

# **NATIONAL OCCUPATIONAL STANDARDS FOR CONSTRUCTION/ BUILDING TRADES IN NIGERIA**

## **PLUMBING IN CONSTRUCTION**

### **VOLUME 1**

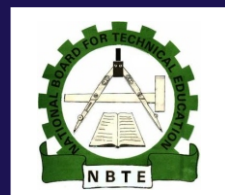


COUNCIL OF REGISTERED BUILDERS OF NIGERIA

**CORBON**

Established in 1989

COUNCIL OF REGISTERED BUILDERS OF NIGERIA  
(ESTABLISHED BY Builders Registration Act CAPB13 LFN 2004)



NATIONAL BOARD FOR  
TECHNICAL EDUCATION



## PREFACE

The Construction industry occupies a very critical position in the Nigerian economic landscape. It is a major contributor to the nation's GDP and one of the biggest employer of labour particularly in the artisanal level. However, there is the prevalence of skills gap in the sector which has impacted on the quality of our buildings. The need to improve the quality of works produced by Nigerian artisans and craftsmen is the primary reason for the development of the National Occupational Standards (NOS) for Building Trades in Nigeria.

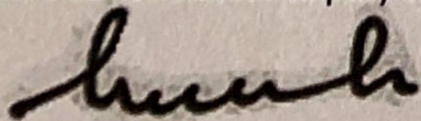
This NOS is a product of relentless efforts that started in 2014 when CORBON was assigned the role of a Sector Skills Council (SSC) under the National Vocational Qualification Framework (NVQF) programme being spearheaded by the National Board for Technical Education. Its primary objective is the promotion of skills development in the Building/ Construction Sector. The Council has since then continued to deliver on its mandates by working and collaborating with NBTE and other stakeholders in ensuring;

- " The Training of Assessors under the NVQF programme
- " Organising the conduct of training of master trainers
- " Development of Sector skills plan and maintaining skills inventory
- " Development of competency standards and Qualifications
- " Development of NOS for the appropriate skills, amongst others.

This maiden edition covers Seven (7) different trades in the industry, namely; Masonry, Carpentry, Electrical Installation, Painting and Decoration, Welding and Fabrication, Tiling, and Plumbing. This document will serve as a uniform standard training tool for up-skilling our Artisans and Craftsmen under the NVQF programme, as they are critical and indispensable in Building Production delivery. Moreover, these set of quality personnel are very scarce in the Nigerian market today.

It is my pleasure to state that we appreciate the effort and substantial contributions of all individuals and stakeholders who have made valuable contributions in the development of this NOS.

I am happy with the current efforts made so far because it is a measure of our readiness and preparedness to grapple with the task ahead of us to reposition the building / construction sector to play the key role in industrialising Nigeria.



**Mr. Babatunde Raji Fashola, SAN**  
Minister for Power, Works and Housing  
Federal Republic of Nigeria



## FOREWORD

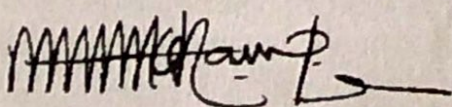
It is evident that young people out of employment, under employed, having left education too early or completed with inadequate skills, are everywhere in Nigeria. These are at high risk of economic marginalization and social exclusion. Upgrading their skills is essential in helping them to enter, or return to the labour market or become entrepreneurs. So the challenge is hugely depended on how Nigeria can transform this youthful population into highly skilled and competent citizens. A major part of the responsibility for preparing such a workforce rests on our Nation's education and training systems. It is for this reason that National Board for Technical Education (NBTE) has been spearheading skills development programmes in Nigeria through the National Vocational Qualifications Framework (NVQF) in line with the practice adopted by many countries.

NVQF is a system for the development, classification and recognition of skills, knowledge and competencies acquired by individuals, irrespective of where and how the training or skill was acquired. The system gives a clear statement of what the learner must know or be able to do whether the learning took place in a classroom, on-the-job, or less formally. The framework is the instrument through which National Vocational Qualifications (NVQs) are delivered. The NVQs are based on National Occupational Standards (NOS) dictated by industry bodies or employers. At the moment in Nigeria, different industries, organisations and companies have their standards which do not attract national certification and recognition. However, with the coming of CORBON as the sector skills council for the building industry, it has harmonised and standardised learning outcomes and competencies to be attained irrespective of how and where the learning took place. The outcome is what we have in this document as the classified NOS.

National Occupational Standards (NOS) specify the standard of performance an individual must achieve when carrying out a function in the workplace, together with the knowledge and understanding they need to meet that standard consistently. Essentially NOS are benchmarks of good practice. Each NOS defines one key function in a job role and describes functions, standards of performance and knowledge/understanding.

The preparation and maintenance of the NOS are tasks which cannot be completed once and for all in our expanding economy, changes in techniques and scientific developments are continually introducing new job opportunities requiring new occupational skills in the new industrial processes the preparation and the maintenance work will, therefore, be a continuous process. I therefore appeal to all stakeholders to partner and support CORBON achieve this laudable objectives. It is an essential requirement for the production of competent, flexible and competitive workforce in Nigeria.

I call on other regulatory agencies and the organised Private Sector to partner with NBTE, as they actually have the leading role, and stand to derive the greatest benefit from a successful NVQF in Nigeria.



**Dr. M.A. Kazaure, mni**  
Executive Secretary, NBTE





## PLUMBING IN CONSTRUCTION

### NVQ LEVEL 1

The National Vocational Qualification (NVQ) For Building Construction Trades in Nigeria are training guidelines, benchmarks and standards for examination and qualification of candidates in specific construction trades. Qualifications associated with various construction trades are classified into different vocational competencies called levels. The competency standards are developed to promote effective communication systems, team spirit, safe operation of construction equipment, adherence to project sequencing and scheduling, materials handling, excellent finishes and safety among all personnel and visitors involved in all construction trades.

The Nigerian National Vocational Qualification in Plumbing Level 1 consists of Nine (9) units, with Guided Learning Hours (GLH) ranging from one hundred and thirty (130) to one hundred and fifty (150).

Evidence requirements for this level are: Work Product, Personal statement, Witness testimony, Direct Observation, Recognition of prior learning and Questions and Answers. The qualification summary for the NVQ Level 1 in Plumbing is presented in the table below.

<b>LEVEL 1: PLUMBING</b>			
QUALIFICATION SUMMARY			
UNIT	REF NO	UNIT TITLE	REMARK
Unit 01	PL001	Health and safety in Plumbing	Mandatory
Unit 02	PL002	Communication in Plumbing	Mandatory
Unit 03	PL003	Team Work in Plumbing	Mandatory
Unit 04	PL004	Basic Plumbing	Mandatory
Unit 05	PL005	Identification of Equipment and Materials	Mandatory
Unit 06	PL006	Material Handling and Storage	Mandatory
Unit 07	PL007	Cutting and Threading of Pipes	Mandatory
Unit 08	CON/PL004/L2	Work Plan in Plumbing	Optional
Unit 09	CON/PL004/L4	Organising Work Environment	Optional



## PLUMBING IN CONSTRUCTION

### NVQ LEVEL 2

The National Vocational Qualification (NVQ) For Building Construction Trades in Nigeria are training guidelines, benchmarks and standards for examination and qualification of candidates in specific construction trades. Qualifications associated with the construction trades are classified into different vocational competencies called levels. The competency standards are developed to promote effective communication systems, team spirit, safe operation of construction equipment, adherence to project sequencing and scheduling, materials handling, excellent finishes and safety among all personnel and visitors involved in all construction trades.

The Nigerian National Vocational Qualification in Plumbing Level 1 consists of seventeen (17) units, with Guided Learning Hours (GLH) of between Two hundred and Forty (240) to Two hundred and Seventy (270).

Evidence requirements for this level are: Work Product, Personal statement, Witness testimony, Direct Observation, Recognition of Prior Learning and Question and Answers. The qualification summary for the NVQ Level 2 in Plumbing is presented in the table below.

LEVEL 2: PLUMBING				
QUALIFICATION SUMMARY				
UNIT	Credit Value	REF NO	UNIT TITLE	REMARK
Unit 01	1	PL001	Communication in Plumbing	Mandatory
Unit 02	1	PL002	Team Work in Plumbing	Mandatory
Unit 03	2	PL003	Health and safety in Plumbing	Mandatory
Unit 04	2	PL004	Work Plan	Optional
Unit 05	2	PL005	Maintaining Effective Working Relationship	Mandatory
Unit 06	2	PL006	Use Power Tools	Optional
Unit 07	1	PL007	Mathematics Skill	Mandatory
Unit 08	3	PL008	Piping	Mandatory
Unit 09	3	PL009	Install Plumbing Systems, Equipment and components	Mandatory
Unit 10	1	PL0010	Identify Faults in Plumbing Systems, Equipment and components	Mandatory



<b>Unit: 11</b>	1	CON/PL004/L1	Understand and demonstrate basic Plumbing	Optional
<b>Unit 12</b>	1	CON/006/L1	Material handling and storing	Optional
<b>Unit 13</b>	3	CON/PL007/L1	Cutting and threading of pipes	Optional
<b>Unit 14</b>	3	CON/PL003/L3	Operation and maintenance of pumps and storage facilities	Optional
<b>Unit 15</b>	1	CON/PL006/L3	Report Writing	Optional
<b>Unit 16</b>	3	CON/PL005/L3	Maintenance and rectification of faults in plumbing systems equipment and components.	Optional
<b>Unit 17</b>	1	CONPL004/L4	Organised work environment	Optional

This qualification is for those interested to develop a career in the building construction industry. To gain level 2 qualification in Plumbing, Learners must achieve 14 credit from the mandatory unit and 12 credit from optional units.



## PLUMBING IN CONSTRUCTION

### NVQ LEVEL 3

The National Vocational Qualification (NVQ) For Building Construction Trades in Nigeria are training guidelines, benchmarks and standards for examination and qualification of candidates in specific construction trades. Qualifications associated with the construction trades are classified into different vocational competencies called levels. The competency standards are developed to promote effective communication systems, team spirit, safe operation of construction equipment, adherence to project sequencing and scheduling, materials handling, excellent finishes and safety among all personnel and visitors involved in all construction trades.

The Nigerian National Vocational Qualification in Plumbing Level 1 consists of Fifteen (15) units, with Guided Learning Hours (GLH) of between Three hundred and Sixty (360) to Four hundred (400). Level 3 qualification for Plumbing in construction requires a minimum of 36 credits consisting of 20 mandatory credit units and 16 optional credit units.

Evidence requirements for this level are: Observation, Questioning, Witness statement, Prior learning, Personal statement, Work product and Professional discussion. The qualification summary for the NVQ Level 3 in Plumbing is presented in the table below.

LEVEL 3: PLUMBING				
QUALIFICATION SUMMARY				
UNIT	Credit Value	REF NO	UNIT TITLE	REMARK
Unit 01	3	PL001	Health and safety in Plumbing	Mandatory
Unit 02	3	PL002	Communication in Plumbing	Mandatory
Unit 03	3	PL003	Team Work in Plumbing	Mandatory
Unit 04	3	PL004	Checking / Testing of Installations	Mandatory
Unit 05	4	PL005	Maintenance / Rectifying Faults in Plumbing Systems, Equipment and components	Mandatory
Unit 06	4	PL006	Maintenance of Pumps and storage facilities.	Mandatory
Unit 07	2	PL007	Report Writing	Optional
Unit 08	3	PL008	General knowledge	Optional
Unit 9	2	CON/PL009/L2	Use power tools in Plumbing	Optional
Unit 10	1	CON/PL005/L2	Mathematics Skill in Construction	Optional



<b>Unit 11</b>	3	CON/PL007/L2	Install Plumbing System, Equipment and Component	Optional
<b>Unit 12</b>	3	CON/PL007/L4	Plumbing codes, manuals and specifications.	Optional
<b>Unit 13</b>	2	CON/PL013/L4	Organising the work environment	Optional
<b>Unit 14</b>	3	CON/PL007/L1	Cutting and Threading of Pipes	Optional
<b>Unit 15</b>	3	CON/004/L2	Work Plan in Plumbing	Optional

This qualification is for those working or intending to work at a supervisory level in a plumbing work environment. The potential Candidate must have achieved level 1 and 2 in plumbing work, or have worked in plumbing environment overtime with ability and skills required to study at this level.



