

REFRIGERATION AND AIR CONDITIONING MECHANIC

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 pipe 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 ITA 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



INDUSTRY TRAINING PROGRAM PROFILE
ACCREDITED PROGRAM
HARMONIZED PROGRAM



ITA Registration

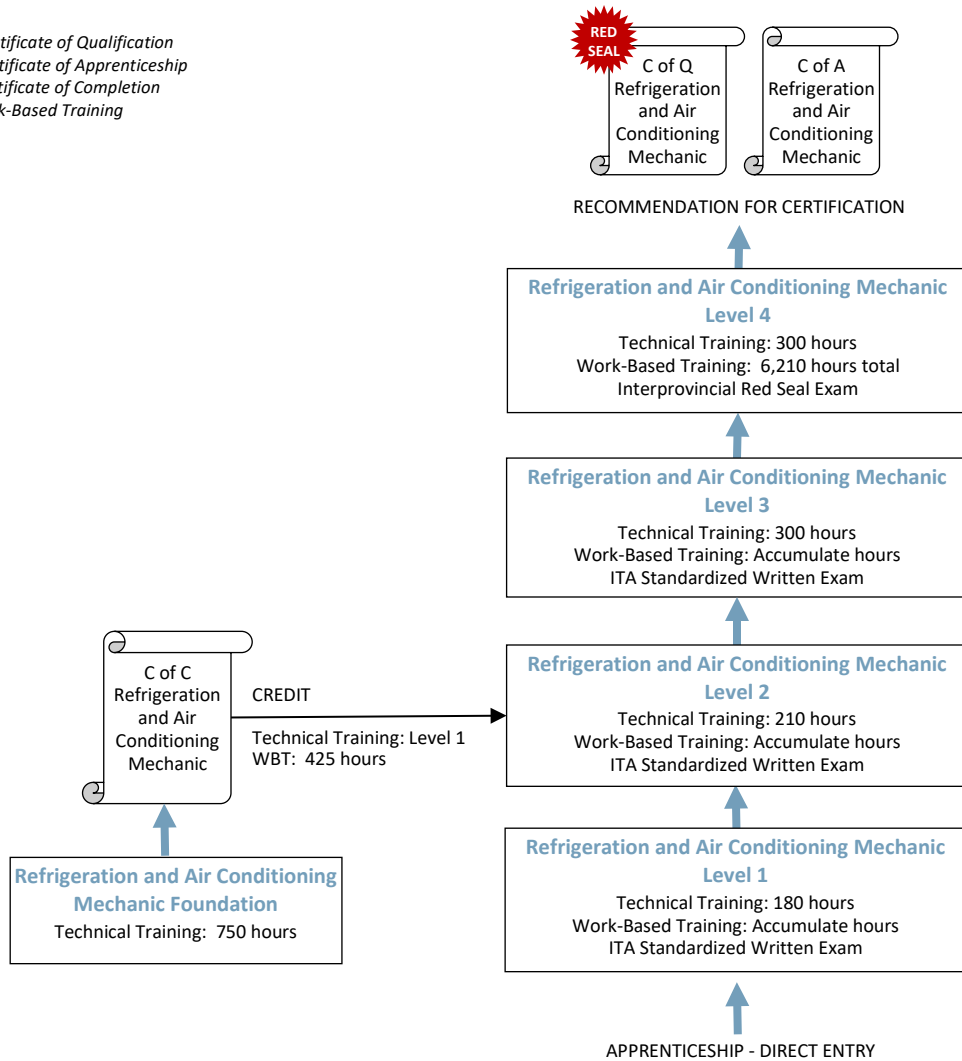
Individuals who wish to begin an apprenticeship in this program must register with ITA along with their sponsor. Application forms for all programs are available from the ITA website. Online registration is also available for most programs through the ITA website.

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 ITA. Challenge applications are assessed for proof of workplace hours and scope of experience prior to acceptance of the individual into the Challenge pathway.

Apprenticeship Pathway

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

Technical Safety C of Q Gasfitter – Class B
 Technical Training: None
 Work-Based Training: 1,200 hours

C of Q Industrial Electrician
 Technical Training: None
 Work-Based Training: 1,800 hours

C of Q Construction Electrician
 Technical Training: None
 Work-Based Training: 900 hours



Apprenticeship Program Standards

Credentials Awarded	<ul style="list-style-type: none"> ▪ Refrigeration and Air Conditioning Mechanic – Certificate of Qualification with Interprovincial Red Seal endorsement ▪ Refrigeration and Air Conditioning Mechanic – Certificate of Apprenticeship 										
ITA Registration Prerequisites	<ul style="list-style-type: none"> ▪ Agreement signed by the employer to sponsor the apprentice 										
Completion Requirements	<p>Certification as a Refrigeration and Air Conditioning Mechanic is awarded upon successful completion of:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Requirement</th> <th style="text-align: left; border-bottom: 1px solid black;">Level of Achievement Required</th> </tr> </thead> <tbody> <tr> <td style="border-bottom: 1px solid black;">Technical Training</td> <td style="border-bottom: 1px solid black;"> Minimum 70% in each level of technical training: <ul style="list-style-type: none"> ▪ Level 1: 180 hours and ITA standardized written exam ▪ Level 2: 210 hours and ITA standardized written exam ▪ Level 3: 300 hours and ITA standardized written exam ▪ Level 4: 300 hours </td> </tr> <tr> <td style="border-bottom: 1px solid black;">Interprovincial Red Seal Exam</td> <td style="border-bottom: 1px solid black;"> <ul style="list-style-type: none"> ▪ Minimum 70% </td> </tr> <tr> <td style="border-bottom: 1px solid black;">Work-Based Training</td> <td style="border-bottom: 1px solid black;"> <ul style="list-style-type: none"> ▪ 6,210 hours </td> </tr> <tr> <td style="border-bottom: 1px solid black;">Recommendation for Certification</td> <td style="border-bottom: 1px solid black;"> <ul style="list-style-type: none"> ▪ Recommendation for certification signed by the Sponsor and an individual holding credentials eligible for sign-off authority </td> </tr> </tbody> </table>	Requirement	Level of Achievement Required	Technical Training	Minimum 70% in each level of technical training: <ul style="list-style-type: none"> ▪ Level 1: 180 hours and ITA standardized written exam ▪ Level 2: 210 hours and ITA standardized written exam ▪ Level 3: 300 hours and ITA standardized written exam ▪ Level 4: 300 hours 	Interprovincial Red Seal Exam	<ul style="list-style-type: none"> ▪ Minimum 70% 	Work-Based Training	<ul style="list-style-type: none"> ▪ 6,210 hours 	Recommendation for Certification	<ul style="list-style-type: none"> ▪ Recommendation for certification signed by the Sponsor and an individual holding credentials eligible for sign-off authority
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Work-Based Training	<ul style="list-style-type: none"> ▪ 6,210 hours 										
Recommendation for Certification	<ul style="list-style-type: none"> ▪ Recommendation for certification signed by the Sponsor and an individual holding credentials eligible for sign-off authority 										
Program Duration	<p>Duration varies depending on how training is delivered, but the program generally takes 4 years to complete.</p> <p>The technical training requirement is typically met through block-release training (full-time, at school) delivered by an ITA-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.</p>										
Sign-off Authority	<p>Credentials eligible to sign-off on the Recommendation for Certification:</p> <ul style="list-style-type: none"> ▪ Refrigeration and Air Conditioning Mechanic – Certificate of Qualification ▪ Refrigeration and Air Conditioning Mechanic – Interprovincial Red Seal endorsement ▪ ITA-issued letter authorizing supervision and sign-off of apprentices in this occupation 										
Challenging a Level	<p>The following levels of technical training can be challenged for advanced placement in this program:</p> <p>Level</p> <ul style="list-style-type: none"> ▪ Level 1 ▪ Level 2 – <i>(when implemented)</i> ▪ Level 3 – <i>(when implemented)</i> 										



Apprenticeship Program Standards

Cross-Program Credits

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

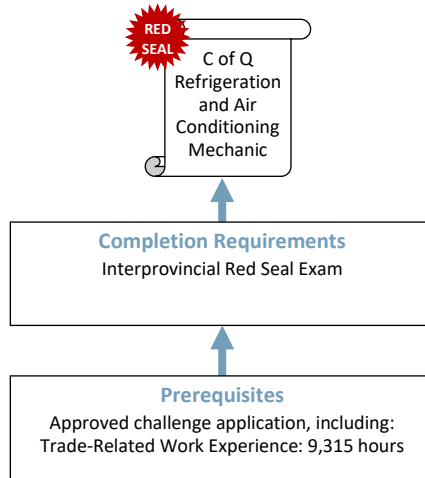
Credential	Credit(s) Granted
Technical Safety BC - Certificate of Qualification, Gasfitter – Class B	<ul style="list-style-type: none"> ▪ Work-Based Training: 1,200 hours
Construction Electrician - Certificate of Qualification	<ul style="list-style-type: none"> ▪ Work-Based Training: 900 hours
Industrial Electrician - Certificate of Qualification	<ul style="list-style-type: none"> ▪ Work-Based Training: 1,800 hours



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				
ITA Registration Prerequisites	<p>An approved Challenge Application, which includes:</p> <ul style="list-style-type: none"> ▪ 9,315 documented hours of directly related experience working in the occupation 				
Credit for Prior Learning	<p>Individuals who hold the credentials listed below are considered to have met the prerequisites for challenging this program:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Credential</th> <th style="text-align: left;">Credit(s) Granted</th> </tr> </thead> <tbody> <tr> <td>Military certificate in Refrigeration and Mechanical Technician MT #301 / MT #641, QL5 or higher</td> <td> <ul style="list-style-type: none"> ▪ Work Experience: 9,315 hours ▪ Approved Challenge Application </td> </tr> </tbody> </table>	Credential	Credit(s) Granted	Military certificate in Refrigeration and Mechanical Technician MT #301 / MT #641, QL5 or higher	<ul style="list-style-type: none"> ▪ Work Experience: 9,315 hours ▪ Approved Challenge Application
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Military certificate in Refrigeration and Mechanical Technician MT #301 / MT #641, QL5 or higher	<ul style="list-style-type: none"> ▪ Work Experience: 9,315 hours ▪ Approved Challenge Application 				
Completion Requirements	<p>Certification as a Refrigeration and Air Conditioning Mechanic is awarded upon successful completion of:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Requirement</th> <th style="text-align: left;">Level of Achievement Required</th> </tr> </thead> <tbody> <tr> <td>Interprovincial Red Seal Exam</td> <td> <ul style="list-style-type: none"> ▪ Minimum 70% </td> </tr> </tbody> </table>	Requirement	Level of Achievement Required	Interprovincial Red Seal Exam	<ul style="list-style-type: none"> ▪ Minimum 70%
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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: <table style="width: 100%; margin-top: 10px;"> <thead> <tr> <th style="width: 50%;">Requirement</th> <th style="width: 50%;">Level of Achievement Required</th> </tr> </thead> <tbody> <tr> <td>Technical Training</td> <td> <ul style="list-style-type: none"> ▪ Minimum 70% </td> </tr> </tbody> </table>	Requirement	Level of Achievement Required	Technical Training	<ul style="list-style-type: none"> ▪ Minimum 70%
Requirement	Level of Achievement Required				
Technical Training	<ul style="list-style-type: none"> ▪ Minimum 70% 				
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: <ul style="list-style-type: none"> ▪ 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 ITA 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.

Contacts

The **Industry Training Authority (ITA)** manages B.C.'s industry training and apprenticeship programs. Contact ITA Customer service if you have any questions regarding registration, examinations or certification for this program.

Telephone: 778-328-8700
Toll Free (within BC): 1-866-660-6011
Website: www.itabc.ca

Fax: 778-328-8701
Email: customerservice@itabc.ca

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.itabc.ca for the most current version.