NATIONAL VOCATIONAL QUALIFICATION

CONSTRUCTION SECTOR

NVQF LEVEL 2: REFRIGERATION AND AIR-CONDITIONING

(INSTALLATION MAINTENANCE AND REPAIRS)

Mandatory Units

S/No /Unit No	Reference Number	NOS Title	Credit Value	Guided Learning Hours	Remark
1	CON/RAC/001/2	**Concept of Refrigeration and air-conditioning**	3	30hrs	Level 2 NVQF/QCF
2	CON/RAC/002/2	**Communication in refrigeration and air-conditioning working environment**	2	20hrs	Level 2 NVQF/QCF
3	CON/RAC/003/2	**Work safely in refrigeration and air-conditioning working environment**	2	20hrs	Level 2 NVQF/QCF
4	CON/RAC/004/2	Troubleshooting in Refrigeration	4	40hrs	Level 2 NVQF/QCF

Optional Units

S/No /Unit No	Reference Number	NOS Title	Credit Value	Guided Learning Hours	Remark
9	CON/RAC/005/2	Pipe Works in refrigeration	6	60hrs	Level 2 NVQF/QCF
10	CON/RAC/006/2	Oxy-acetylene Welding	6	60hrs	Level 2 NVQF/QCF
11	CON/RAC/007/2	Installation and Maintenance of Domestic air conditioner	6	60hrs	Level 2 NVQF/QCF

NOTE: This is a 29 credit qualification, to achieve this qualification; Learners are required to achieve11 credits from mandatory units and 6 credits from the optional units. Each Credit is equivalent to approx. 10 Guided Learning Hours (GLH). The Total Learning Hours will therefore consist of the GLH *plus* the independent learning hours of the candidate, which is generally 50% – 150% of the GLH. ***The actual Total Learning Hours for each Credit will then be a minimum of 15 hours***.

Qualification Purpose: This qualification is to equip the learner with the concept of Refrigeration and Air Conditioning and also to prepare the learner for trouble shooting, ox-acetylene welding, Installation and maintenance in Refrigeration and air conditioning.

GUIDE

Unit title	Provides a clear explanation of the content of the unit.
Unit number	The unique number assigned to the unit
Unit reference	The unique reference number given to each unit at qualification approval by NBTE
Unit level	Denotes the level of the unit within the National Vocational Qualification framework NVQF.
Unit credit value	The value that has been given to the unit based on the expected learning time for an average learner. 1 credit = 10 learning hours
Unit aim	Provides a brief outline of the unit content.
Learning outcome	A statement of what a learner will know, understand or be able to do, as a result of a process of learning.
Assessment criteria	A description of the requirements a learner must achieve to demonstrate that a learning outcome has been met.
Unit assessment guidance	Any additional guidance provided to support the assessment of the unit.
Unit guided learning hours	The average number of hours of supervised or directed study time or assessment required to achieve a qualification or unit of a qualification.

National Vocational Qualification

CONSTRUCTION SECTOR

LEVEL 2: REFRIGERATION AND AIR-CONDITIONING

Unit 1: Concept of Refrigeration and air-conditioning

Unit Reference Number: CON/RAC/001/2

NVQ Level: 2

Credit Value: 3

Guided Learning Hours: 30hrs

Unit Purpose: This is to equip the learner with the basic concept of refrigeration and air-conditioning.

Unit assessment requirements/evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. ***Simulation is not allowed*** in this unit and level.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Work Product (WP)
6. Recognition of Prior Learning (RPL)
7. Other methods (Ot), assignments, case study, essay, project, etc.

UNIT 01:Concept of Refrigeration and air-conditioning

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.				
LO 1: DEMONSTRATE THE KNOWLEDGE OF REFRIGERATION	1.1	Explain what is refrigeration										
	1.2	Identify types of refrigeration systems										
	1.3	Explain classification of refrigeration										
	1.4	Outline schematic diagram of vapour compression system										
LO 2: DEMONSTRATE THE UNDERSTANDING OF BASIC TERMS OF AIR-CONDITIONING	2.1	Explain what is air-conditioning										
	2.2	Identify types of air-conditioning systems										
	2.3	Sketch the schematic diagram of domestic air-conditioning system										
LO 3: DEMONSTRATE THE KNOWLEDGE OF REFRIGERANT.	3.1	Explain what is a refrigerant										
	3.2	Identify refrigerants according to colour coding										
	3.3	Explain refrigerants according to number codes										
	3.4	State properties of a refrigerant										
LO 4: OUTLINE THE CAREER OPPORTUNITIES IN REFRIGERATION AND AIR-CONDITIONING	4.1	Identify job opportunities in refrigeration and air-conditioning.										
	4.2	Outline the types of job specialties in refrigeration and air-conditioning:										
	4.3	Explain jobs specification of the following specialties in refrigeration and air-conditioning: • Sales Engineer. • Application Engineer. • Maintenance Technician. • Sheet Metal Experts. • Installers. • Oxy-acetylene Welding expert. Pipe Work expert										

Learners Signature:	**Date:**
Assessors Signature:	**Date:**
IQA Signature (if sampled)	**Date:**

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type		Evidence Ref. Page No.
EQA Signature (if sampled)			**Date:**		

Additional information about the unit	
Unit aim(s)	**This is to equip the learner with the basic concept of refrigeration and air-conditioning**.
Unit expiry date	Dec. 2021
Details of the relationship between the unit and relevant national occupational standards (if appropriate)	CONSTRUCTION NOS
Details of the relationship between the unit and other standards or curricula (if appropriate)	
Assessment requirements specified by a sector or regulatory body (if appropriate)	
Endorsement of the unit by a sector or other appropriate body (if required)	
Location of the unit within the subject/sector classification system	Construction Sector Refrigeration & Air-Conditioning
Name of the organisation submitting the unit	
Guided Learning Hours	30

Unit 2: Communication in refrigeration and air-conditioning working environment

Unit Reference Number: CON/RAC/002/2

NVQ Level: 2

Credit Value: 2

Guided Learning Hours: 20hrs

Unit Purpose: This unit is to equip the learner to communicate effectively in the working environment

Unit assessment requirements/evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. ***Simulation is/or is not allowed*** in this unit and level.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)
6. Other methods (Ot), assignments, case study, essay, project, etc.

UNIT 2: Communication in refrigeration and air-conditioning working environment

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: UNDESTAND THE USE OF NON COMPLEX COMMUNICATION SYSTEM IN A WORK ENVIRONMENT	1.1	Identify various sources of information within refrigeration and air-conditioning industry									
	1.2	Recognize solving of problems using appropriate information									
	1.3	Use and understand signs, symbols and recording of information in work place									
	1.4	Explain the importance of communication in the work environment									
LO 2: UNDERSTAND AND PASS RELEVANT INFORMATION	2.1	Understand and pass information effectively									
	2.2	Recognize and understand written instructions									
	2.3	Understand technical instructions									
LO 3: USE A NON COMPLEX COMMUNICATION SYSTEM IN A WORK ENVIRONMENT	3.1	Illustrate and use simple verbal means to pass on necessary information									
	3.2	Describe use of non-verbal means to pass on necessary information e.g. body language									
	3.3	Interpret symbols and signs appropriately									
LO 4: IDENTIFY SOURCE OF INFORMATION IN A WORK ENVIRONMENT	4.1	Locate source of information in organization and work environment									
	4.2	Relate appropriately with source of information									
	4.3	Use various information flow systems in work environment									
	4.4	Use information to avoid challenges in work situation									
	4.5	Describe procedures in reporting findings in work environment									
	4.6	Identify the sources of information in work environment									
LO 5: USE OF EFFECTIVE COMMUNICATION EQUIPMENT IN THE	5.1	Select Communication equipment in work environment in line with standards									
	5.2	Use Communication equipment in work environment in line with standards									

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
WORK ENVIRONMENT											

Learners Signature:	**Date:**
Assessors Signature:	**Date:**
IQA Signature (if sampled)	**Date:**
EQA Signature (if sampled)	**Date:**

Additional information about the unit	
Unit aim(s)	This unit is to equip the learner to communicate effectively in the working environment
Unit expiry date	Dec. 2021
Details of the relationship between the unit and relevant national occupational standards (if appropriate)	Construction NOS
Details of the relationship between the unit and other standards or curricula (if appropriate)	
Assessment requirements specified by a sector or regulatory body (if appropriate)	

Endorsement of the unit by a sector or other appropriate body (if required)	
Location of the unit within the subject/sector classification system	Construction Sector Refrigeration & Air-Conditioning
Name of the organisation submitting the unit	
Guided Learning Hours	30

National Vocational Qualification

CONSTRUCTION SECTOR

LEVEL 2: REFRIGERATION AND AIR-CONDITIONING

Unit 2: Occupational Health and Safety in Refrigeration and Air-Conditioning Working Environment

Unit Reference Number: CON/RAC/003/2

NVQ Level: 2

Credit Value: 2

Guided Learning Hours: 20HRS

Unit Purpose: This unit is to equip the learner with the concept of Health and Safety in refrigeration and air-conditioning in work environment.

Unit assessment requirements/evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. ***Simulation is not allowed*** in this unit and level.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)

3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Work Product (WP)
6. Recognition of Prior Learning (RPL)
7. Other methods (Ot), assignments, case study, essay, project, etc.

UNIT 02: Occupational Health and Safety

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: UNDERSTAND IMPORTANCE OF PERSONAL HEALTH AND HYGIENE	1.1	Explain importance of wearing clean, neat and appropriate Personal Protective Equipment in work environment.									
	1.2	Work safely at all times, complying with health and safety and other relevant regulations and guidelines. (Nigerian Factory Health and safety Act of 2015)									
	1.3	Get any cuts, grazes and wounds treated by appropriate and qualified person, in work place									
	1.4	Report illness and infection promptly to appropriate persons									
	1.5	Explain importance of maintaining good personal hygiene									
	1.6	Explain own responsibility under the (Nigerian Factory Health and safety Act of 2015) as it relates to own occupation									
	1.7	Explain how to follow general rules on hygiene that must be followed.									
	1.8	Identify correct Personal Protection Equipment such as Head Protection, Foot Protection, Face and eye Protection, Hand and Body protection and regulatory protection.									
	1.9	Describe how to deal with cuts, grazes and wounds and why it is important to do so.									
LO 2: UNDERSTAND SAFETY AND SECURITY IN THE WORKPLACE	2.1	Explain importance of working in healthy, safe and secure workplace									
	2.2	Explain how to report accident or near accidents quickly and accurately to appropriate personnel.									
	2.3	Describe Pollution control and disposal of waste with organic and inorganic waste disposal methods									

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 3: WORK IN SAFE AND SECURE WORK ENVIRONMENT	3.1	Identify any hazards or potential hazards and act appropriately									
	3.2	State where information about health and safety in your workplace can be obtained									
	3.3	Describe the types of hazards in workplace that may occur and how to deal with them									
	3.4	State hazards that can be dealt with personally and those that should be reported to appropriate personnel									
	3.5	Identify risk elements in your own work environment									
	3.6	Describe organizational security procedures and why these are important									
	3.7	Follow procedures of raising awareness of hazards									
	3.8	Explain how to warn other people about hazards and why this is important									
	3.9	Explain why accidents and near accidents should be reported and who they should be reported to									
LO 4: UNDERSTAND EMERGENCY PROCEDURES	4.1	Describe types of emergencies that may happen in workplace and how to deal with them									
	4.2	Identify where to find first-aid equipment and who the registered first-aider is in work place									
	4.3	Explain safe lifting and handling techniques that should be followed									
	4.4	Explain other ways of working safely, relevant to one position and why they are important									
	4.5	Describe organizational emergencies procedures, in particular fire, and how these should be followed									
	4.6	State possible causes for fire in workplace.									
	4.7	Describe how to minimize possibility of fire in workplace									
	4.8	Explain where to find alarms and how to set them off									
	4.9	Explain why a fire should never be approached unless it is safe to									
	4.10	Explain importance of following fire safety rules.									

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
	4.11	State importance of reporting all usual or non- routine incidents to appropriate personnel									

Learners Signature:	**Date:**
Assessors Signature:	**Date:**
IQA Signature (if sampled)	**Date:**
EQA Signature (if sampled)	**Date:**

Additional information about the unit	
Unit aim(s)	This unit is to equip the learner with the concept of Health and Safety in refrigeration and air-conditioning in work environment.
Unit expiry date	Dec. 2021
Details of the relationship between the unit and relevant national occupational standards (if appropriate)	Construction NOS
Details of the relationship between the unit and other standards or curricula (if appropriate)	
Assessment requirements specified by a sector or regulatory body (if appropriate)	
Endorsement of the unit by a sector or other appropriate body (if required)	

Location of the unit within the subject/sector classification system	Construction Sector **Refrigeration & Air-Conditioning**
Name of the organisation submitting the unit	
Guided Learning Hours	30

National Vocational Qualification

CONSTRUCTION SECTOR

LEVEL 2: REFRIGERATION AND AIR-CONDITIONING

Unit 4: Concept of Trouble Shooting and Repairs

Unit Reference Number: CON/RAC/007/L2

NVQ Level: 2

Credit Value: 4

Guided Learning Hours: 40

Unit Purpose: This unit is aimed at equipping the learner with the concept and application of Trouble Shooting and Repairs

Unit assessment requirements/evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. ***Simulation is/or is not allowed*** in this unit and level.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Work Product (WP)
6. Recognition of Prior Learning (RPL)

7. Other methods (Ot), assignments, case study, essay, project, etc.

UNIT 04: Trouble Shooting and Repairs

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: DEMONSTRATE SAFETY IN TROUBLE SHOOTING AND REPAIRS OF DOMESTIC REFRIGERATION	1.1	Describe safety precaution involve in trouble shooting of domestic refrigerator									
	1.2	Describe safety precaution involve in repairs of domestic refrigerator									
LO 2: DEMONSTRATE THE KNOWLEDGE OF SELECTING TOOLS AND EQUIPMENT FOR TROUBLESHOOTING IN DOMESTIC REFRIGERATORS..	2.1	Identify tools and equipment used in carrying out fault diagnosis in refrigerators									
	2.2	Identify materials and tools in carrying out repairs of faults in refrigerators									
	2.3	Compare advantages and disadvantages of different methods of fault finding in refrigerators									
	2.4	Illustrate procedure of fault finding in domestic refrigerators									
LO 3: DEMONSTRATE KNOWLEDGE OF POSSIBLE FAULTS DIAGNOSES IN DOMESTIC REFRIGERATORS.	3.1	Trouble-shoot for electrical fault in refrigerator									
	3.2	Trouble-shoot for mechanical fault in refrigerator									
	3.3	Trouble-shoot for leakages in refrigerator									
	3.4	Identify causes of faults associated with domestic refrigerator									
LO 4: DEMONSTRATE THE PROCESS OF REPAIR OF ELECTRICAL FAULTS.	4.1	Carry out repairs on overload									
	4.2	Carry out repairs on faulty relay									
	4.3	Carry out repairs on faulty electric cord									
	4.4	Carry out repairs on faulty capacitor									
LO 5: DEMONSTRATE THE PROCESS OF REPAIRS OF COMPRESSOR FAULTS	5.1	Describe how problems of compressor noise can be rectified									
	5.2	Carry out repairs on low pumping of compressor									
	5.3	Carry out repairs on short-circuits fault in compressor									

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
	5.4	Describe process of replacement of faulty compressor									
LO 6: DEMONSTRATE THE PROCESS OF REPAIRS OF SYSTEM –CYCLE FAULTS.	6.1	Describe process of flushing out unwanted material causing blockage									
	6.2	Describe how leakages are rectified in piping-system									
	6.3	Describe process of replacement of a faulty evaporator									
	6.4	Describe process of replacement of faulty condenser									
	6.5	Describe process of replacement of faulty throttling-valve									

Learners Signature:	**Date:**
Assessors Signature:	**Date:**
IQA Signature (if sampled)	**Date:**
EQA Signature (if sampled)	**Date:**

Additional information about the unit	
Unit aim(s)	This unit is aimed at equipping the learner with the concept and application of Trouble Shooting and Repairs
Unit expiry date	Dec. 2021
Details of the relationship between the unit and relevant national occupational standards (if appropriate)	Construction NOS
Details of the relationship between the unit and other standards or curricula (if appropriate)	
Assessment requirements specified by a sector or regulatory body (if appropriate)	
Endorsement of the unit by a sector or other appropriate body (if required)	
Location of the unit within the subject/sector classification system	Construction Sector Refrigeration & Air-Conditioning
Name of the organisation submitting the unit	
Guided Learning Hours	30

National Vocational Qualification

CONSTRUCTION SECTOR

LEVEL 2: REFRIGERATION AND AIR-CONDITIONING

Unit 5: Pipe works in refrigeration

Unit Reference Number: CON/RAC/005/L2

NVQ Level: 2

Credit Value: 6

Guided Learning Hours: 60hrs

Unit Purpose: Aimed at equipping the learner with the concept and practical application of Pipe works in refrigeration

Unit assessment requirements/evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. ***Simulation is/or is not allowed*** in this unit and level.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)

3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Work Product (WP)
6. Recognition of Prior Learning (RPL)
7. Other methods (Ot), assignments, case study, essay, project, etc.

UNIT 05: Pipe works in refrigeration

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: DEMONSTRATE THE KNOWLEDGE OF SELECTING VARIOUS SIZES OF PIPES USED IN REFRIGERATION AND AIR-CONDITIONING	1.1	Identify types of pipes used in refrigeration and air-conditioning									
	1.2	Select pipes using diameter as parameter									
	1.3	Select pipes base on functionality									
	1.4	Show how to connect different pipes in refrigeration system									
LO 2: DEMONSTRATE THE KNOWLEDGE OF PIPE CUTTING OPERATION IN REFRIGERATION AND AIR-CONDITIONING.	2.1	Explain types of tools used in pipe-cutting operations									
	2.2	Explain safety precautions associated with pipe-cutting operations									
	2.3	Describe different methods of pipe-cutting operations									
	2.4	Describe pipe-cutting operations.									
	3.2	State safety precautions associated with pipe bending operations									
	3.3	Describe process of pipe bending using different methods									
LO 4:	4.1	Explain tools and equipment used in pipe flaring									

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
APPLY FLARING OPERATION	4.2	Explain safety precautions associated with pipe flaring									
	4.3	Describe process of pipe flaring									
LO 5: APPLY SWADGING OPERATION	5.1	Identify tools and equipment used in swadging operations									
	5.2	Describe safety precautions associated with swadging operations									
	5.3	Describe procedure followed in pipe swadging									

Learners Signature:	**Date:**
Assessors Signature:	**Date:**
IQA Signature (if sampled)	**Date:**
EQA Signature (if sampled)	**Date:**

Additional information about the unit	
Unit aim(s)	Aimed at equipping the learner with the concept and practical application of Pipe works in refrigeration
Unit expiry date	Dec. 2021
Details of the relationship between the unit and relevant national occupational standards (if appropriate)	Construction NOS
Details of the relationship between the unit and other standards or curricula (if appropriate)	

Assessment requirements specified by a sector or regulatory body (if appropriate)	
Endorsement of the unit by a sector or other appropriate body (if required)	
Location of the unit within the subject/sector classification system	Construction Sector Refrigeration & Air-Conditioning
Name of the organisation submitting the unit	
Guided Learning Hours	30

National Vocational Qualification

CONSTRUCTION SECTOR

LEVEL 2: REFRIGERATION AND AIR-CONDITIONING

Unit 6: Oxy-Acetylene Welding

Unit Reference Number: CON/RAC/009/L2

NVQ Level: 2

Credit Value: 6

Guided Learning: 60Hours:

Unit Purpose: This unit is aimed at equipping the learner with the concept and practical application of Oxy-Acetylene Welding

Unit assessment requirements/evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. ***Simulation is/or is not allowed*** in this unit and level.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Work Product (WP)
6. Recognition of Prior Learning (RPL)
7. Other methods (Ot), assignments, case study, essay, project, etc.

UNIT 06: Oxy-Acetylene Welding

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: SHOW THE UNDERSTANDING OF SAFETY IN OXY-ACETYLENE WELDING OPERATIONS.	1.1	Describe safety precautions involved in movement and application of oxy-acetylene materials, e.g. hose, and gauges									
	1.2	Explain safety precautions involved in storage and application of acetylene cylinder									
	1.3	Explain safety measures in gas mixing and lighting of acetylene welding process									
LO 2: DEMONSTRATE THE KNOWLEDGE OF THE MATERIALS USED IN OXY-ACETYLENE WELDING OPERATIONS.	2.1	Identify hoses, and pressure gauges used with oxygen and acetylene lines									
	2.2	Distinguish between oxygen and acetylene cylinders									
	2.3	Identify various parts and functions of nozzles									
LO 3: CARRY OUT OXY-ACETYLENE WELDING OPERATIONS	3.1	Perform the process of releasing acetylene from cylinder									
	3.2	Perform the process of mixing acetylene with oxygen prior to welding operation									
	3.3	Apply the correct flame for welding operation									
	3.4	Perform the welding operation.									

Learners Signature:	**Date:**
Assessors Signature:	**Date:**
IQA Signature (if sampled)	**Date:**
EQA Signature (if sampled)	**Date:**

Additional information about the unit	
Unit aim(s)	This unit is aimed at equipping the learner with the concept and practical application of Oxy-Acetylene Welding
Unit expiry date	Dec. 2021
Details of the relationship between the unit and relevant national occupational standards (if appropriate)	Construction NOS
Details of the relationship between the unit and other standards or curricula (if appropriate)	
Assessment requirements specified by a sector or regulatory body (if appropriate)	
Endorsement of the unit by a sector or other appropriate body (if required)	
Location of the unit within the subject/sector classification system	Construction Sector Refrigeration & Air-Conditioning
Name of the organisation submitting the unit	
Guided Learning Hours	30

National Vocational Qualification

CONSTRUCTION SECTOR

LEVEL 2: REFRIGERATION AND AIR-CONDITIONING

Unit 7: Installation and Maintenance of Domestic air-conditioner

Unit Reference Number: CON/RAC/07/L2

NVQ Level: 2

Credit Value: 6

Guided Learning Hours: 60hrs

Unit Purpose: This is aimed at equipping the learner with the concept and practical application of Installation and Maintenance of Domestic Air-conditioning

Unit assessment requirements/evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. ***Simulation is not allowed*** in this unit and level.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Work Product (WP)
6. Recognition of Prior Learning (RPL)
7. Other methods (Ot), assignments, case study, essay, project, etc.

UNIT 7: Installation and Maintenance of Domestic Air-conditioning

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: DEMONSTRATE THE UNDERSTANDING OF SAFETY IN THE INSTALLATION OF A DOMESTIC AIR-CONDITIONING UNIT	1.1	Explain safety precautions involved in installation of indoor unit of domestic Air-conditioner									
	1.2	Explain safety precautions involved in installation of outdoor unit of domestic Air-conditioner									
	1.3	Describe the use of protective in cases of installation at high levels									
LO 2: TOOLS AND EQUIPMENT USED IN THE INSTALLATION OF A DOMESTIC AIR-CONDITIONING UNIT.	2.1	Identify tools and equipment used in installation of domestic air-conditioning unit									
	2.2	Describe specific functions of tools used in installation of domestic air-conditioning unit									
	2.3	State steps taken for proper maintenance of tools and equipment used									
LO 3: TOOLS AND EQUIPMENT USED IN THE MAINTENANCE OF A DOMESTIC AIR-CONDITIONING UNIT	3.1	Identify tools and equipment used in maintenance of domestic air-conditioning unit.									
	3.2	Describe specific functions of tools used in maintenance of domestic air-conditioning unit									
	3.3	State maintenance process of tools and equipment used									
LO 4: METHODS OF MAINTENANCE OF DOMESTIC SPLIT AIR-CONDITIONING UNIT.	4.1	Describe methods employed in maintenance of outdoor section of split air-conditioning unit.									
	4.2	Describe methods employed in maintenance of indoor section of split air-conditioning unit									
LO 5: DEMONSTRATE THE PROCESS OF INSTALLATION OF A	5.1	Select tools for drilling of holes in wall of building prior to installation of air-conditioning unit									
	5.2	Describe safety measures observed in drilling of hole for air-conditioning unit installation									

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
DOMESTIC AIR-CONDITIONING UNIT.	5.3	Select materials used in hanging indoor unit									
	5.4	Describe process of setting up outdoor unit									
	5.5	Explain process of connecting indoor and outdoor components of air-conditioning unit									
	5.6	Describe process of testing installed air-conditioning unit									
LO 6: DEMONSTRATE THE PROCESS OF CARRYING OUT THE MAINTENANCE OF A DOMESTIC AIR-CONDITIONING UNIT	6.1	Explain importance of routine maintenance and servicing of air-conditioning unit									
	6.2	State components considered when servicing/ maintenance of air-conditioning unit									
	6.3	Describe process of replacing faulty condenser in air-conditioning unit									

Learners Signature:	**Date:**
Assessors Signature:	**Date:**
IQA Signature (if sampled)	**Date:**
EQA Signature (if sampled)	**Date:**

Additional information about the unit	
Unit aim(s)	This is aimed at equipping the learner with the concept and practical application of Installation and Maintenance of Domestic Air-conditioning
Unit expiry date	Dec. 2021
Details of the relationship between the unit and relevant national occupational standards (if appropriate)	Construction NOS
Details of the relationship between the unit and other standards or curricula (if appropriate)	
Assessment requirements specified by a sector or regulatory body (if appropriate)	
Endorsement of the unit by a sector or other appropriate body (if required)	
Location of the unit within the subject/sector classification system	Construction Sector Refrigeration & Air-Conditioning
Name of the organisation submitting the unit	
Guided Learning Hours	30