



NATIONAL OCCUPATIONAL STANDARD FOR CODED WELDER

NOS.CW.01
First Edition

APPROVING AUTHORITY

This National Occupational Standard has been prepared and published under the authority of the Zambia Qualifications Authority Board on 21st September 2021.

ZAMBIA QUALIFICATIONS AUTHORITY

The Zambia Qualifications Authority Act No. 13 of 2011 was enacted by the Government of the Republic of Zambia to ***“provide for the development and implementation of a national qualifications framework; establish the Zambia Qualifications Authority; provide measures to ensure that standards and registered qualifications are internationally comparable; and provide for matters connected with, or incidental to the foregoing”***. Among other functions, ZAQA is responsible for ***determining national standards for any occupation***, through various sector specific National Occupational Standards Development Teams (NOSDTs).

REVISION OF NATIONAL OCCUPATIONAL STANDARDS

National Occupational Standards shall be revised every after **5 years**, or whenever necessary, by the issue of either amendments or of revised editions. It is important that users of National Occupational Standards (NOS) should ascertain that they are in possession of the latest amendments or editions.

NOS DEVELOPMENT TEAM RESPONSIBLE

This National Occupational Standard was prepared by the Energy National Occupational Standards Development Team, upon which the following organisations were represented:

1. Copperbelt University;
2. Department of Energy - Ministry of Energy;
3. Energy Regulation Board;
4. Kafue Gorge Regional Training Centre;
5. Mines Safety Department - Ministry of Mines and Minerals Development;
6. Ministry of Labour and Social Security Services;
7. Muhanya Solar;
8. Northern Technical College;
9. Rural Electrification Authority;
10. SNV Zambia;
11. University of Zambia;
12. Zambia Qualifications Authority.

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FOREWORD

The Zambia Qualifications Authority (ZAQA) is a statutory body under the Ministry of Higher Education established by ZAQA Act No. 13 of 2011 to ***“provide for the development and implementation of a national qualifications framework; provide measures to ensure that standards and registered qualifications are internationally comparable; and provide for matters connected with, or incidental to the foregoing”***.

Among other functions, ZAQA is responsible for ***“determining national standards for any occupation”***, through various sector specific National Occupational Standards Development Teams (NOSDTs) of experts composed of representation from appropriate authorities, government departments, industry, academia, regulators, consumer associations and non-governmental organizations, etc.

This National Occupational Standard (NOS) has been developed by the Energy National Occupational Standards Development Team in accordance with the procedures and guidelines of ZAQA. All users should ensure that they have the latest edition of this publication as National Occupational Standards are revised from time to time.

This NOS shall be used by, among others, industry, employers, quality assurance bodies, awarding and professional bodies and education and training institutions, as a benchmark to identify training needs, develop job profiles/descriptions, develop curricula and learning programmes, in various sectors where the occupation exists. In the Energy sector, demonstration of competence against this NOS may be required in order to run a business or practice a craft or profession.

JUSTIFICATION

Welders work with a range of materials and equipment in fitting and assembling metal components to form metal structures using high heat equipment and welding processes such as Metal Inert Gas MIG, Tungsten Inert Gas TIG, and electric arc welding. Welders are employed by companies that manufacture structural steel and plate work, boilers, heavy machinery, government, educational institutions, aircraft and ships and other metal products, and by welding contractors and welding shops, or they may be self-employed.

With the foregoing in mind, various institutions in industry will require welders for the day to day welding needs and ensure desired quality outcomes are achieved. Coded welders are highly specialised and skilled craftsmen who normally work with carbon and stainless steel, copper, aluminium and other types of materials.

This National Occupational Standard highlights core knowledge, skills, competences and personal attributes that coded welders must possess to be successful in their jobs.

ACRONYMS AND ABBREVIATIONS

CW	Coded Welder
1F	Fillet weld in flat welding position
2F	Fillet weld in horizontal welding position
3F	Fillet weld in vertical welding position
4F	Fillet weld in overhead welding position
1G	Groove weld in both plate and fixed pipe/tube in flat welding position
2G	Groove weld in both plate and fixed pipe/tube in horizontal welding position
3G	Groove weld in vertical welding position
4G	Groove weld in overhead welding position
5G	Groove weld on a tube/pipe in horizontal rolling welding position
6G	Groove weld on a tube/pipe fixed and inclined at 45° to the horizontal axis
NOS	National Occupational Standard
NOSDT	National Occupational Standards Development Team
OK	Organisational Knowledge
PC	Performance Criteria
PS	Professional Skill
RK	Regulatory Knowledge
RPL	Recognition of Prior Learning
TK	Technical Knowledge
WPS	Welding Procedure Specification
ZAQA	Zambia Qualifications Authority
ZQF	Zambia Qualifications Framework

GLOSSARY OF TERMS

For the purposes of this NOS, the following terms and definitions shall apply:

Core Skills/Generic Skills: are a group of skills that are key to learning and working in today's world. These skills are typically needed in any work environment. In the context of the NOS, these include communication related skills that are applicable to most job roles.

Function: is an activity necessary for achieving the key purpose of the sector, occupation, or area of work, which can be carried out by a person or a group of persons. Functions are identified through functional analysis and form the basis of NOS.

Job Title: defines a unique set of functions that together form a unique employment opportunity in an organisation.

Knowledge and Understanding: are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.

National Occupational Standards (NOS): are statements of the standards of performance individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding. They are precise descriptions of what an individual is expected to be able to do in his/her work role.

National Occupational Standards (NOS) Code: is a unique reference code that identifies a NOS.

National Occupational Standards Development Team (NOSDT): means an established group of national stakeholders/experts responsible for the development of National Occupational Standards within a specific economic sector or occupation.

Occupation: is a set of job roles, which perform similar/related set of functions in an industry.

Organisational Context: includes the way the organisation is structured and how it operates, including the extent of operative knowledge that managers have in their relevant areas of responsibility.

Performance Criteria: are statements that together specify the standard of performance required when carrying out a task.

Scope: is the set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on the quality of performance required.

Sector: is a conglomeration of different business operations having similar businesses and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.

Sub Sector: is derived from a further breakdown based on the characteristics and interests of its components.

Technical Knowledge: is the specific knowledge needed to accomplish specific designated responsibilities.

Unit Title: gives a clear overall statement about what the incumbent should be able to do.

1. OVERVIEW

This is an introductory section providing a brief summary and specific information or commentary about the content of the NOS and the targeted sector and occupation to help the user judge whether it is relevant to them.

NOS Code	NOS.CW.01
Occupation	Coded Welding
Job Title	Coded Welder
Job Description	A coded welder is a person who has been tested and certified competent to perform a specific welding process and is responsible for permanently joining/fusing equipment, structures and various types of metals together through the specified welding process.
Job Purpose	Purpose is to join two metallic materials after melting by fusion.
ZQF Level	Level 3
Sector	Energy
Sub sector	Renewable Energy (Solar, Geothermal, Wind, Biomass, Small Hydro) and Non-Renewable (Diesel, Coal, Petroleum, Nuclear, Big Hydro)
Other Economic Sector(s) in which the Occupation is Practiced	Agriculture, health, civil, electrical and mechanical engineering, construction, fabrication, maintenance and repair, transport (rail road construction), automotive industry, Academia, R&D, Regulation and Standards Agencies
Other Similar Jobs that can be performed by the Coded Welder	Brazing and Soldering
Minimum Educational Job Entry Qualification(s)	ZQF Level 3 Certificate
Practicing License Requirements (if any)	Engineering Registration Board
Training/RPL	Entrepreneurial
Minimum Job Entry Age	Anyone qualified to be employed under the laws of the country
Prior Experience	2 years welding experience at level 4
Performance Criteria	As described in the Units under Section 4

2. SCOPE

This National Occupational Standard specifies the fundamental knowledge and understanding, skills and competences that Coded Welder must possess to be successful in his/her job role. It is applicable to coded welders working in public or private organisations or self-employed within or outside the Energy sector.

3. PERSONAL ATTRIBUTES (VALUES, ETHICS AND ATTITUDES)

This job requires an individual to possess:

- Creativity
- Problem solving skills
- Analytical skills
- Mathematical skills
- Integrity
- Interpersonal skills
- Commercial Awareness
- Attention to detail
- Physical Ability
- Etc.

4. UNITS AND ELEMENTS

This National Occupational Standard is divided into four (04) Units representing the tasks that a job holder should undertake in his/her day to day work. Each unit is further broken down into elements depicting the number of activities to be carried out for the successful execution of a particular task.

UNIT 1 [This unit is about health, safety and environmental protection requirements for a Coded Welder to be proficient in carrying out coded welding].

Unit No.	01
Unit Title	Safety, health and environmental management
Description	This unit is about maintaining safety, health and environmental protection for the individual(s) and the plant and equipment.
Scope	<p>This unit covers the following:</p> <ul style="list-style-type: none"> • Ensure all health and safety regulations are followed by the incumbent as well as other employees. • Ensure the operations of the establishment conform to the requirements for environmental protection. • Ensure the safety of plant and equipment.
Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria (PC)
Ensure all Health and safety regulations are followed by the incumbent as well as other employees	<p>To be competent, the individual must be able to:</p> <p>PC1. Read, interpret and implement the safety and health policies of the organisation.</p> <p>PC2. Read, interpret and implement the safety and health regulations for the organisation.</p> <p>PC3. Identify hazards and assess the risks of all aspects of operations for plant and equipment.</p>
Ensure the operations of the establishment conform to the requirements for environmental protection.	<p>To be competent, the individual must be able to:</p> <p>PC4. Read, interpret and implement the environmental policies of the organisation.</p> <p>PC5. Read, interpret and implement the environmental regulations of the organisation.</p> <p>PC6. Identify environmental hazards and assess risks of all aspects of operations for plant and equipment.</p>
Ensure the safety of plant and equipment	<p>To be competent, the individual must be able to:</p> <p>PC7. Read, interpret and implement the standard operating procedures for plant and equipment of the organisation.</p> <p>PC8. Identify hazards and assess risks of all aspects of operations for plant and equipment.</p>
Knowledge and Understanding (K)	
A. Organisation -al Context (Knowledge of the company/ organisation and its processes)	<p>The individual on the job must demonstrate knowledge and understanding of:</p> <p>OK1. Company health and safety policies and regulations.</p> <p>OK2. Company environmental policies and regulations.</p> <p>OK3. Company standard operating procedures.</p>

B. Technical Knowledge	The individual on the job must demonstrate knowledge and understanding of: TK1. Health and Safety risk assessment. TK2. Environmental Risk assessment. TK3. Plant and equipment operational risk assessment.
C. Regulatory context (Knowledge of Rules and Regulations)	The individual on the job must demonstrate knowledge and understanding of: RK1. Government regulatory agency requirements for health and safety. RK2. Government regulatory agency requirements for environmental protection.
Skills (S)	
A. Core Skills/ Generic Skills	Reading Skills
	The individual on the job must be able to: CS1. Read and interpret internal/external documents. CS2. Read and understand manuals, health and safety instructions, memos, other company documents. CS3. Ability to read from different sources- books, screens in machines and signage.
	Writing Skills
	The individual on the job must be able to: CS4. Fill up documentation applicable to one's role. CS5. Write minutes of meetings. CS6. Write technical reports, budgets, and other relevant documents.
	Oral Communication (Listening and Speaking skills)
B. Professional Skills	Decision Making
	The individual on the job must be able to: PS1. Follow organization rule-based decision making process. PS2. Take decisions with systematic course of actions and/or response.
	Plan and Organise
	The individual on the job must be able to: PS3. Plan and organise work to meet set targets. PS4. Work constructively and collaboratively with others.
	Customer Centricity
	The individual on the job must be able to: PS5. Follow code of conduct. PS6. Manage relationships with customers with intent on satisfying requirements for service delivery.
B. Professional Skills	Problem Solving
	The individual on the job must be able to: PS7. Recognize problems and search for solutions. PS8. Choose appropriate methods to complete assigned tasks.

	PS9. Approach relevant authority when required.
	Analytical Thinking
	The individual on the job must be able to: PS10. Apply risk based approach to analyse situations for action. PS11. Apply domain knowledge, observations and data to select appropriate course of action to perform tasks.
	Critical Thinking
	The individual on the job must be able to: PS12. Critically evaluate information obtained from various sources to perform day to day activities. PS13. Ask questions for better understanding to evaluate the complexity of the task and seek assistance and support whenever required.

UNIT 2 [This unit is about how to carry out a fillet weld in 1F, 2F, 2FR, 3F, 4F and 5F welding positions]

Unit No.	02
Unit Title	Fillet weld in 1F, 2F, 2FR, 3F, 4F and 5F welding positions
Description	This unit is about how to carry out a fillet weld in 1F, 2F, 2FR, 3F, 4F and 5F positions
Scope	<p>This unit covers the following:</p> <ul style="list-style-type: none"> • Health & safety regulations • Selecting correct welding process • Selecting suitable material for the process and correct welding position • Setting up welding equipment • Preparing and assembling of the material in conformance with the WPS. • Performing the weld
Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria (PC)
Ensure all health and safety regulations are followed by the jobholder as well as other employees	To be competent, the individual must be able to: PC1. Observe all health and safety regulations. PC2. Identify and correct if possible, and avoid any hazards found in his/her work place (Risk Assessment and Mitigation)
Selecting correct welding process	To be competent, the individual must be able to: PC3. Select the correct welding process PC4. Select the correct welding equipment
Selecting suitable material for the process and correct welding position	To be competent, the individual must be able to: PC5. Select the suitable material for the process PC6. Select the correct welding position
Setting up welding equipment	To be competent, the individual must be able to: PC7. Set up the equipment correctly
Preparing and assembling of the material in conformance with the WPS	To be competent, the individual must be able to: PC8. Prepare material to be welded correctly PC9. Assemble material to be welded in conformity with the given WPS
Performing the weld	To be competent, the individual must be able to: PC10. Carry out the correct weld in conformity with the required WPS

Knowledge and Understanding (K)	
A. Organisation -al Context (Knowledge of the company/ organisation and its processes)	The individual on the job must demonstrate knowledge and understanding of: OK1. Company hot work permit issuing and cancelling procedure OK2. Company equipment isolation issuing and cancelling procedure OK3. All other company policies and procedures
B. Technical Knowledge	The individual on the job must demonstrate knowledge and understanding of: TK1. Welding process TK2. Welding equipment TK3. Base metals and filler metals that must be used (if any), preheat and post weld heat treatment requirement. TK4. Welding defects, their causes and remedies TK5. Correct material edge preparation prior to carry out a particular weld.
C. Regulatory context (Knowledge of Rules and Regulations)	The individual on the job must demonstrate knowledge and understanding of: RK1. Government regulatory requirements for energy. RK2. Government regulatory requirement for employee safety and compensation
Skills (S)	
A. Core Skills/ Generic Skills	Reading Skills
	The individual on the job must be able to: CS1. Read and interpret internal/ external documents related to coded welding CS2. Read and interpret documents related to standard coded welding procedures
	Writing Skills
	The individual on the job must be able to: CS3. Generate coded welding job cards CS4. Generate isolation and hot work permits
	Oral Communication (Listening and Speaking skills)
The individual on the job must be able to: CS5. Effectively communicate standard coded welding codes and procedures to both his superiors and subordinates.	
B. Professional Skills	Plan and Organise
	The individual on the job must be able to: PS1. Prepare and assemble coded welding elements according to WPS
	Judgment and Critical Thinking
	The individual on the job must be able to: PS2. Evaluate the task performed PS3. Ask questions for better understanding
	Desire to Learn and Take Initiatives
The individual on the job must be able to: PS4. Keep up-to-date with latest trends and changes in coded welding codes and procedures	

	PS5. Be abreast with changes in welding technology
	Problem Solving and Decision Making
	The individual on the job must be able to: PS6. Identify and solve process and equipment problems with minimum or no supervision

UNIT 3 [This unit is about how to carry out a groove weld in 1G, 2G, 3G and 4G welding positions].

Unit No.	03
Unit Title	Groove weld in 1G, 2G, 3G and 4G plate welding positions
Description	This unit is about how to carry out a groove weld in 1G, 2G, 3G and 4G positions
Scope	This unit covers the following: <ul style="list-style-type: none"> • Health & safety regulations • Selecting correct welding process • Selecting suitable material for the process and correct welding position • Setting up welding equipment • Preparing and assembling of the material in conformance with the WPS. • Performing the weld
Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria (PC)
Ensure all health and safety regulations are followed by the jobholder as well as other employees	To be competent, the individual must be able to: PC1. Observe all health and safety regulations. PC2. Identify and correct if possible and avoid any hazards found in his/her work place (Risk Assessment and Mitigation)
Selecting correct welding process	To be competent, the individual must be able to: PC3. Select the correct welding process PC4. Select the correct welding equipment
Preparing and assembling of the material in conformance with the WPS	To be competent, the individual must be able to: PC5. Select the suitable material for the process is selected PC6. Perform a weld in the correct welding position
Setting up welding equipment	To be competent, the individual must be able to: PC7. Set up the equipment correctly
Preparing and assembling of the material in conformance with the WPS	To be competent, the individual must be able to: PC8. Prepare material to be welded correctly PC9. Assemble material to be welded in conformity with the given WPS
Performing the weld	To be competent, the individual on the job must be able to: PC10. Carry out the correct weld in conformity with the required WPS
Knowledge and Understanding (K)	
A. Organisation-al Context (Knowledge of the company/	The individual on the job must demonstrate knowledge and understanding of: OK1. Company hot work permit issuing and cancelling procedure

organisation and its processes)	OK2. Company equipment isolation permit issuing and cancelling procedure OK3. All other company policies and procedures
B. Technical Knowledge	The individual on the job must demonstrate knowledge and understanding of: TK1. Welding process TK2. Welding equipment TK3. Base metals and filler metals that must be used (if any), preheat and post weld heat treatment requirement. TK4. Welding defects, their causes and remedies TK5. Correct material edge preparation prior to carry out a particular weld
C. Regulatory context (Knowledge of Rules and Regulations)	The individual on the job must demonstrate knowledge and understanding of: RK1. Government regulatory requirements for energy RK2. Government regulatory requirement for employee safety and compensation. (Factories Act)
Skills (S)	
A. Core Skills/ Generic Skills	Reading Skills
	CS1. Read and interpret internal/ external documents related to coded welding CS2. Read and interpret documents related to standard coded welding procedures
	Writing Skills
	The individual on the job must be able to: CS3. Generate coded welding job cards CS4. Generate isolation and hot work permits
	Oral Communication (Listening and Speaking skills)
	The individual on the job must be able to: CS5. Effectively communicate standard coded welding codes and procedures to both his superiors and subordinates.
B. Professional Skills	Plan and Organise
	The individual on the job must be able to: PS1. Prepare and assemble coded welding elements according to WPS
	Judgment and Critical Thinking
	The individual on the job must be able to PS2. Evaluate the task performed PS3. Ask questions for better understanding
	Desire to Learn and Take Initiatives
	The individual on the job must be able to: PS4. Keep up-to-date with latest trends and changes in coded welding codes and procedures PS5. Be abreast with changes in welding technology
Problem Solving and Decision Making	
The individual on the job must be able to: PS6. Identify and solve process and equipment problems with minimum or no supervision	

UNIT 4 [This unit is about how to carry out a **pipe/tube** weld in 1G, 2G, 5G and 6G welding positions].

Unit No.	04
Unit Title	Groove weld on a pipe/tube in 1G, 2G, 5G and 6G welding positions
Description	This unit is about how to carry out a groove weld on a pipe/tube in 1G, 2G, 5G and 6G positions
Scope	<p>This unit covers the following:</p> <ul style="list-style-type: none"> • Health & safety regulations • Selecting correct welding process • Selecting suitable material for the process and correct welding position • Setting up welding equipment • Preparing and assembling of the material in conformance with the WPS. • Performing the weld
Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria (PC)
Ensure all health and safety regulations are followed by the jobholder as well as other employees	To be competent, the individual must be able to: PC1. Observe all health and safety regulations. PC2. Identify and correct if possible and avoid any hazards found in his/her work place (Risk Assessment and Mitigation)
Selecting correct welding process	To be competent, the individual must be able to: PC3. Select the correct welding process PC4. Select the correct welding equipment
Preparing and assembling of the material in conformance with the WPS	To be competent, the individual must be able to: PC5. Select the suitable material for the process PC6. Perform a weld in the correct welding position
Setting up welding equipment	To be competent, the individual must be able to: PC7. Set up the equipment correctly
Preparing and assembling of the material in conformance with the WPS	To be competent, the individual must be able to: PC8. Prepare material to be welded correctly PC9. Assemble material to be welded in conformity with the given WPS To be competent, the individual on the job must be able to: PC10. Carry out the correct weld in conformity with the required WPS
Performing the weld	To be competent, the individual on the job must be able to: PC11. Carry out the correct weld in conformity with the required WPS

Knowledge and Understanding (K)	
A. Organisational Context (Knowledge of the company/ organisation and its processes)	The individual on the job must demonstrate knowledge and understanding of: OK1. Company hot work permit issuing and cancelling procedure OK2. Company equipment isolation permit issuing and cancelling procedure OK3. All other company policies and procedures
B. Technical Knowledge	The individual on the job must demonstrate knowledge and understanding of: TK1. Welding process TK2. Welding equipment TK3. Base metals and filler metals that must be used (if any), preheat and post weld heat treatment requirement. TK4. Welding defects, their causes and remedies TK5. Correct material edge preparation prior to carry out a particular weld
C. Regulatory context (Knowledge of Rules and Regulations)	The individual on the job must demonstrate knowledge and understanding of: RK1. Government regulatory requirements for energy. RK2. Government regulatory requirement for employee safety and compensation.
Skills (S)	
A. Core Skills/ Generic Skills	Reading Skills
	CS1. Read and interpret internal/ external documents related to coded welding CS2. Read and interpret documents related to standard coded welding procedures
	Writing Skills
	The individual on the job must be able to: CS3. Generate coded welding job cards CS4. Generate isolation and hot work permits
	Oral Communication (Listening and Speaking skills)
	The individual on the job must be able to: CS5. Effectively communicate standard coded welding codes and procedures to both his superiors and subordinates.
B. Professional Skills	Plan and Organise
	The individual on the job must be able to: PS1. Prepare and assemble coded welding elements according to the WPS
	Judgment and Critical Thinking
	The individual on the job must be able to PS2. Evaluate the task performed PS3. Ask questions for better understanding
	Desire to Learn and Take Initiatives
	The individual on the job must be able to: PS4. Keep up-to-date with latest trends and changes in coded welding codes and procedures PS5. Be abreast with changes in welding technology

	Problem Solving and Decision Making
	The individual on the job must be able to: PS6. Identify and solve process and equipment problems with minimum or no supervision

5. EQUIPMENT, TOOLS AND CONSUMABLE MATERIALS

These include, but not limited to; Personal Protective Equipment (PPE), Welding machine, Leather apron, Cap or helmet, Welding shield or helmet, Leather gloves, Chipping hammer, Wire brush, Welding handle/holder or handle, Earth clamp, Welding cable, Return cable, Hammer, Clamp, Safety boots with a steel toe cap, Leather jacket, Leather spats, Welding rods/electrodes

6. DILEMMAS/CHALLENGES AND COMPLEXITIES FOR A JOB HOLDER

Dilemmas associated with the job of a coded welder include working in dangerous areas and hazardous machinery/equipment, working in confined areas, long working hours, exposure to chemical, physical and biological hazards, pressure from supervisors and colleagues, time pressure to complete tasks, working in extreme weather such as hot and cold conditions, working in noisy, wet and dusty environments, etc.

6.1 Alternative Choices (Solutions) to Dilemmas and Complexities

Solutions to dilemmas include wearing protective clothing (PPE) and ensuring their availability and use by other employees, exercising regularly to maintain physical fitness, participating in workplace safety sensitization and awareness, planning your daily tasks, adhering to company's safety and standard operating procedures at all times.

7. WORKING CONDITIONS/ENVIRONMENT

Working conditions include working in cold, hot and wet conditions, working at heights, stand/walk for long hours, working in laboratory environment, working in shifts, areas that are noisy and dusty, areas with limited lighting and ventilation. Working in confined spaces, working in explosive environment.

8. PARTIES INVOLVED/INTERACTING WITH THE JOB HOLDER OR TRAINEE

8.1 Internal/Within the Organization

Parties involved/interacting with the job holder who are internal to the organization include supervisors, subordinates, and other employees (e.g. engineers: civil, building, electrical and mechanical), trainers, safety team, etc.

8.2 External/Outside the Organization

Parties involved/interacting with the job holder who are external include customers/clients, trainers, government regulators, trainers, suppliers of equipment/tools/consumables, fellow coded welders from other companies, labour unions/occupational health and safety associations, etc.

9. PHYSICAL DEMANDS ON THE BODY

- Physique to sustain strenuous conditions;
- Be able to walk and stand for long periods of time;
- Bend, stretch, twist, or reach out;
- Be able to lift relatively heavy materials, tools and equipment;
- Be able to use fingers, hands and feet with ease to complete the assigned task (dexterity).

ANNEX A

Criteria for Assessments based on this NOS

A.1 Guidelines for Assessment

A.1.1 Criteria for assessment for curricula and learning programmes based on this NOS will be created by curricula and programmes developers. Each Performance Criteria (PC) will be assigned marks proportional to its importance in the NOS. Curricula and programmes developers will also lay down proportion of marks for theory and practical skills for each performance criteria, giving more weight to practical skills.

There shall be allocated the 'Total Mark', which will be the sum of all marks in each Unit, distributed across the number of PCs in that particular Unit. The 'out of' mark will be the mark allocated to each PC, which will be shared between theory and skills practical assessments.

A.1.2 Individual awarding/assessment bodies or institutions and other users of the NOS will create unique question papers for the theory part and evaluations for skill practical part for their respective candidates.

ANNEX B NOS Version Control

This Annex gives details necessary for the tracking of the NOS versions based on the number of revisions.

NOS Code	NOS.CW.01		
ZQF Level	Level 3	Version Number	01
Sector	Energy	Date of Approval	September 2021
Sub Sector	Various	Date of Last Review	N/A
Occupation	Coded Welder	Date of Next Review	September 2026

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