

THE OPERATING ENGINEERS REGULATION: HOW IT APPLIES TO ARENAS IN ONTARIO

OPERATING ENGINEERS REGULATION 219/01 (OER), TECHNICAL STANDARDS AND SAFETY ACT

Conversation with John W. B. Coulter, C.E.T., Tech C.E.I. Chief Officer, Operating Engineers Regulation, Technical Standards and Safety Authority

Recently, Terry Piche, O.R.F.A. Technical Director had the privilege to meet with Mr. John Coulter at the TSSA offices in Toronto. John is Chief Officer, Operating Engineers Regulation, with the Technical Standards and Safety Authority. The subject of our conversation was the Operating Engineers Regulation 219/01(OER) and 'Refrigeration Operator Class "B" Certification' as it applies to arenas in Ontario. Mr. Coulter reviewed the minimum requirements under the Operating Engineers Regulation (OER) for artificial ice operations. The tone was set early "municipalities must understand that the **refrigeration industry** requires due diligence; the responsibility for these operations must not be taken lightly. It is imperative to have competent well-trained staff along with safe operating policies and procedures in place to ensure the safety of the public, staff and the facility. It is a responsibility that has far reaching legal accountability should incidents or accidents occur". Here are some highlights from the conversation.



O.R.F.A. - John, thank you for taking the time to share your expertise and to guide O.R.F.A. members through the Operating Engineers Regulation. How would you best lead our

discussion as we focus on Ice Facility Operations in Ontario and the requirements under the OER?

TSSA – The Operating Engineers Regulation are written in a manner to help owners and operators interpret the Regulation and the requirements specific to their plant and its equipment; regrettably no one application of the OER can be applied directly across the province as each plant is different and such differences must be related to the Regulation requirements. Each change to a plant, incident, accident or non-compliance event requires a specific review to determine how the OER is to be applied. It is important to note that it is the "owners" and in attended plants, the chief's responsibility to know, interpret and apply the application of the OER and to ensure compliance as well as monitor changes to the OER and Directors Orders in order to ensure that any changes are being complied with.

Note - People or organizations who try to interpret the OER on behalf of the owner must do so with care as the plant owner will always be held accountable. TSSA invites inquiries and questions to our offices at anytime with regard to compliance issues and/or operational requirements.

O.R.F.A. – Ultimately, who is responsible for the safe operation of an ice facility?

TSSA - There are two primary persons involved in a typical refrigeration plant operation – the owner and the operator. The owner's responsibility under Section 14 of the Regulation never changes, while the operator's responsibilities begin to increase based on the size and the mechanical layout of equipment and the possible requirement of a certified person. In an attended plant, the Chief Engineer or Operator is responsible under the Regulation Section 15.

O.R.F.A. – In a municipal setting, who is considered the "owner" of the refrigeration plant?

TSSA – This would be reviewed when an application for plant registration is to be applied. However, it is reasonable to assume that in most municipal settings, the Municipal Corporation will hold the legal responsibility for compliance to the

THE OPERATING ENGINEERS REGULATION: HOW IT APPLIES TO ARENAS IN ONTARIO

OER. The plant registration indicates the name of the facility and owner and also what, if any, certified attendance is required.



O.R.F.A. – Who is responsible for administering the day-to-day application of the OER?

TSSA – In an attended plant the Chief Engineer or Operator is responsible for ensuring the Regulation is complied with. Both owner and operator MUST clearly understand and comply with the Operating Engineers Regulation at all times. Non-compliance actions or incidents occurring in a refrigeration plant may be investigated by several government authorities. TSSA will investigate events under the Operating Engineers Regulation while the Ministry of Labour would investigate under the authority of the Occupational Health and Safety Act. Although each agency is independent of each other, in the event of an incident the results of each investigation may be compounded. It should not be expected that a joint finding would be tabled.

O.R.F.A. – Can you highlight some common misconceptions that an ice facility operator might have about the Operating Engineers Regulation?

TSSA – Certified operators often consider the “certificate of operator competency” as a certificate of employment. Certification is not a certificate of employment but rather a ‘privileged’ allowance of function in the service of public safety, one that brings with it a responsibility of diligence that if not

performed or respected may be revoked for non-compliance and/or incur liability.

O.R.F.A. – How does TSSA determine what level of operational competency is required for a refrigeration plant?

TSSA – Upon notice of a new plant, the installation of new equipment or a plant retrofit, a TSSA Power Plant Inspector will attend the location. Part of the process will involve the adding together of all equipment that is identified in the Operating Engineers Regulation to determine the final operating requirements. What does this mean? If HVAC, dehumidification and refrigeration systems are all on site they will be included in the total plant registration in order to determine the Regulation operating requirements. Under the Regulation, the collective risk still exists and it does not matter that pieces of equipment are not physically linked together. When the equipment is on the same property they must be added together. Section (4) Plant Registrations (2) unless determined otherwise by the Chief Officer, two or more plants of a user that are located on the same premises shall be registered as one plant. (11) (2) Where two or more plants of a user are located on the same premises and are registered as a plant, the power rating in kilowatts of the registered plant is the total of the power rating in kilowatts of the plants.

O.R.F.A. – Does the manufacturer play any role in helping owners determine the best configuration of the refrigeration equipment during the planning process?

TSSA - Manufacturers have no legal responsibility to inform an owner on the Regulations or Codes that govern refrigeration installations. The design of a new or retrofitted refrigeration system that complies with the various codes and regulations is the sole responsibility of the owner and the plant design engineer.

O.R.F.A. – Once the facility has its certificate of registration when is the owner required to contact the TSSA again?

TSSA – Any time there are upgrades or changes made to the plant, an “owner” should contact our office to determine if B.P.V. design approval is

THE OPERATING ENGINEERS REGULATION: HOW IT APPLIES TO ARENAS IN ONTARIO

required or inspection and re-registration might be required. If you are looking for a guiding factor, consider the following: once a refrigeration plant has been registered by TSSA, any alterations to the plants registered energy rating must be reported to TSSA. For example, a refrigeration system with a 50-hp motor that is reduced to a 30-hp must be reported, whereas a 50-hp motor that is replaced with a 50-hp motor does not require reporting. Another example would be if the name of the plant owner was changed. Both of these examples would require the plant to be re-registered.

O.R.F.A. – For refrigeration plants requiring “Refrigeration Class “B” Operator as Chief Operator, what type of plant coverage is required under the Regulation?

TSSA - Under the Regulation, the Owner can tell the Chief when the plant will operate but not how the plant operation is to be performed. The Chiefs primary responsibility is to ensure conformance with the Regulation and the plants safe operation. In an 8hr/day plant registration a Chief Operator’s attendance in the plant is required to be on days Monday to Friday (days are defined as 8 hours between 06:00 and 18:00. or the primary 8-hour time of operation of the plant if the arena or plant was not operational during the day period. The Chief Operator must determine when it is best for him to observe the operation of the plant during the 8 hours and the Chief Operator must be in control of the plant for 8-hours in each day. He may leave the plant but must log such absences. However, under no circumstance should this person leave the facility site during this 8–hour period. 8hr/day means each day of operation. Weekends and holidays must also be attended for 8 hours by a 4th or 3^d Class Engineer (as per the registration) or a Class B Operator. This in effect means two certified staff. The Chief during the 5-day week and a shift relief during weekends and holidays. The second operator would also relieve the Chief during any periods of absence such as vacations.

OER sections 19-24 cover absences/temporary absences and staffing during those times.

Absence from plant

19. Where an operating engineer or operator is absent from the plant, the chief operating engineer

*or chief operator may appoint an operating engineer or operator with acceptable plant knowledge and experience who holds a certificate of qualification not less than one class lower than that of the operating engineer or operator who is absent, and that person may, during such absence, operate the plant for not more than 30 working days per year.
O. Reg. 219/01, s. 19.*



O.R.F.A. – In my travels around the province I often encounter refrigeration plant rooms that are not locked. Is this acceptable?

TSSA - Refer to Section 24 (5) of the OER. When the operating engineer or operator is absent from the guarded plant during permitted periods, access to it must be controlled and secure to prevent unauthorized access and must be signed to this effect at all entrances. O. Reg. 219/01, s. 24 (5).

O.R.F.A. – What role does the B-52 Mechanical Refrigeration Code play in Ontario’s refrigeration plants?

TSSA – In conjunction with the Operating Engineers Regulation 219/01 the B-52 Mechanical Refrigeration Code is enforced by TSSA.

O.R.F.A. – How can an operator strive toward obtaining ‘Refrigeration Operator Class “B” Certification’?

TSSA – In order to become certified as a Refrigerator Operator B, one must acquire the required practical on-the-job experience, and pass

THE OPERATING ENGINEERS REGULATION: HOW IT APPLIES TO ARENAS IN ONTARIO

the required TSSA examinations. There are 2 examinations to be written. Candidates must first pass the Paper RB-1 which is to be written and passed prior to attempting the RB-2 examination. It is advisable that candidates should have started their operating experience before taking examinations. The usual proceedings are for a candidate to study and write the examinations during the period they are gaining their practical time. When both of the examination have been successfully completed and all of the practical time has been attained the candidate may claim their certificate.



O.R.F.A. – What type of practical operating experience within an ice facility environment is necessary before an application for a certificate of qualification can be made?

TSSA - A candidate for Class B certification must obtain at least 9 months practical operating experience in a registered refrigeration plant which requires the attendance of a certified Chief Operating Engineer or Operator. The service time attained must relate only to the actual time spent under the direct supervision of the Chief while performing operating and/or maintenance duties on the actual refrigeration plant installation or related registered plant equipment. Only one third of the 9 months may be spent on the refrigeration plant maintenance. All remaining time must be spent on plant operation duties. Any time spent performing non refrigeration plant duties such as rink or facility maintenance, is not acceptable for inclusion as practical time.

Example - If a person spent 8 hours on shift in an arena and 2 hours of the time was engaged in the refrigeration room under the Chief's supervision, with the remaining 6 hours performing service work in the arena, only 2 hours could be considered as refrigeration plant practical training time.

It is required and the Chief's responsibility, to ensure a persons training time is recorded in the official log of the plant. The Chief and the person receiving the training should also maintain a plant training log which is more easily referred to on an ongoing collective basis.

Unlike the manufacturing industry, which may have large process refrigeration plants with thousands of horsepower and require a full time 24 / 7 attending engineering staff, an arena plant is not of sufficient size to require full time multiple attending staff. Therefore, it requires more than 9 months for an arena refrigeration plant trainee to attain the required time. Depending on the size and complexity of the arena plant, it is usual to require at least 3 - 4 years or more before the collective time reaches the required 9 months. Once the candidate's time has been completed, the Chief may sign the testimonial of service and provided the candidate has passed the Class B examination, they may apply for a certificate of qualification as a Class B, Refrigeration Operator.

O.R.F.A. – What is required in terms of record keeping for a refrigeration plant?

TSSA – Every refrigeration plant that is registered under the Operating Engineers Regulation MUST maintain a log book which conforms to Section 37 of the Regulation. Any incident, accident, adjustment or maintenance must be recorded as a minimum requirement. It then becomes the owner's , or Chief in attended plants, responsibility to determine what other plant activities need to be recorded to ensure that ongoing compliance to the OER is met.

O.R.F.A. LOGBOOKS

A variety of different logbooks are available by contacting 416.426.7062 or info@orfa.com or order form available at:

<http://www.orfa.com/2003%20Maintenance%20Log%20Books.pdf>

THE OPERATING ENGINEERS REGULATION: HOW IT APPLIES TO ARENAS IN ONTARIO



O.R.F.A. – Several O.R.F.A. members have refrigeration plants that do not require Class “B” Refrigeration Operators. Under those conditions what level of competency is expected by TSSA for individuals entering these plants?

TSSA – The Operating Engineer’s Regulation provides a specific requirement under Section 42. Competency of a worker is clearly defined by the Occupational Health and Safety Act as a person who,

(a) is qualified because of knowledge, training and experience to organize the work and its performance,

(b) is familiar with this Act and the regulations that apply to the work, and

(c) has knowledge of any potential or actual danger to health or safety in the workplace; (“personne compétente”)

Although not a requirement of the Operating Engineers Regulation, persons who operate an unattended refrigeration plant should possess a minimum level of skills which would allow them to conform to the Occupational Health and Safety Act.

Example: The Minimum Level of Skills for Operating Unattended Plants would include but not be limited to;

- Able to identify all key components of each piece of equipment in the room and its purpose and safe operation*
- Identify all safety devices and how to reset them*

- Identify all hazards found inside the room*
- Able to stop and start the plant should a malfunction occur*
- Understand how to address emergency events*



O.R.F.A. – We are often asked if a 4th-Class Engineers certificate is equal to a Class “B” Refrigeration Operator certificate.

TSSA – Engineers and Operators are not the same. There are four classifications of operating engineers and four classifications of operators. Engineer certification covers all of the technical disciplines of power engineering including; boilers, steam prime movers, refrigeration, compression and all related systems and aspects of a power plant. The four classes of engineers are governed by increasing energy levels. The scope of the Engineers certification knowledge allows them to manage, operate and maintain any registered power plant within the energy limits of the classification. The refrigeration B certificate is restricted to the specific refrigeration knowledge level of 4th and 3rd class Engineers relative to the energy level for each class. Refrigeration B or Operators may only manage, operate and maintain refrigeration plants within the energy limits of the certificate. They may not be engaged in any other area of power plant operation unless under the supervision of an Engineer and they may not operate a refrigeration plant which is steam driven. The TSSA certificate of plant registration posted in the plant under glass will stipulate the level of engineer or operator competency required for that specific plant. Owners must determine the

THE OPERATING ENGINEERS REGULATION: HOW IT APPLIES TO ARENAS IN ONTARIO

qualifications required and then meet or exceed this requirement!

O.R.F.A. – Any closing remarks for O.R.F.A. members as they strive towards compliance?

TSSA – It is essential that all plant Owners, Chief Engineers, Chief Operators and Operating Staff have a clear understanding of the Operating Engineers Regulation and that Chiefs are in compliance with Section 15 and owners Section 14. The Regulation and related Directors Orders can be accessed on the TSSA website at www.tssa.org and a hard copy of the Regulation and Directors Orders should be available in the plant for the guidance of all operating staff.

O.R.F.A. – That’s a good point on which to close, thanks for your time John, it has been most informative and will surely benefit ORFA members.

O.R.F.A would like to take the opportunity to thank John Coulter for being so gracious with his time and for the continuous support that TSSA has extended to O.R.F.A. members over the years.



Further Information:

Review/download official versions of the Operating Engineers Regulation or the Occupational Health and Safety Act from e-laws. Visit www.e-laws.gov.on.ca

Direct inquiries on the OER to the Technical Standards Safety Authority toll free at 1-877-682-TSSA (8772) or 416-734-3300 for the Toronto area www.tssa.org

Visit the Operating Engineers Information website <http://www.operatingengineer.ca>

Occupational Health and Safety Act General Duties of Employers as Set out in the OHSA

Workers and employers must share the responsibility for occupational health and safety. This concept of an internal responsibility system is based on the principle that the workplace parties themselves are in the best position to identify health and safety problems and to develop solutions. Ideally, the internal responsibility system involves everyone, from the company chief executive officer to the worker. How well the system works depends upon whether there is a complete, unbroken chain of responsibility and accountability for health and safety.

The Act imposes duties on those who have any degree of control over the workplace, the materials and equipment in the workplace and the direction of the work force.

There is a general duty on employers to take all reasonable precautions to protect the health and safety of workers. In addition, the Act and regulations set out many specific responsibilities of the employer. For example, there are duties that specifically relate to toxic substances, hazardous machinery, worker education and personal protective equipment.

There is a duty on all officers and directors of corporations to ensure that their corporations comply with the Act and regulations.

THE OPERATING ENGINEERS REGULATION: HOW IT APPLIES TO ARENAS IN ONTARIO

The duties of workers are generally to work safely, in accordance with the Act and regulations.

Employers, supervisors, owners and constructors, among others, have an obligation to know and comply with the regulations that apply to their workplaces.



An Ontario employer, who is covered by the Act, has an obligation to:

- Instruct, inform and supervise workers to protect their health and safety [section 25(2)(a)];
- Assist in a medical emergency by providing any information—including confidential business information—to a qualified medical practitioner who requests the information in order to diagnose or treat any person [section 25(2)(b)];
- Appoint competent persons as supervisors [section 25(2) (c)]. "Competent person" has a very specific meaning under the Act. He or she must:
 - be qualified—through knowledge, training and experience—to organize the work and its performance;
 - be familiar with the Act and the regulations that apply to the work being performed in the workplace;
 - know about any actual or potential danger to health and safety in the workplace; ^[1]
- inform a worker, or a person in authority over a worker, about any hazard in the work and train that worker in the handling, storage, use, disposal and transport of any equipment, substances, tools, material, etc. [section 25(2)(d)];
- Help committees and health and safety representatives to carry out their duties [section 25(2)(e)];
- Not employ workers who are under such age as may be prescribed or knowingly permit underage persons to be in or near the workplace [sections 25(2)(f) and (g)]; ^[2]
- Take every precaution reasonable in the circumstances for the protection of a worker [section 25(2)(h)];
- Post in the workplace a copy of the Occupational Health and Safety Act, as well as explanatory material prepared by the ministry that outlines the rights, responsibilities and duties of workers. This material must be in English and the majority language in the workplace [section 25(2)(l)];
- Prepare a written occupational health and safety policy, review that policy at least once a year and set up a program to implement it [section 25(2) (j)].
- Post a copy of the occupational health and safety policy in the workplace, where workers will be most likely to see it [section 25 (2)(k)];
- Provide the joint committee or the health and safety representative with the results of any occupational health and safety report that the employer has. If the report is in writing, the employer must also provide a copy of the relevant parts of the report [section 25(2)(1)];
- Advise workers of the results of such a report. If the report is in writing, the employer must, on request, make available to workers copies of those portions that concern occupational health and safety [section 25(2)(m)]; and
- Ensure that every part of the physical structure of the workplace can support all

THE OPERATING ENGINEERS REGULATION: HOW IT APPLIES TO ARENAS IN ONTARIO

loads to which it may be subjected, in accordance with the Building Code Act and any standards prescribed by the ministry [section 25(1)(e)].

- [Source: *A Guide to the Occupational Health and Safety Act*. Ministry of Labour. Queen's Printer for Ontario, 2002]

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