



## **REFRIGERATION AND AIR CONDITIONING MECHANIC**

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### **Occupation Description**

Refrigeration and Air Conditioning Mechanics install, maintain and service residential, commercial, industrial and institutional heating, ventilation, air conditioning and refrigeration units and systems. They also connect to air delivery systems, install and service hydronic and secondary refrigerant systems and associated controls. Their duties include laying out reference points for installation, assembling and installing components, installing wiring to connect components to an electric power supply and calibrating related controls. They also measure, cut, bend, thread and connect pipes to functional components and utilities. They maintain and service systems by inspecting and testing components, brazing and soldering parts to repair defective joints, adjusting and replacing worn or defective components and reassembling repaired components and systems. As part of service and commissioning, refrigeration and air conditioning mechanics start-up, test, charge, adjust, calibrate, balance, measure, verify, maintain and document systems.

**Additional certification may be required in some jurisdictions to allow Refrigeration and Air Conditioning Mechanics to plan and perform the work described above.**

For detailed information on the scope of knowledge and skills taught and assessed in this program refer to the Program Outline, available on the SkilledTradesBC website.

### **Pathways to Certification**

In BC, an individual can become certified as a Refrigeration and Air Conditioning Mechanic by completing the Refrigeration and Air Conditioning Mechanic program or by challenging the certification. Apprenticeship programs are for individuals who have an employer to sponsor them and challenge programs are for individuals who have extensive experience working in the occupation and wish to challenge the certification.

Youth can begin an apprenticeship in high school through the Youth Train in Trades or Youth Work in Trades programs. The Youth Work in Trades program is available for any trade if an employer is willing to sponsor the student. Trades offered through the Youth Train in Trades vary by region; contact your local school district to find out which technical training programs are being offered through the Youth Train in Trades program in your region.

Foundation programs, where available, provide adults and youth who do not have work experience or employer sponsorship with an opportunity to gain the knowledge and skills needed to enter the occupation. Individuals who wish to enroll in a Foundation program must register directly with the training provider.

### **Recommended Education**

The following education is recommended for apprentices entering this occupation. These are not prerequisites, but rather a desired level of skill or knowledge that will contribute to success in the industry.

- Grade 12 diploma including:
  - English 12
  - Math 11 (Applications of Math 11 or Principles of Math 11), and Physics 11

**SkilledTradesBC Registration**

Individuals who wish to begin an apprenticeship in this program must register with SkilledTradesBC along with their sponsor. Application forms for all programs are available from the SkilledTradesBC website. Online registration is also available for most programs through the SkilledTradesBC website.

Those who wish to challenge the Refrigeration and Air Conditioning Mechanic certification must complete the Refrigeration and Air Conditioning Mechanic Challenge Application and submit it to SkilledTradesBC. Challenge applications are assessed for proof of workplace hours and scope of experience prior to acceptance of the individual into the Challenge pathway.

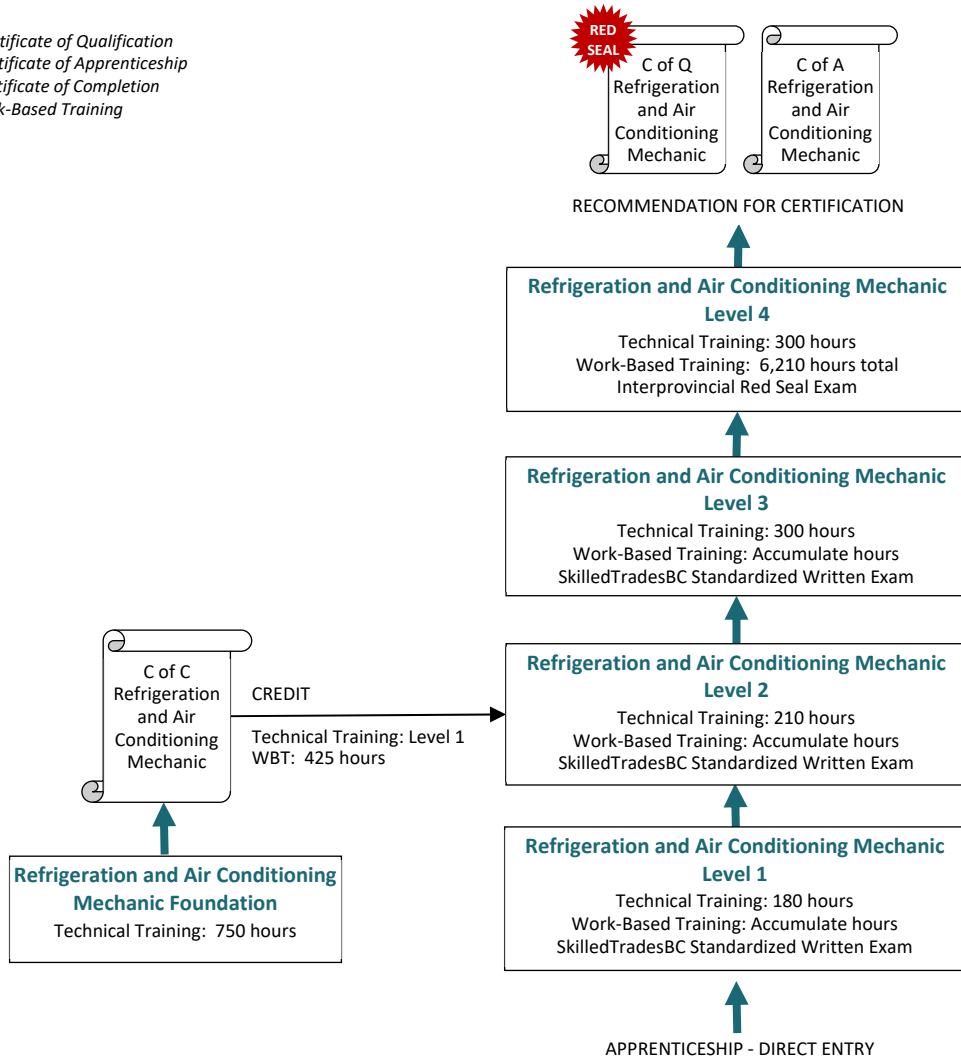
**Skilled Trades Certification**

Trade workers in a trade designated as Skilled Trades Certification (STC) are required to hold certification in the trade, be registered as an apprentice, or have an approved Temporary Authorization. More information can be found at [www.skilledtradesbc.ca](http://www.skilledtradesbc.ca)



**Apprenticeship Pathway**

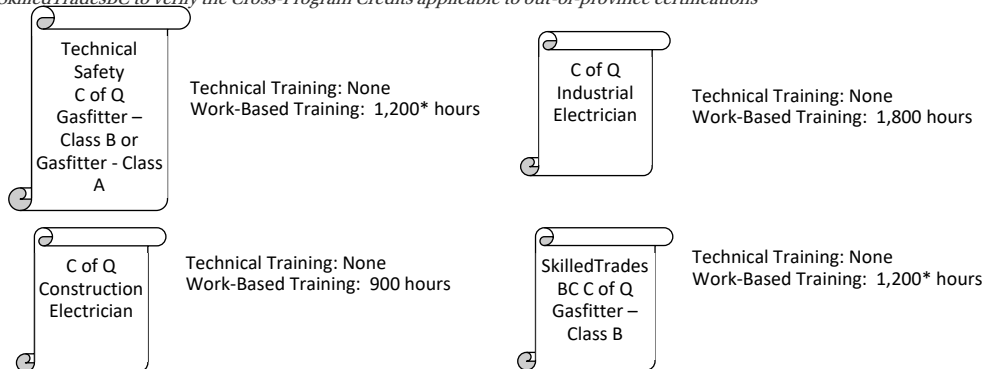
C of Q = Certificate of Qualification  
 C of A = Certificate of Apprenticeship  
 C of C = Certificate of Completion  
 WBT = Work-Based Training



**CROSS-PROGRAM CREDITS**

Individuals who hold the credentials listed below are entitled to receive partial credit toward the completion requirements of this program

**Please note:** Certifications obtained outside of British Columbia may not be eligible for the same credit towards certification in this trade. Please contact SkilledTradesBC to verify the Cross-Program Credits applicable to out-of-province certifications



*\*Individuals who are holders of more than one of these credentials will only be awarded credit up to 1,200 hours total*



Skilled Trades CofQ RS Gas B/This graphic provides an overview of the Refrigeration and Air Conditioning Mechanic apprenticeship pathway.

**Apprenticeship Program Standards**

**Credentials Awarded**

- Refrigeration and Air Conditioning Mechanic – Certificate of Qualification with Interprovincial Red Seal endorsement
- Refrigeration and Air Conditioning Mechanic – Certificate of Apprenticeship

**SkilledTradesBC  
Registration Prerequisites**

- Agreement signed by the employer to sponsor the apprentice

**Completion Requirements**

Certification as a Refrigeration and Air Conditioning Mechanic is awarded upon successful completion of:

**Requirement**

**Level of Achievement Required**

Technical Training

Minimum 70% in each level of technical training:

- Level 1: 180 hours and SkilledTradesBC standardized written exam
- Level 2: 210 hours and SkilledTradesBC standardized written exam
- Level 3: 300 hours and SkilledTradesBC standardized written exam
- Level 4: 300 hours

Interprovincial Red Seal Exam

- Minimum 70%

Work-Based Training

- 6,210 hours

Recommendation for Certification

- Recommendation for certification signed by the Sponsor and an individual holding credentials eligible for sign-off authority

**Program Duration**

Duration varies depending on how training is delivered, but the program generally takes 4 years to complete.

The technical training requirement is typically met through block-release training (full-time, at school) delivered by a SkilledTradesBC-approved training provider. It can also be met through approved alternative training models (e.g., distance education, online, part-time) and/or level challenge where these options are available.

**Sign-off Authority**

Credentials eligible to sign-off on the Recommendation for Certification:

- Refrigeration and Air Conditioning Mechanic – Certificate of Qualification
- Refrigeration and Air Conditioning Mechanic – Interprovincial Red Seal endorsement
- Uncertified Experienced Worker with a valid and active Temporary Authorization issued from SkilledTradesBC

**Challenging a Level**

The following levels of technical training can be challenged for advanced placement in this program. Note that there are eligibility requirements to challenge a level as this program falls under Skilled Trades Certification.

**Level**

- Level 1
- Level 2
- Level 3



**Apprenticeship Program Standards**

**Skilled Trades Certification Supervision Ratio**

The ratio of apprentice to journeyperson is 2:1. This applies to apprentices in Levels 1, 2 and 3. Apprentices in Level 4 are exempt from the ratio.

A Level 4 apprentice is defined as someone who has:

- Successfully completed Technical Training requirements for Levels 1, 2, and 3.
- Recorded at least 4,658 hours of Work Based Training.

**Cross-Program Credits**

Individuals who hold the credentials listed below are entitled to receive partial credit toward the completion requirements of this program

**\*\* Please note:** Certifications obtained outside of British Columbia may not be eligible for the same credit towards certification in this trade. Please contact SkilledTradesBC to verify the Cross-Program Credits applicable to out-of-province certifications

**Credential**

**Credit(s) Granted**

Technical Safety BC - Certificate of Qualification, Gasfitter – Class B

- Work-Based Training: 1,200\* hours

Construction Electrician - Certificate of Qualification

- Work-Based Training: 900 hours

Industrial Electrician - Certificate of Qualification

- Work-Based Training: 1,800 hours

Technical Safety BC - Certificate of Qualification, Gasfitter – Class A

- Work-Based Training: 1,200\* hours

SkilledTradesBC Gasfitter – Class B – Certificate of Qualification

- Work-Based Training: 1,200\* hours

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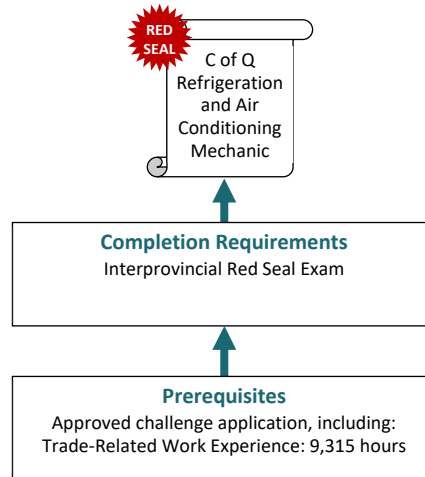
*\*Individuals who are holders of more than one of these credentials will only be awarded credit up to 1,200 hours total*



**Challenge Pathway**

This graphic provides an overview of the Refrigeration and Air Conditioning Mechanic challenge pathway.

*C of Q = Certificate of Qualification*



**CREDIT FOR PRIOR LEARNING**

*Individuals who hold the credentials listed below are entitled to receive partial credit toward the completion requirements of this program*

Military certificate in Refrigeration and Mechanical Technician MT #301 / MT #641, QL5 or higher	Work Experience: 9,315 hours
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**Challenge Program Standards**

**Credentials Awarded**

Refrigeration and Air Conditioning Mechanic – Certificate of Qualification with Interprovincial Red Seal endorsement

**SkilledTradesBC**

**Registration Prerequisites**

An approved Challenge Application, which includes:

- 9,315 documented hours of directly related experience working in the occupation

**Credit for Prior Learning**

Individuals who hold the credentials listed below are considered to have met the prerequisites for challenging this program:

**Credential**

**Credit(s) Granted**

Military certificate in Refrigeration and Mechanical Technician MT #301 / MT #641, QL5 or higher

- Work Experience: 9,315 hours
- Approved Challenge Application

**Completion Requirements**

Certification as a Refrigeration and Air Conditioning Mechanic is awarded upon successful completion of:

**Requirement**

**Level of Achievement Required**

Interprovincial Red Seal Exam

- Minimum 70%



**Foundation Program**

Refer to the Apprenticeship pathway diagram for this program to see how the Refrigeration Mechanic Foundation program leads to apprenticeship in this trade.

**Foundation Program Standards**

**Credentials Awarded** Refrigeration and Air Conditioning Mechanic – Certificate of Completion

**Enrollment Prerequisites** Contact training provider. Prerequisites vary between training institutions

**Completion Requirements** A Certificate of Completion in this program is awarded upon successful completion of:

Requirement	Level of Achievement Required
Technical Training	<ul style="list-style-type: none"> <li>▪ Minimum 70%</li> </ul>

**Program Duration** Duration varies depending on how training is delivered, but program generally takes 750 hours to complete.

**Credit toward Apprenticeship** Individuals who complete the Refrigeration and Air Conditioning Mechanic Foundation program will receive the following credit toward completion of the Refrigeration and Air Conditioning Mechanic apprenticeship program:

- Technical Training: Level 1
- Work-Based Training: 425 hours





### Supporting Documents

Refrigeration and Air Conditioning Mechanic Program Outline (2018) – Defines the full scope of knowledge and skills required to competently perform the occupation in BC. Available from the SkilledTradesBC website.

Refrigeration and Air Conditioning Mechanic Red Seal Occupational Standard (2019) – Prepared by industry experts, under the guidance of the federal government, for Red Seal trades to define the national standard of competence for the trade. Available from the Red Seal website: [www.red-seal.ca](http://www.red-seal.ca).

### Contacts

SkilledTradesBC manages B.C.'s industry training and apprenticeship programs. Contact SkilledTradesBC Customer service if you have any questions regarding registration, examinations or certification for this program.

Telephone:	778-328-8700	Fax:	778-328-8701
Toll Free (within BC):	1-866-660-6011	Email:	<a href="mailto:customerservice@skilledtradesbc.ca">customerservice@skilledtradesbc.ca</a>
Website:	<a href="http://www.skilledtradesbc.ca">www.skilledtradesbc.ca</a>		

### Revision History

The standards for this program were reviewed and/or updated on the dates below.

Program Standards Approved:	March 2002
Updated:	January 2006
	January 2009
	February 2011
	August 2013
	December 2018
	April 2022

Program Profiles are updated regularly. Visit [www.skilledtradesbc.ca](http://www.skilledtradesbc.ca) for the most current version.