification**

- (3) Every applicant for an Inter-Provincial Third Class Power Engineer Certificate of qualification shall, in addition to having an Inter-Provincial Fourth Class Power Engineer Certificate of qualification, have the following practical experience:
- (a) 12 months experience as a chief power engineer in a fourth class boiler plant;
  - (b) 12 months experience as a shift power engineer in a third class boiler plant;
  - (c) 12 months of operating experience as an assistant shift power engineer in a second class boiler plant;
  - (d) 6 months of the experience described in clauses (a), (b) or (c) and at least 18 months experience in the design, construction, installation, repair or maintenance of equipment of a boiler plant;
  - (e) successful completion of a course in power engineering acceptable to the Inspector-Examiner leading to an Inter-Provincial Third Class Power Engineer Certificate of qualification, and 6 months of the operating experience described in clause (a), (b) or (c);
  - (f) 6 months of the experience described in clause (a), (b) or (c) and a degree in mechanical or chemical engineering, or the equivalent, from an accredited university;
  - (g) 6 months of the experience described in clause (a), (b) or (c) and 12 months experience as a chief power engineer in a fourth class boiler plant that is an unfired power boiler plant; or
  - (h) 6 months of the experience described in clause (a), (b) or (c) and 12 months experience as a shift power engineer in a third class boiler plant that is an unfired power boiler plant.

**Inter-Provincial Fourth Class Power Engineer Certificate of qualification**

- (4) Every applicant for an Inter-Provincial Fourth Class Power Engineer Certificate of qualification shall have the following practical experience:
- (a) 12 months experience assisting in the operation of a fired power boiler plant that has a power rating in excess of 500 kW;
  - (b) 12 months experience assisting in the operation of a heating boiler plant that has a power rating in excess of 1500 kW;

- (c) 6 months of the experience described in clause (a) or (b) and at least 12 months experience in the design, construction, installation, repair or maintenance of equipment of a boiler plant;
- (d) successful completion of a course in power engineering acceptable to the Inspector-Examiner, leading to an Inter-Provincial Fourth Class Power Engineer Certificate of qualification;
- (e) 3 months of the experience described in clause (a) or (b) and a degree in mechanical or chemical engineering, or equivalent, from an accredited university; or
- (f) 6 months of the experience described in clause (a) or (b) and 12 months experience assisting in the operation of an unfired power boiler plant.

**First and second class power engineer course equivalencies**

**43** For purposes of clauses 41(1)(b) and (d), completion of part or all of a course in power engineering that is acceptable to the Inspector-Examiner shall be considered equivalent to

- (a) 12 months of power boiler plant operating experience for an Inter-Provincial First Class Certificate of qualification; or
- (b) 9 months of power boiler plant operating experience for an Inter-Provincial Second Class Certificate of qualification.

**First Class Refrigeration Plant Operator Certificate of qualification**

**44 (1)** Every applicant for a Provincial First Class Refrigeration Plant Operator Certificate of qualification shall have the following practical experience:

- (a) 24 months experience as a chief operator of a second class refrigeration plant;
- (b) 24 months experience as a shift operator of a first class refrigeration plant;
- (c) 12 months of the experience described in clauses (a) or (b), and at least 24 months experience in the design, construction, installation, repair or maintenance of equipment of a refrigeration plant; or
- (d) 12 months of the experience described in clauses (a) or (b), and a degree in mechanical or chemical engineering, or the equivalent, from an accredited university.

### **Second Class Refrigeration Plant Operator Certificate of qualification**

(2) Every applicant for a Provincial or an Inter-Provincial Second Class Refrigeration Plant Operator Certificate of qualification shall have the following practical experience:

- (a) 12 months experience assisting in the operation of refrigeration equipment in a registered refrigeration plant;
- (b) a Nova Scotia Refrigeration and Air Conditioning Mechanic Certificate, or the equivalent; or
- (c) 3 months of the experience described in clause (a) and a degree in mechanical or chemical engineering, or the equivalent, from an accredited university.

### **Compressor Plant Operator Certificate of qualification**

45 Every applicant for a Compressor Plant Operator Certificate of qualification shall have the following practical experience:

- (a) 12 months experience in the operation of air or gas compressor equipment in a compressor plant;
- (b) 6 months of the experience described in clause (a) and at least 12 months experience in the design, construction, installation, repair or maintenance of equipment of a compressor plant; or
- (c) 3 months of the experience described in clause (a) and a degree in mechanical or chemical engineering, or the equivalent, from an accredited university program.

### **Refrigeration and compressor plant operator course equivalencies**

46 For the purposes of Sections 44 and 45, completion of part or all of a course in refrigeration or air or gas compression that is acceptable to the Inspector-Examiner, shall be considered equivalent to up to 6 months of refrigeration plant or compressor plant operating experience.

## **Examinations**

### **Application and eligibility for examination**

47 (1) Every candidate for examination leading to certification under the Act shall make an application to the Inspector-Examiner to write the examination for the level of certificate for which they are applying and shall

- (a) pay the examination fee set out in item 1 of Schedule 1;

- (b) submit documents verifying their educational qualifications; and
  - (c) submit documents verifying the practical experience they are required to have for the level of certification for which they are applying.
- (2) For purposes of clause (1)(c), a candidate shall provide written verification of their practical experience from the chief engineer or chief operator of the plant where they obtained their practical experience.
- (3) An apprentice registered under the *Apprenticeship and Trades Qualifications Act* shall obtain approval in writing from the Director of Apprenticeship and Trades Qualifications to write an examination under these regulations, and shall provide it with their application for examination.

### **Examination process**

- 48 The passing grade for every examination shall be 65%.
- 49
- (1) Every person who fails an examination may, within 30 days of the date of receiving their examination results, apply to the Inspector-Examiner to have their examination re-marked.
  - (2) Every person who fails an examination may, 60 days after the date of their examination, apply in writing to the Inspector-Examiner for a re-examination.
  - (3) The Inspector-Examiner shall re-mark any examination referred to in subsection (1) and shall notify the applicant in writing of their results, at their last known address.
  - (4) Every person who makes an application under subsection (1) or (2) shall pay the examination fee set out in item 1 of Schedule 1.

## **Duties and Responsibilities**

### **Designation of chief power engineer or chief operator**

- 50
- (1) Subject to subsections (2) and (3), every owner of a plant registered under the Act shall designate one engineer or operator as a chief power engineer or chief operator for each plant.
  - (2) Where more than one plant exists on one plant site, the owner may designate one chief engineer or chief operator to act as chief engineer or chief operator of all the registered plants on that plant site.
  - (3) Where an owner has one or more guarded plants that have been authorized to operate under minimum supervision under Section 12, the owner may designate the chief power

engineer or operator of one plant to act as chief power engineer or chief operator of all those plants.

- (4) When the chief power engineer or chief operator of a registered plant is absent from that plant site for any reason for more than 72 consecutive hours, the owner shall, in accordance with subsections 35(2), (3) and (4) of the Act, assign the duties and responsibilities of the chief power engineer or chief operator, during their absence, to one other power engineer or operator.

**Duties of chief power engineer or chief operator**

- 51 (1) Every chief power engineer or chief operator shall provide safe installation, inspection, operation and maintenance procedures in accordance with the following applicable standards:
- (a) 1998 ASME Boiler & Pressure Vessel Code, I, Rules for Construction of Power Boilers, as amended from time to time;
  - (b) 1998 ASME Boiler & Pressure Vessel Code, IV, Rules for Construction of Heating Boilers, as amended from time to time;
  - (c) 1998 ASME Boiler & Pressure Vessel Code, VI, Recommended Rules For The Care And Operation of Heating Boilers, as amended from time to time;
  - (d) 1998 ASME Boiler & Pressure Vessel Code, VII, Recommended Guidelines for the Care of Power Boilers, as amended from time to time;
  - (e) 1998 ASME Boiler & Pressure Vessel Code, VIII, Rules for Construction of Pressure Vessels Division 1 and Division 2 - Alternative Rules, as amended from time to time;
  - (f) CSA B51 - 97 Boiler, Pressure Vessel and Pressure Piping Code, as amended from time to time;
  - (g) CSA B52-99 - Mechanical Refrigeration Code, as amended from time to time;
  - (h) ASME B31.1 - 1998 - Power Piping, ASME Code for Pressure Piping, B31, as amended from time to time;
  - (i) ASME - B31.3-1999 - Process Piping, Code for Pressure Piping, B31, as amended from time to time;
  - (j) ASME B31.5 - 1992 ASME Code for Pressure Piping, Refrigeration Piping, as amended from time to time;

- (k) ASME-CSD-1 - 1998 Controls and Safety Devices for Automatically Fired Boilers, as amended from time to time; and
  - (l) ANSI/ASHRAE-34 - 1997 Designation and Safety Classification of Refrigerants, as amended from time to time.
- (2) Every chief power engineer or chief operator shall, in order to provide the safe installation, inspection, operation and maintenance procedures referred to in subsection (1), supervise the work and duties of
- (a) the power engineers or operators on the plant site;
  - (b) any person in training to be a power engineer or operator; and
  - (c) any other person doing maintenance work in the plant that affects the operation of the plant.
- (3) Every chief power engineer or chief operator shall
- (a) maintain a log book in accordance with Section 23;
  - (b) ensure that the plant is operated by a sufficient number of power engineers or operators who are certified under these regulations and who have been adequately trained to operate the plant;
  - (c) ensure that a copy of the Act and these regulations is available to the power engineers and operators on the plant site; and
  - (d) report any accident in accordance with Section 53.

**Duty of owner**

- 52 Every owner shall ensure that the chief power engineer or chief operator complies with Section 51.

**Reporting of accident**

- 53 (1) Where an accident occurs involving equipment at a plant, the chief power engineer or chief operator of the plant shall send a written report of the accident to the Inspector-Examiner within 24 hours of the occurrence of the accident.
- (2) No person shall, without the permission of an inspector, move or remove any part of the equipment referred to in subsection (1), except to remove a person who has been injured or killed.

### **Sealing**

- 54      (1)      An inspector shall seal plant equipment that is operating in a manner that is hazardous to any person or equipment.
- (2)      No person shall operate equipment that has been sealed.

### **Power Engineers and Operators Board**

- 55      (1)      Every member of the Board shall hold office for a term not exceeding 3 years and may be reappointed.
- (2)      The professional engineer appointed to the Board shall be a mechanical engineer and shall be employed in a field related to a plant on the date of the appointment.
- (3)      A power engineer appointed to the Board shall be employed as a power engineer on the date of their appointment to the Board.
- (4)      The Board shall
- (a)      hold a meeting
- (i)      at the request of the Chair, or
- (ii)     where notice is communicated in writing to the Chair, at the request of a majority of the members of the Board; and
- (b)      submit a copy of the minutes of each meeting to the Department within 30 days after the meeting.

### **Appeals**

#### **Appeal Committee**

- 56      (1)      The Appeal Committee shall consist of the following members:
- (a)      an inter-provincial first class power engineer who is employed as such on the date of their appointment to the Committee;
- (b)      a representative of an owner of a registered plant; and
- (c)      a professional engineer who holds the same qualifications as described in subsection 55(2).

- (2) The Minister shall designate one of the 3 Committee members as Chair.
- (3) Every member of the Committee shall hold office for a term not exceeding 3 years and may be reappointed.
- (4) No person shall serve on the Committee who is concurrently an employee of the Department or a member of the Board.

#### **Filing of an appeal**

- 57
- (1) A person aggrieved by a decision of an inspector with respect to a matter referred to in subsection (2) may make an appeal in writing to the Chair of the Committee.
  - (2) An appeal may be made with respect to the following matters:
    - (a) suspension or cancellation of a certificate of qualification;
    - (b) an application for plant registration; or
    - (c) the staffing and supervision requirements of a plant.
  - (3) An appeal shall be submitted to the Chair of the Committee within 30 days of the date of the decision appealed from.
  - (4) Despite subsection (1), an appeal of an order or decision does not suspend the operation of the order or decision.

#### **Appeal hearing**

- 58
- (1) The Committee may conduct the hearing orally or in writing.
  - (2) The Committee may
    - (a) refer a matter back to the Department for reconsideration with or without directions; or
    - (b) make any decision that the Department could have made.
  - (3) A decision of the majority of the members of the Committee is a decision of the Committee.
  - (4) A decision of the Committee shall be in writing.
  - (5) A decision of the Committee is final.

**Effective Period of Regulations**

**59**     These regulations

- (a)     come into force on September 1, 2001; and
- (b)     cease to have effect on September 1, 2006.

**Schedule 1**

**Fees**

**(Sections 7, 36, 37, 38, 39, 47 and 49)**

| <b>Column 1</b> |                                                                                                    | <b>Column 2</b> |
|-----------------|----------------------------------------------------------------------------------------------------|-----------------|
|                 | <b>Service</b>                                                                                     | <b>Fee</b>      |
| 1               | Examination, re-examination or re-marking of examination                                           | \$30.00         |
| 2               | Annual renewal and initial issue of certificate of qualification                                   | \$50.00         |
| 3               | Replacement certificate of qualification                                                           | \$25.00         |
| 4               | Replacement of pocket certificate                                                                  | \$25.00         |
| 5               | Reinstatement of certificate of qualification                                                      | \$75.00         |
| 6               | Transfer of certificate of qualification                                                           | \$50.00         |
| 7               | Registration, re-registration or replacement of plant registration certificate                     | \$150.00        |
| 8               | Hourly rate for requested special services for plant registration or examination for certification | \$75.00         |
| 9               | Restricted certificate of qualification                                                            | \$75.00         |

## Schedule 2

### Plant Classifications

#### (Section 6)

| Column 1<br>Plant Classification              | Column 2<br>Type of Plant                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 <b>First Class<br/>Boiler Plant</b>         | A power boiler plant that has a total boiler plant power rating of more than 20 000 kW                                                                                                                                                                                                                                                                                                                                                                            |
| 2 <b>Second Class<br/>Boiler Plant</b>        | A power boiler plant that has a total boiler plant power rating of more than 10 000 kW, but not more than 20 000 kW                                                                                                                                                                                                                                                                                                                                               |
| 3 <b>Third Class<br/>Boiler Plant</b>         | (a)    A power boiler plant that has a total boiler plant power rating of more than 3500 kW, but not more than 10 000 kW;<br><br>(b)    A heating boiler plant that has a total boiler plant power rating of more than 10 000 kW; or<br><br>(c)    A power boiler plant that is unfired that has a total boiler plant power rating of more than 3500 kW                                                                                                           |
| 4 <b>Fourth Class<br/>Boiler Plant</b>        | A power boiler plant that has a total boiler plant power rating of more than 500 kW, but not more than 3500 kW, or a heating boiler plant that has a total boiler plant power rating of more than 1500 kW, but not more than 10 000 kW                                                                                                                                                                                                                            |
| 5 <b>First Class<br/>Refrigeration Plant</b>  | (a)    A refrigeration plant that uses a Group A1 refrigerant as classified in CSA B52-99 Mechanical Refrigeration Code, as amended from time to time, and has a total plant power rating in excess of 1000 kW; or<br><br>(b)    A refrigeration plant that uses Group A2, A3, B1, B2, or B3 refrigerants as classified in CSA B52-99 Mechanical Refrigeration Code, as amended from time to time, and has a total plant power rating in excess of 450 kW         |
| 6 <b>Second Class<br/>Refrigeration Plant</b> | (a)    A refrigeration plant that uses a Group A1 refrigerant as classified in CSA B52-99 Mechanical Refrigeration Code, as amended from time to time, and has a total plant power rating of not more than 1000 kW; or<br><br>(b)    A refrigeration plant that uses Group A2, A3, B1, B2, or B3 refrigerants as classified in CSA B52-99 Mechanical Refrigeration Code, as amended from time to time, and has a total plant power rating of not more than 450 kW |
| 7 <b>Compressor Plant</b>                     | (a)    A compressor plant that compresses air or a non-flammable or non-toxic gas, except oxygen, and uses any type of compressor and has a total plant power rating in excess of 350 kW; or<br><br>(b)    A compressor plant that compresses oxygen or a flammable or toxic gas and has a total plant power rating in excess of 37.5 kW                                                                                                                          |