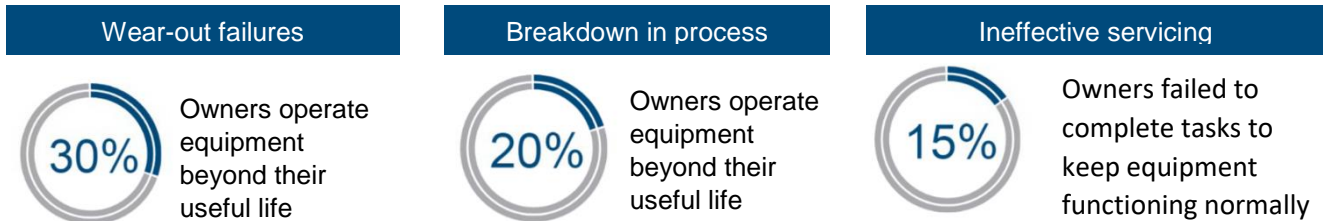


## REFRIGERATION SAFETY LEADERSHIP: RESPONSIBILITIES & PLANT MAINTENANCE

**i** This applies to facilities that are institutions or public assembly occupancy premises.



STRATEGY	DESCRIPTION
<i>Corrective</i>	Inspections, repairs, replacements carried out following detection of anomalies.
<i>Preventative</i>	Inspections, repairs and replacements are scheduled at pre-determined intervals.
<i>Predictive</i>	Regularly assess condition and repair or replace prior to estimated failure.
<i>Reliability Centered</i>	Analyze failure modes and customize inspections, repairs and replacements based upon desired reliability.

REFRIGERANT CLASSIFICATIONS			
	LOWER TO TOXICITY		HIGHER TOXICITY
HIGHER FLAMMABILITY	A3	Ethane Propane Isobutane	B3
LOWER FLAMMABILITY	Freon	A2	B2 Ammonia
NO FLAME PROPAGATION		A1	B1
		Carbon Dioxide	

### Refrigeration Plant Supervision Requirements

For the purposes of plant supervision, a plant is deemed to be **in operation** if any part of the refrigeration system contains refrigerant (e.g. ammonia, Freon, etc.) at a **pressure greater than 15 psig unless:**

- the refrigerant charge is pumped down and contained in a liquid receiver, or parts of a system designed for that purpose,
- provided with over-pressure protection, and
- isolated to prevent the circulation of refrigerant.

## Plant Supervision / All Plants

- the person in charge of a shift shall be in the **immediate vicinity** of the plant premises at all times that the plant is in operation
- the person in charge of a shift is **not intended** to be within the refrigeration machinery room at all times, but **must be on-site**, within the plant premises

### COMMON REQUIREMENTS

<i>Supervision IS required</i>	In a plant that	Exceeds 50kW (A3, B2, B3 refrigerants e.g. ammonia) Exceeds 200kW (A1, A2, B1 refrigerants e.g. Freon)
<i>Plants can be operated as Continuous Supervision or Risk Assessed Status.</i>		
<i>Supervision IS required</i>	In charge of plant	4 <sup>th</sup> class Power Engineer or higher Refrigeration Operator
	In charge of shift	4 <sup>th</sup> class Power Engineer or higher Refrigeration Operator Ice Facility Operator (less than 1000kW only)

### CONTINUOUS SUPERVISION PLANT STATUS OPERATION

<i>Supervision IS required when plant is in operation</i>	Person in charge of the plant	4 <sup>th</sup> class Power Engineer or higher Refrigeration Operator
	Person In charge of shift	4 <sup>th</sup> class Power Engineer or higher Refrigeration Operator Ice Facility Operator (less than 1000kW only)
<i>Supervision is NOT required when the plant is not in operation</i>		Less than 50kW (A3, B2, B3 refrigerants e.g. ammonia) Less than 200kW (A1, A2, B1 refrigerants e.g. Freon)

### RISK ASSESSED PLANT STATUS OPERATION

<i>Supervision IS required when plant is in operation and the premise is occupied by any person</i>	Person in charge of the plant	4 <sup>th</sup> class Power Engineer or higher Refrigeration Operator
	Person in charge of a shift of a minimum of 7 hours in each 24 hour period	4 <sup>th</sup> class Power Engineer or higher Refrigeration Operator
	Person in charge of a shift for the remaining hours in each 24 hour period	4 <sup>th</sup> class Power Engineer or higher Refrigeration Operator Ice Facility Operator Refrigeration Safety Awareness Certificate
<i>Supervision is NOT required when the plant is not in operation or when the plant is in operation but the premises are unoccupied</i>		Less than 50kW (A3, B2, B3 refrigerants e.g. ammonia) Less than 200kW (A1, A2, B1 refrigerants e.g. Freon)

## Reference Links

### Regulatory requirements:

#### **Safety Standards Act**

[http://www.bclaws.ca/EPLibraries/bclaws\\_new/document/ID/freeside/00\\_03039\\_01](http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_03039_01)

#### **Safety Standards General Regulations**

[http://www.bclaws.ca/EPLibraries/bclaws\\_new/document/ID/freeside/18\\_105\\_2004](http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/18_105_2004)

#### **Power Engineers, Boiler, Pressure Vessel And Refrigeration Safety Regulation**

[http://www.bclaws.ca/EPLibraries/bclaws\\_new/document/ID/freeside/17\\_104\\_2004](http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/17_104_2004)

#### **Safety Orders, Directives, Information Bulletins**

<https://www.technicalsaftybc.ca/boiler-pv-and-refrigeration/boilers-pressure-vessels-and-refrigeration-regulations>

### Certification:

#### **Renewals**

<https://www.technicalsaftybc.ca/certification/boiler-pv-and-refrigeration/general-information>

### Forms and Fees:

#### **Forms and Fees**

<https://www.technicalsaftybc.ca/forms-and-fees?technology=96>

#### **Boiler Plant Operating Permit**

<https://www.technicalsaftybc.ca/boiler-and-pressure-vessel/boiler-plant-operating-permit>

### Education Events:

#### **Live Education Events**

<https://www.technicalsaftybc.ca/learning/learning-events>

### State of Safety:

#### **State of Safety**

<https://www.technicalsaftybc.ca/State-of-Safety-2018>

#### **Fernie Investigation Report, Findings and Recommendations**

<https://www.technicalsaftybc.ca/ferniesincident>

#### **Ruptured refrigeration evaporator releases ammonia resulting in extensive area evacuation**

<https://www.technicalsaftybc.ca/alerts/ruptured-refrigeration-evaporator-releases-ammonia-resulting-extensive-area-evacuation>

### Hazards:

#### **Report a Hazard**

<https://www.technicalsaftybc.ca/report-incident-hazard>

#### **Incident Investigations**

<https://www.technicalsaftybc.ca/incident-investigations>

*Fernie Incident Investigation Report:* <https://www.technicalsaftybc.ca/ferniesincident>

*Langley Incident Investigation Report:* <https://www.technicalsaftybc.ca/alerts/ruptured-refrigeration-evaporator-releases-ammonia-resulting-extensive-area-evacuation>