

Programme of Industry Training Details

Provider name	Apprentice Training New Zealand (ATNZ)	MoE number	7741
Programme of Industry Training Title	New Zealand Certificate in Air Conditioning Installation (Level 4)	Programme ID	127070-1
Level	4	Credits	147
NZSCED code and classification			
031315	Engineering and Related Technologies > Electrical and Electronic Engineering and Technology > Refrigeration, Heating and Air Conditioning		
Qualification to which the programme leads			
New Zealand Certificate in Air Conditioning Installation (Level 4) [Ref: 4363-1].			
Aim of Programme of Industry Training			
<p>The purpose of this programme is to provide the Heating, Ventilating, Air Conditioning & Refrigeration (HVAC&R) industry with skilled people who are able to independently install Air Conditioning systems up to 50Kw nominal cooling, and who are working with Synthetic Refrigerants, including HFO's, in accordance with manufacturer's specifications and industry best practice.</p> <p>Graduates will work to New Zealand industry standards and in accordance with relevant legislation, including health and safety, and environmental</p> <p>This programme is designed for people working in the industry and will typically be achieved in a workplace environment whilst completing the New Zealand certificate.</p>			
Entry Requirements			
It is recommended, but not required, that people enrolling in a programme leading to this			

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qualification will hold the National Certificate in Education Achievement (NCEA) Level 2 [Ref: 0973] or equivalent.

People enrolling in this programme must hold a relevant position in a Air Conditioning Installers organisation. The position should ensure that the qualification graduate profile outcomes can be met. There must be a signed training agreement between the learner, ATNZ, and the Employer.

Learning outcomes and programme outline

This programme of industry training has been developed to meet the qualification graduate outcomes.

The learning outcomes will develop on the job, in response to the learner journey.

This programme will enable learners to gain technical knowledge and skills relevant to their role in the Air Conditioning Installation industry and will be reinforced through application in a commercial environment.

The relevant skills and knowledge are defined by the requirements of the graduate outcomes in the qualification.

- This programme includes lower level standards below Level 4 in the graduate profile outcomes.
- The requirements of the qualification will be met through the integration of the graduate profile outcomes across the delivery to ensure all graduate profile outcomes are met at the level of the qualification.
- To achieve this integration, learners will start with the Level 4 units which remain active throughout the learning journey. During this journey learners will undertake the lower level units which contain the underpinning knowledge and skills that are fundamental to their development and support the final assessment and achievement of these more specialised Level 4 technical skills and knowledge at the end of the learning journey.

Employers are encouraged to support learners to complete the unit standards in the sequence identified, however it is recognised that this may vary as operational requirements of the employer may result in learners acquiring skills and knowledge in a different order.

A training plan is created for each learner that enrolls into this programme. The training plans detail the requirements (unit standards and duration) of their particular training to meet the needs of both the employer and learner. Account Managers/Training Advisors actively manage the progress of learners. This is supported by at least 4 visits annually to the workplace and quarterly reporting to ensure that learners are steadily progressing through the programme to meet the training plan milestones. Each visit is followed by a 'Visit Summary Report' (captured in our customer relation management tool Smart TMS) which outlines how the learner is progressing, any observations, when the next visit will take place

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and any goals and targets which need to be achieved. A copy of the report is provided to the employer and learner.

It is expected that fundamental health and safety awareness will be a focus at the start of the programme through the completion of the health and safety unit standards and further embedded in all on-job and off-job learning throughout the duration of the programme.

It is also expected that employers comply with all relevant employment, health and safety, privacy and human rights legislation. This is achieved through provision of an adequate induction into the job, appropriate supervision and a safe working environment for the learner.

Programme delivery is through assessment guides and these will be kept up to date with regard to amendments to, and replacements of relevant legislation, regulations and Australia/New Zealand Standards (AS/NZS).

Current standards can be accessed at:

<http://www.standards.govt.nz>

Current legislation and regulations can be accessed at:

www.legislation.govt.nz

Latest editions of assessment guides are available for download through the ATNZ Canvas Learner Management System (LMS). Each learner has their own login to Canvas and is the primary method of accessing their assessments. Canvas only has the latest editions available as part of its document control.

This programme is delivered over two years, and during that period the training will prepare learners for the achievement of all outcomes at Level 4. By the time the learner has completed their programme they will be applying these skills and knowledge to satisfactorily perform all the competencies required at the level of the qualification.

Assessment standards aligned with qualification outcomes

Core Outcomes	Assessment standards	Level	Credit	
Outcome 1 Apply knowledge of the principles and applications of air conditioning plant and equipment up to 50Kw nominal cooling, together with the skills and knowledge of engineering tools and fasteners, to safely install to manufacturers specifications	32754	Demonstrate knowledge of air conditioning system principles and applications	3	10
	31809	Fabricate and assemble components for refrigeration or air conditioning systems under supervision	2	8
	26335	Demonstrate introductory knowledge of mechanical building services	3	8
	21913	Lift loads in engineering	2	2

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and industry best practice. Credits 45		installation, maintenance, and fabrication work		
	32756	Install and start-up pre-commissioning of air conditioning systems under supervision	3	15
Outcome 2 Apply knowledge of the use and management of refrigerants in the HVAC&R industry including recovering refrigerant into a cylinder and evacuate and charge Air Conditioning systems in accordance with current regulations and best industry practice to safely meet all relevant environmental and industrial legislation. Credits 5	28950	Meet requirements for Approved Filler Test Certificate for refrigerants	3	3
	31142	Demonstrate knowledge of refrigerants and their use in mechanical building services	3	3
Outcome 3 Apply knowledge of legislation and codes of practice relevant to their industry including, passive fire protection, indoor air quality including council G4 compliance requirements, and seismic restraints. Credits 15	30582	Demonstrate knowledge of seismic restraint of HVAC systems and components	3	5
	29157	Demonstrate knowledge of the fundamentals of passive fire protection systems	3	4
	31141	Demonstrate knowledge of organisations and compliance systems relevant to mechanical building services industry	3	3
Outcome 4 Apply knowledge of welding to braze and purge braze copper piping including the mechanical jointing of pipe to an acceptable industry standard. Credits 10	30080	Join ferrous and non-ferrous metal components by torch brazing	3	6
	23959	Prepare and purge braze piping for refrigeration and air conditioning	3	4
Outcome 5 Work safely with a relevant	21911	Demonstrate knowledge of safety on engineering worksites	2	2

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understanding of Health and Safety requirements and workplace safety culture. Credits 10	21912	Apply safe working practices on an engineering worksite	2	2
	29652	Demonstrate knowledge of safety, health, risk assessment, and hazard ID and control on an engineering worksite	3	3
	29675	Demonstrate knowledge of safety when lifting loads in engineering installation, maintenance, and fabrication work	2	2
	30658	Demonstrate knowledge of fundamental electrical safety in the workplace	2	2
	6401	Provide first aid	2	1
	6402	Provide basic life support	1	1
Outcome 6 Install ducted systems of plain and insulated solid and flexible ductwork, terminal fittings, and fans, ensuring that the air volume for heating, cooling and ventilation are achieved according to human comfort standards and codes. Credits 20 Outcome 8 Pre-commission Air Conditioning installations up to 50Kw nominal cooling. Credits 20	3239	Install duct-work for mechanical building services	4	10
	32758	Install and start-up pre commission air conditioning systems	4	30
Outcome 7 Apply knowledge of basic energy efficiency design principles including heat recovery ventilation, thermal properties of ductwork, and diversity of air conditioning	32518	Demonstrate and apply knowledge of variable refrigerant flow units	4	7
	32517	Demonstrate knowledge of heat recovery principles	2	2

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plant, to assist in reducing the carbon footprint of the industry. Credits 10				
Outcome 9 Read and interpret plans, legends, and drawings and produce accurate site measures for manufacture of air conditioning plant and equipment. Credits 10	29655	Manually produce engineering sketches	2	3
	32863	Manually produce dimensioned sketches of site measures to communicate fabrication requirements	3	5
	28954	Interpret drawings and produce sketches for refrigeration and air conditioning systems and components	3	3
	26331	Read and interpret HVAC system drawings	3	3

Training arrangements and support

This programme is recognised as a New Zealand certificate, and as such ATNZ carries out an assessment of the company and learner to ensure the right skills and knowledge are learnt in a supportive environment by a motivated learner.

Learner compatibility and requirements:

- An ATNZ Account Manager will engage in a conversation with the learner to ensure they understand their responsibilities, where to go for help and the importance of progressing at a steady rate to complete within the timeframe required.
- The learner will be required to complete a 15 to 20-minute test with an ATNZ Account Manager which assesses the learners reading, writing and comprehension ability. This test includes mechanical aptitude, reasoning and number skills. It identifies areas of weaknesses so that extra support can be offered where it is required. Extra support may include advising the employee and employer of Literacy and Numeracy Providers that can offer specialist support.

Company compatibility and requirements:

- Employers will need to provide access to the equipment required to allow on-the-job learning and assessment to take place. If the employer does not have the required equipment on site, an agreement can be put in place for the learner to complete the unit standards elsewhere.

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- The learner will need to have access to eLearning via use of a mobile device, personal computer or laptop within their workplace or their home environment.
- Employers are required to support their learners throughout the training programme. Initially this is achieved through workplace tasks and on-job training by a designated trainer. This is followed by completion of tasks under close supervision in the workplace. The level of supervision will be adjusted as learners develop their skills, knowledge and confidence through the programme. This programme requires the learner to operate under broad supervision prior to any assessment. Employers have access to real-time data on their learner’s progress through the programme via an Employer Portal.

ATNZ, supports the learner and employer by:

- Organising block courses and distance learning.
- ATNZ Account Managers actively manage the progress of learners. This is supported by visits to the workplace to ensure that learners are steadily progressing through the programme to meet the training plan milestones. The training plan is developed in collaboration with industry. The frequency of visits is dependent on the learner’s capability and the employer’s ability to support their learner’s progression and is adjusted as appropriate throughout the programme.
- Providing assessment material for all on-job components.
- Providing an eLearning platform with study guide resources and assessment functions.

Transition Arrangements

The following exemptions are available for those who need to transfer to the qualification to which this programme leads. The table includes exemptions arising from earlier replacement of standards or equivalent standards.

Credit For	Exempt From
2430 - Manually produce and interpret engineering sketches under supervision, Level 2, Credits 4	29655 - Manually produce engineering sketches, Level 2, Credits 3
26551 - Provide first aid for life threatening conditions, Level 2, Credits 1	6401 - Provide first aid, Level 2, Credits 1
26552 - Demonstrate knowledge of common first aid conditions and how to respond to them, Level 2, Credits 1	6402 - Provide basic life support, Level 1, Credits 1

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Learning and Assessment methods

Learning Methods

Learning will take place on job by completing day-to-day tasks under supervision, by attending off-job training with a training provider, the use of workbooks or a combination of all three methods.

- On-job training enables learners to develop job-related skills by watching colleagues, emulating their behaviours and practicing under supervision. It also involves mentoring from supervisors, workplace trainers, or other personnel delegated by the employer.
- Block courses with structured and approved courses give learners the opportunity to develop new skills they can take back into the workplace. Courses provide all learners with the same skill set regardless of their workplace experience and ensure all learners have relevant and transferable skills. Courses may be a combination of classroom tuition and workshop practice with the emphasis on development of technical skills and the embedding of learning.

Assessment Methods

Assessments can be written (theory), observation (practical) or a combination of both. Assessment guides outline which unit standard the assessment leads to, under what conditions the learner will be assessed, and methods used to assess the learner.

- Theory assessments are comprised of questions linked to unit standard evidence requirements. The answers to the questions can be written in the assessment guide by the learner, or the questions can be asked verbally and the answers recorded by the assessor.
- Practical assessments are guided by checklists that identify the tasks the learner must perform and the expected standards. The assessment guide defines whether the learner's supervisor, manager or an assessor must complete the checklist to attest that the learner has met the required standards and conditions. Most practical assessments are carried out on-the-job.

All assessment guides are accompanied by a schedule containing model answers for use by assessors. These contain exemplars for answers to guide assessors' judgements with regard to the type of answer, length, and the level of detail expected.

Consistency of Graduate Outcomes

Evidence may include the following:

- Employer surveys to determine if graduates of the qualification meet the graduate profile outcomes.

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- Analysis of a range of workplace evidence demonstrating that graduates meet the graduate profile outcomes.	
Indicative duration of Programme of Industry Training	
Number of months	24
Total learning hours	1470