

DOMAIN	Refrigeration and Air Conditioning				
STANDARD	28963	V2	Install commercial RAC equipment under supervision	Level 3	8 Credits
ENTRY	<p>There are no pre-requisite unit standards.</p> <p>However, it is recommended the learner holds unit 28959: Demonstrate knowledge of installation and commissioning procedures for commercial RAC equipment, or demonstrate equivalent knowledge and skills</p>				

LEARNER TO COMPLETE					
Name		Company			
NSI No.		Email / phone			
Pre-assessment confirmation					
<p>I, the learner,</p> <ul style="list-style-type: none"> Understand the assessment process and assessment requirements for this unit. Understand the appeals and resubmission processes. Believe I have the skills and knowledge to successfully complete the assessment requirements. 					
Assessment Submission: (Tick ✓ appropriate circle)	<input type="radio"/>	1st Submission	<input type="radio"/>	1st <u>Resubmission</u>	<input type="radio"/> Final Resubmission

ASSESSOR TO COMPLETE	
Name	Company
Email / phone	
Pre-assessment confirmation	
<p>I, the assessor, can confirm the learner has achieved any pre-requisite requirements. <input type="radio"/></p>	

ASSESSOR: UPDATE RESULTS AND COMPLETE FEEDBACK ONLINE VIA CANVAS
<p>NOTE TO LEARNER: You will be able to access your results via the Marks section (for this course) in Canvas. You will also see the feedback from your Assessor, and any actions you may need to take if a resubmission is required.</p>

RESUBMISSIONS:

Under Apprentice Training New Zealand (ATNZ) policy you have a maximum of **two** resubmission opportunities for this assessment. In total you will have three opportunities to meet the unit standard requirements. Information about the ATNZ resubmission process can be found in the Learner Regulations.

APPEALS:

Your Assessor will discuss ATNZ's Assessment Appeals process with you before carrying out this assessment. Information about the Assessment Appeals process can be found in the Learner Regulations.


LEARNER INSTRUCTIONS:

YOU WILL NEED TO BE ABLE TO:

- Prepare to install RAC components and systems under supervision.
- Install RAC system components under supervision.

IMPORTANT INFORMATION

- Carefully read through this Assessment Guide so you know exactly what is expected.
- All evidence you provide for this assessment must be your own work.
- You must wear personal protection equipment (PPE) throughout the assessment.
- Attach additional supporting evidence which shows you have the required skills and knowledge, e.g.
 - Drawings/Job specifications/records of work carried out;
 - Completion reports
 - Before, during and after Photos / videos.
- Clearly name and label all attached evidence. Labels for photos must describe the activity being performed in the photo and which job it relates to.

What you need to do		Tick when complete
Observation Checklist	 <p>BEFORE YOU START, talk through the project you have chosen with your Account Manager. They will check the project will cover all the requirements of this assessment. You must gain their approval before continuing.</p>	<input type="radio"/>
	<p>1. You must be observed</p> <ul style="list-style-type: none"> • Installing ONE (1) commercial RAC systems <u>under supervision</u>. This will include: <ul style="list-style-type: none"> ◦ Preparation and planning activities ◦ Installing primary RAC system components • Installing secondary RAC system components. 	<input type="radio"/>
	<p>2. You must also complete:</p> <ul style="list-style-type: none"> • Practical Worksheet 1 • Practical Worksheet 2 	<input type="radio"/>
	<p>3. You must also upload supporting evidence from the installation job showing job specifications, job completion reports, and before, during and after photos/videos.</p>	<input type="radio"/>

Observation checklist 1 – Part A

(LEARNER TO COMPLETE THIS SECTION)

YOU MUST BE OBSERVED:

- Installing a commercial RAC system under supervision. This will include:
 - Preparation and planning activities
 - Installing RAC system components.

LEARNER INSTRUCTIONS:

- Carefully read through this Observation Checklist so you know exactly what is expected.
- You the learner must fill in **PART A**
- **PART B** will be completed by an observer who must be approved by your Assessor/Account Manager prior to starting this assessment.
- Your assessor may choose an observer from your workplace to observe and/or verify your work.
- You may need to be observed more than once.
- Your Observer may ask you additional questions to check your knowledge and understanding.
- All work must be completed under supervision.
- Complete and attach **Practical Worksheet 1** – Site inspection for installing RAC system
- Complete and attach **Practical Worksheet 2** – Installing RAC system components
- Gather supporting evidence for the installation job including photos, drawings, and work specifications.

Learner name		Workplace	
Describe the installation job, site location and RAC system specifications.		Date completed	Supporting evidence attached
			○

Observation checklist – Part B –

OBSERVER TO COMPLETE THIS SECTION

- Watch the candidate carry out each task.
- Note down any extra questions you ask of the candidate during the observation in the feedback section
- Make sure the candidate has attached any supporting documentation.
- For each statement below, tick if you agree.

Assessment Task		Install Job	PC
When preparing to install the RAC system, the learner:			
1. Confirmed work to be carried out by reviewing drawings, specifications, materials list and work instructions.		<input type="radio"/>	PC 1.1
2. Checked site conditions match with drawings and work instructions.		<input type="radio"/>	PC 1.1
3. Coordinated any necessary work from other trades to meet the schedule and reduce downtime		<input type="radio"/>	PC 1.2
4. Made ready components and materials for the installation	<ul style="list-style-type: none"> • Obtained components and materials • Obtained all necessary tools to complete the job • Checked for compliance with drawings and specifications • Positioned on site 	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	PC 1.3
5. Identified and reported any discrepancies with on-site services or structures.		<input type="radio"/>	PC 1.4
6. Modified equipment (if required) to meet onsite conditions.		<input type="radio"/>	PC 1.5
7. Obtained any necessary permits to carry out work		<input type="radio"/>	PC 1.6
8. Completed Practical Worksheet 1 – Site inspection for installing RAC system.		<input type="radio"/>	PC 1.1, 1.3, 1.4, 1.6
When installing RAC system components, the learner:			
9. Installed primary components securely into position as specified	<ul style="list-style-type: none"> • components including but not limited to – compressors, condensers, evaporators, metering devices, outdoor and indoor fan coils. • Completed Practical Worksheet 2 Part A– Installing RAC primary system components. . 	<input type="radio"/>	PC 2.1
10. Installed secondary components and fittings securely into position as specified	<ul style="list-style-type: none"> • components may include but are not limited to – valves, controls, filters, driers, pipes, supports, brackets, attachments, seismic restraints, trunking • Completed Practical Worksheet 2 Part B– Installing RAC secondary system components 	<input type="radio"/>	PC 2.2
11. Applied standard industry practices during assembly to ensure internal cleanliness of components	<ul style="list-style-type: none"> • Cleaned the installation site to remove dust, debris, and any obstructions. • Checked all parts were thoroughly clean before installation. Cleaned as required. • Removed air, moisture, and contaminants from the refrigerant lines and components before charging the system with refrigerant. • Carried out final Inspection to ensure system & installation area were clean, organised and ready for operation. 	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	PC 2.3

Observation Checklist – Feedback

OBSERVER TO COMPLETE THIS SECTION

Install Job	Feedback from Observer			
Please provide specific comments on the learner's ability to complete the installation job to specification.				
Observer Name		Observer Signature		Date signed:

Practical Worksheet 1 (SITE INSPECTION FOR INSTALLING RAC SYSTEM)

LEARNER TO COMPLETE

Fill in this worksheet while under supervision preparing for the installation of a RAC system.

PC 1.1, 1.3, 1.4, 1.6

Assessment Task			Job 1	
Prepare to install RAC system components:				
Component Inspected		Check	✓ OR X OR N/A	Note your observations here
1.	Site accessibility	Easily accessible for <ul style="list-style-type: none"> • Installation equipment • Personnel 		Note your
2.	Space availability	Adequate space to install RAC system and components as per the installation drawings.		
3.	Structural integrity	Site can support <ul style="list-style-type: none"> • Weight of the RAC system • Layout of the RAC system 		
4.	Environmental conditions	Temperature, humidity and ventilation within acceptable limits for installation and operation.		
5.	Permit to work	Appropriate permits to work are identified and applied for.		Permits:
6.	Installation drawings	Compare physical site to lay out in the installation drawings <ul style="list-style-type: none"> • <u>Dimensions</u> – check space available matches the measurements specified in the drawings • <u>Placement</u> – check components like compressors, fans, and ducts can be positioned exactly as planned • <u>Connections</u> – verify all electrical, plumbing, and other connections can align with the drawings. 		
7.	Safety considerations	Check for any potential safety hazards that need addressing before installation.		
Learners Name			Learners Signature	Date signed:

Practical Worksheet 2 (INSTALLING RAC SYSTEM COMPONENTS)

LEARNER TO COMPLETE

Fill in this worksheet while under supervision to record all components installed.

PC 2.1, 2.2

Worksheet Tasks					
PART A: Install RAC primary system components:					
Component		Type(s)	Pass = ✓ OR Fail = X OR N/A required		
			Checked and cleaned	Positioned correctly	Firmly secured
1.	Compressor				
2.	Condenser				
3.	Evaporator				
4.	Metering device / Expansion valve				
5.	Indoor fan coils				
6.	Outdoor fan coils				
7.	Other:				
8.	Other:				
9.	Other:				
10.	Other:				
11.	Other:				

Worksheet Tasks**PART B: RAC secondary system components:**

Component		Type(s)	Pass = ✓ OR Fail = X OR N/A required		
			Checked and cleaned	Positioned correctly	Firmly secured
1.	Valves				
2.	Switches				
3.	Controls				
4.	Timers				
5.	Sensors				
6.	Filters				
7.	Pipes				
8.	Seismic restraints				
9.	Trunking				
10.	Other:				
11.	Other:				
12.	Other:				
Learners Name			Learners Signature		