



# **Ontario Ice Arena Registered Refrigeration Plant Compliance Guideline**

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**Building Community Since 1947**

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## Introduction

The following information is provided as a general overview of compliance obligations and operational best practices for registered refrigeration plants in Ontario. It is intended to provide basic information and should not be considered a complete directive to safe plant operations. The ORFA reminds that compliance remains the sole responsibility of the plants owner and the designated operator.



## Public Safety

Ice arenas invite large numbers of the public to participate in recreational activities as both participant and spectator. Those entering the facility do so in most part under occupier's liability and the diligence of the owner of the building. Most who arrive at these public buildings are generally oblivious to the risks of operation. There is an expectation and a legal obligation that the owners are continually striving to ensure that the building is safe and serviceable through ongoing maintenance, operation and training of operations staff.

## Refrigeration Plant Risks and Hazards

Under normal operating conditions, properly maintained and operated ice arena refrigeration equipment have low risk. However, Ontario's recreation infrastructure is aging, and the care and control of these plants are under the responsibility of operators who have varied backgrounds and in some cases, limited practical knowledge of its operation. All who enter a refrigeration plant room must respect the high voltage required for the primary movers; the high pressure noxious gases and liquids required as part of the heat removal and transfer process, and the associated dangers with equipment that will start at any time without notice.

In the interest of both worker and public safety, the ORFA is calling for a renewed commitment by all workplace parties to ensure compliance to all regulatory obligations and industry best practices.

## Registered Refrigeration Plant Regulatory Compliance Obligations

Safe registered refrigeration plant operations are guided by several key regulations. They include, but are not limited to:

1. The Operating Engineers Regulation (OER) – Technical Standards and Safety Authority (TSSA).

**Note: at the time of release, the TSSA is undertaking a comprehensive review of the Operating Engineers Regulation and as such, the information contained within this document may become dated.**

2. CSA B-52 Mechanical Refrigeration Code (B-52) – Canadian Standards Association
3. Boilers and Pressure Vessels Regulation (BPV) – TSSA
4. TSSA Director's Orders  
See:

[Operating Engineers Regulation](#)

[Boilers and Pressure Vessels Regulation](#)

[TSSA Plant Safety Series 11 – Periodic Plant Inspections](#)

[Basic Compliance to the B-52 Mechanical Refrigeration Code](#)

5. Occupational Health and Safety Act (OHSA) – Ministry of Labour
6. Regulation 347 – Ministry of Environment
7. Ontario Electrical Code – Electrical Safety Authority
8. Ontario Building Code – Local Building Inspectors
9. Ontario Fire Code – Local Fire Department and Ontario Fire Marshals Office

Often, where compliance confusion begins is when the reader fails to understand that each document cannot be read and then applied in isolation. Acts, Regulations and Director's orders must all be cross referenced prior to applying them in the field. It is

also important to take advantage of the OE and BPV Technical Advisors at TSSA for clarification and/or direction specific to each plants compliance and operational obligations. Refrigeration partners looking to improve current levels of operation should start at Section 27 (c) of the OHSA which states that a supervisor shall “take every precaution reasonable in the circumstances for the protection of a worker”.

## Refrigeration Plant Registration

It is important to understand that every refrigeration power plant in Ontario is, or must be, registered with the Technical Standards and Safety Authority (TSSA). The registration must be posted at the entry into the refrigeration plant room. The plant registration indicates the name of the facility and owner and what, if any, certified attendance is required. This registration is the first point of contact towards operational compliance.



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 is the Total Plant?** If HVAC, dehumidification and refrigeration systems are all on site, they will be included in the total plant registration 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, it 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.*

## Plant Ownership and Operations

The “owner” of the plant is reviewed and identified when an application for plant registration is made with TSSA. The owner’s responsibility under Section 14 of the OER never changes. It is reasonable to assume that in most municipal settings, the municipal corporation will hold the primary legal responsibility for compliance to all regulatory obligations. In private operations, it would shift to the president of the company. For municipalities, the municipal Chief Operating Officer (CAO) and/or head of Council (Mayor) will oversee and direct staff towards compliance. This would include, but not limited to, unlimited financial resources to ensure safe plant operations. Communities that enter into partnership relationships in operating registered refrigeration plants must carefully review and define how compliance will be met. Once plant registration is received, the owner then must define how it shall be operated based on the size and mechanical layout of equipment. Currently, built-up plants that exceed 200-hp are designated “attended plants” and as such, require a Chief Engineer or Operator as set out under Section 15 of the OER.

It is important to note that attended plant requirements that are defined in section 15 of the OER, is not an opportunity for plant owners who do not meet the attended criteria, to not have “competent staff” responsible for the safe operations and maintenance of the registered refrigeration plant. In simple terms, registered plant operators responsible for equipment over 200hp are strictly governed by TSSA through provincial certification, while all other plants have the onus of plant operator competency placed completely with the plant owner to define. The owner’s due diligence will only be scrutinized should an incident, or accident occur.

Once an attended plant owner selects a designated Chief Engineer or Operator they relinquish control of the plant. The individual is responsible for the safe operation of the plant. The owner cannot

interfere with how the Chief Engineer or Operator chooses to staff, maintain and operate the plant. Further, they must provide, without question, all human and financial resources required by the Chief Engineer or Operator to maintain and operate the plant. In an unattended plant, the owner is given more latitude in the control of operation and maintenance of the plant.



It is important to understand that what does remain the same in both applications of the OER, is the level of accountability for non-compliance to safe operations. In an attended plant, the Chief Engineer or Operator would be the primary contact during an investigation, while it should be expected that the CAO/Mayor or President (private sector) would be key contacts in an unattended plant review. Owners must accept that non-compliance actions, or incidents occurring in a registered 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. All other identified agencies would also be involved, including local policing authorities under Bill C-45 should there be a death of a worker or member of the public. Each agency is independent of each other and 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.

### Role of the Refrigeration Contractor

Manufacturers or contractors have **no legal responsibility** to inform an owner on the Regulations or Codes that govern safe 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. Further, it is the responsibility of the plant owner to ensure ongoing compliance is being met and that manufacturers recommended, or required maintenance and upkeep is being performed. Although it is expected that all licensed refrigeration contractors will provide guidance, recommendations, as well as general advice to the owner, it continues to be the sole responsibility of the owner to meet the highest level of operational maintenance and upkeep as possible. Failure to do so will have accountability rest with the plant owner.

### Role of TSSA

The Technical Standards and Safety Authority is responsible for overseeing ongoing compliance to the OER and BPV of all registered refrigeration plants. Further, it enforces the B-52 Mechanical Refrigeration Code. These obligations are met by mandatory site visits by TSSA field staff. How often inspection will occur is based on the inspector's confidence of how the plant is being operated. Safely operated plants will require less inspection resulting in financial savings, while unsafe plants should expect as many additional inspections as TSSA determines is required to improve operations. Other TSSA interaction would include, any time there are upgrades or changes made to the plant. Depending what work has been undertaken, an "owner" should contact the TSSA office to determine if BPV design approval or inspection and re-registration is required. Consider the following example: once a refrigeration plant has been registered by TSSA, any alterations to a plant's 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 examples would require the plant to be re-registered.

Additionally, under Section 47 of the OER "the user shall notify the TSSA Chief Officer, by telephone or other direct means, as soon as is practical of any accident, injury or death, but no more than eight hours after the accident, injury or death, as the case may be, and shall within 48 hours after the accident,

injury or death, send the Chief Officer a written report of the occurrence where, (a) a person is seriously injured or killed from any cause; or (b) an accident occurs involving property damage. O. Reg. 219/01, s. 47.



## Role of the Boiler Inspector

An additional safe guard toward compliance is offered through the owner's relationship with their insurance provider. To reduce the potential for claim, a boiler inspector, certified by TSSA, but employed by the insurance provider will attend the plant room and conduct a detailed review to confirm that the plant is meeting current regulatory obligations and that it is being operated in a safe manner.

## Role of the ORFA

The ORFA has no authority in directing plant owners on their obligations of regulatory compliance. However, as a stakeholder in worker and public safety, it notes that ice arenas are not specifically identified in any Regulation, Code or Act. This lack of specific direction allows each owner to interpret compliance specific to their operations. However, the ORFA often notes a relaxed approach toward safe registered refrigeration plant operation and maintenance. This attitude is often directed through minimum compliance levels based on ill-informed obligation interpretations. In the best interest of ORFA members, the Association offers the following recommendations and best practices specific to ice arena registered refrigeration plant operations:

1. The ORFA strongly recommends that all owners of unattended registered plants designate a "responsible person" to act in

the best interest of the owner in the on site safe operation and maintenance of the equipment.

2. That the designated responsible person oversees all workers who are given the privilege to enter the plant room and in their understanding of the risk and hazards found within the plant room.
3. That the designated responsible person ensure that all plant fail safe devices remain in proper working order and within the set recertification timelines.
4. That the designated responsible person maintains the plants log book as set out in section 37 of the OER.
5. That the designated responsible person maintains and ensures compliance by all operators to the required procedure manual as set out in section 46 of the OER, which requires that every owner of a plant keep an up-to-date, detailed operating procedures manual that sets out the procedures relating to training and the operation of all equipment and systems of the plant and all emergency procedures.
6. That the designated responsible person be required to develop operational and maintenance budgets to ensure safe plant operations.
7. That the designated responsible person oversees all work performed by any outside contractor(s) who are permitted access to the registered refrigeration plant room.

To assist owners in ensuring competency of the selected "responsible person", the ORFA strongly recommends that this individual hold the designation, or equivalent training, of a Certified Arena Refrigeration Plant Technician (CARPT). To qualify for the CARPT designation the applicant must:

- Hold "Individual Membership" in the ORFA
- Have a minimum of Grade 12 education
- Have two years full-time work experience in the care and control of a refrigeration plant
- Have completed the following ORFA-approved courses with a minimum 65% passing grade:
  - Basic Arena Refrigeration

- Advanced Refrigeration Facility Operator
- Recreation Facility Environmental Systems (HVAC/R)
- ORFA Legal Awareness

In addition, the ORFA recommends that all holders of a TSSA B-Class Refrigeration Operator Certificate obtain the ORFA CARPT professional designation as proof of ongoing professional development specific to the ice arena industry within 5-years of being issued the TSSA certificate.

## In Closing

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 Chief's follow Section 15 and owners Section 14. The Regulation and related Directors Orders can be accessed on the TSSA website at <http://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.

## Additional Resource

- All operators currently permitted access to an Ice Arena Registered Refrigeration Plant Room should read all ORFA resources which are provided as a benefit of membership [LINK](#)