



**REPUBLIC OF KENYA**

**COMPETENCY BASED CURRICULUM**

**FOR**

**MASONRY**

**LEVEL 4**



**TVET CDACC**  
**P.O. BOX 15745-00100**  
**NAIROBI**

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## **FOREWORD**

The provision of quality education and training is fundamental to the Government's overall strategy for social economic development. Quality education and training will contribute to achievement Kenya's development blue print and sustainable development goals.

Reforms in the education sector are necessary for the achievement of Kenya Vision 2030 and meeting the provisions of the Constitution of Kenya 2010. The education sector had to be aligned to the Constitution and this resulted to the formulation of the Policy Framework for Reforming Education and Training (Sessional Paper No. 4 of 2016). A key feature of this policy is the radical change in the design and delivery of the TVET training. This policy document requires that training in TVET be competency based, curriculum development be industry led, certification be based on demonstration of competence and mode of delivery allows for multiple entry and exit in TVET programs.

These reforms demand that Industry takes a leading role in curriculum development to ensure the curriculum addresses its competence needs. It is against this background that this Curriculum has been developed.

It is my conviction that this curriculum will play a great role towards development of competent human resource for the Construction sector's growth and sustainable development.

**PRINCIPAL SECRETARY, VOCATIONAL AND TECHNICAL TRAINING**  
**MINISTRY OF EDUCATION**

## **PREFACE**

Kenya Vision 2030 aims to transform the country into a newly industrializing, “middle income country providing a high quality life to all its citizens by the year 2030”. Kenya intends to create a globally competitive and adaptive human resource base to meet the requirements of a rapidly industrializing economy through life-long education and training. TVET has a responsibility of facilitating the process of inculcating knowledge, skills and attitudes necessary for catapulting the nation to a globally competitive country, hence the paradigm shift to embrace Competency Based Education and Training (CBET).

The Technical and Vocational Education and Training Act No. 29 of 2013 and the Sessional Paper No. 4 of 2016 on Reforming Education and Training in Kenya, emphasized the need to reform curriculum development, assessment and certification. This called for a shift to CBET to address the mismatch between skills acquired through training and skills needed by industry as well as increase the global competitiveness of Kenyan labour force.

TVET Curriculum Development, Assessment and Certification Council (TVET CDACC) in conjunction with Construction Sector Skills Advisory Committee (SSAC) have developed this curriculum.

This curriculum has been developed following the CBET framework policy; the CBETA Standards and guidelines provided by the TVET Authority and the Kenya National Qualification framework designed by the Kenya National Qualification Authority.

The curriculum is designed and organized with an outline of learning outcomes; suggested delivery methods, training/learning resources and methods of assessing the trainee’s achievement. The curriculum is competency-based and allows multiple entry and exit to the course.

I am grateful to the Council Members, Council Secretariat, Construction SSAC, expert workers and all those who participated in the development of this curriculum.

**Prof. CHARLES M. M. ONDIEKI, PhD, FIET (K), Con. Eng. Tech.**

**CHAIRMAN, TVET CDACC**

## **ACKNOWLEDGEMENT**

This curriculum has been designed for competency-based training and has independent units of learning that allow the trainee flexibility in entry and exit. In developing the curriculum, significant involvement and support was received from various organizations.

I recognize with appreciation the role of the SSAC in ensuring that competencies required by the industry are addressed in this curriculum. I also thank all stakeholders in the Construction sector for their valuable input and all those who participated in the process of developing this curriculum.

I am convinced that this curriculum will go a long way in ensuring that workers in Construction sector will acquire competencies that will enable them perform their work more efficiently.

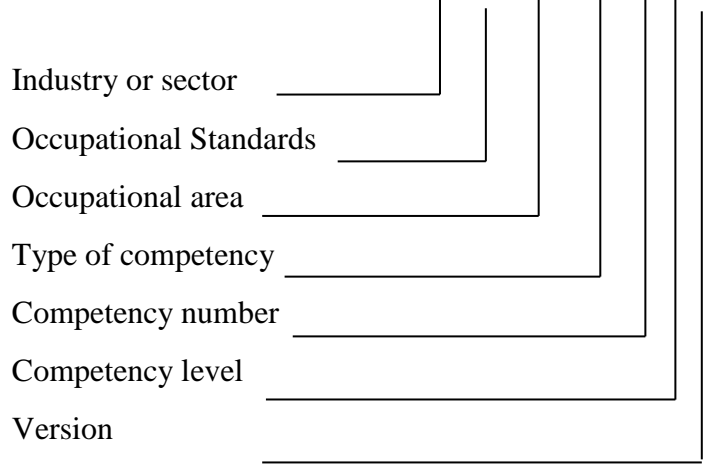
**DR. LAWRENCE GUANTAI M'ITONGA, PhD**  
**COUNCIL SECRETARY/CEO**  
**TVET CDACC**

## ACRONYMS

ICT	Information and communication Technology
SIEM	System Information and Event management
KEBS	Kenya Bureau of Standards
CIRT	Computer Incidence response team
CERT	Computer Incidence response team
OSHA	Occupational Safety and Health Act
WIBA	Work injury benefits Act
EHS	Environment, Health and Safety
CDACC	Curriculum Development, Assessment and Certification Council
IBMS	Integrated Building Management System
TVET	Technical and Vocational Education and Training
BUS	Business
CU	Curriculum
OS	Occupational Standards
LIS	Library and information science
BC	Basic Competencies
A	Control version
TVETA	Technical and Vocational Education and Training Authority
KNQA	Kenya National Qualification Authority
CBET	Competency Based Education and Training
CBETA	Competency Based Education, Training and Assessment
SSAC	Sector Skills Advisory Committee

KEY TO UNIT CODE

**CON/CU/MA/BC/01/4A**





## COURSE OVERVIEW

Masonry Certificate level 4 qualification consists of competencies that an individual must achieve to construct building substructures and superstructures, finish masonry works and produce masonry construction units.

This course consists of basic, common and core units of learning as indicated below:

### Basic Units of Learning

Unit of Learning Code	Unit of Learning Title	Duration Hours	Credit factor
CON/CU/MA/BC/01/4A	Communication skills	20	2.0
CON/CU/MA/BC/02/4A	Numeracy skills	25	2.5
CON/CU/MA/BC/03/4A	Digital literacy	35	3.5
CON/CU/MA/BC/04/4A	Entrepreneurial skills	60	6.0
CON/CU/MA/BC/05/4A	Employability skills	30	3.0
CON/CU/MA/BC/06/4A	Environmental literacy	20	2.0
CON/CU/MA/BC/07/4A	Occupational safety and health practices	20	2.0
<b>Total</b>		<b>210</b>	<b>21.0</b>

### Common Units of Learning

Unit of Learning Code	Unit of Learning Title	Duration in Hours	Credit factor
CON/CU/MA/CC/01/4A	Mensuration and calculation	70	7.0
CON/CU/MA/CC/02/4A	Interpretation of working drawings	70	7.0
<b>Total</b>		<b>140</b>	<b>14.0</b>

### Core Units of Learning

Unit of Learning Code	Unit of Learning Title	Duration in Hours	Credit factor
CON/CU/MA/CR/01/4A	Construction of building substructure	120	12.0

CON/CU/MA/CR/02/4A	Construction of building superstructure	120	12.0
CON/CU/MA/CR/03/4A	Masonry works finishing	120	12.0
CON/CU/MA/CR/04/4A	Production of masonry construction units	120	12.0
	Industrial attachment	300	30.0
<b>Total</b>		<b>780</b>	<b>78.0</b>
<b>GRAND TOTAL</b>		<b>1130</b>	<b>113.0</b>

The total duration of the course is **1130** hours.

### **Entry Requirements**

An individual entering this course should have any of the following minimum requirements:

- a) Kenya Certificate of Secondary Education (KCSE) – Mean grade E
- Or**
- b) National Certificate Level 3 in Masonry
- Or**
- c) Any equivalent qualifications as determined by Kenya National Qualifications Authority (KNQA)

### **Industrial attachment**

An individual enrolled in this course will undergo industrial attachment for a period of 300 hours in a Construction establishment.

### **Assessment**

The course will be assessed at two levels:

- a) **Internal assessment:** conducted continuously by the trainer (internal assessor) who is monitored by an accredited internal verifier.
- b) **External assessment:** conducted by an accredited external assessor who is monitored by an accredited external verifier.

The assessors and verifiers are registered by TVET CDACC which also coordinates external assessment.

### **Certification**

A candidate will be issued with a Certificate of Competency for each unit of competency. To attain the qualification National Certificate Level 4 in Masonry, the candidate must demonstrate competence in all the units of competency as given in this qualification pack.

These certificates will be issued by TVET CDACC in conjunction with the training provider.

## BASIC UNITS OF LEARNING

### COMMUNICATION SKILLS

**UNIT CODE:**CON/CU/MA/BC/01/4A

#### **Relationship to Occupational Standards**

This unit addresses the unit of competency: Demonstrate communication skills

**Duration of Unit:** 20 Hours

#### **Unit Description**

This unit describes the competencies required to lead in the dissemination and discussion of ideas, information and issues in the workplace.

#### **Summary of Learning Outcomes**

1. Communicate information about workplace processes
2. Lead workplace discussion
3. Identify and communicate issues arising in the workplace

#### **Learning Outcomes, Content and Suggested Assessment Methods**

<b>Learning Outcome</b>	<b>Content</b>	<b>Suggested Assessment Methods</b>
1. Communicate information about workplace processes	<ul style="list-style-type: none"><li>• Communication process</li><li>• Modes of communication</li><li>• Medium of communication</li><li>• Effective communication</li><li>• Barriers to communication</li><li>• Flow of communication</li><li>• Sources of information</li><li>• Organizational policies</li><li>• Organization requirements for written and electronic communication methods</li><li>• Report writing</li><li>• Effective questioning techniques (clarifying and probing)</li><li>• Workplace etiquette</li><li>• Ethical work practices in handling</li></ul>	<ul style="list-style-type: none"><li>• Observation</li><li>• Interview</li><li>• Portfolio</li></ul>

	communication	
2. Lead workplace discussion	<ul style="list-style-type: none"> <li>• Methods of discussion e.g. <ul style="list-style-type: none"> <li>○ Coordination meetings</li> <li>○ Toolbox discussion</li> <li>○ Peer-to-peer discussion</li> </ul> </li> <li>• Solicitation of response</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Interview</li> <li>• Third party reports</li> </ul>
3. Identify and communicate issues arising in the workplace	<ul style="list-style-type: none"> <li>• Identification of problems and issues</li> <li>• Organizing information on problems and issues</li> <li>• Relating problems and issues</li> <li>• Communication barriers affecting workplace discussions</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Interview</li> <li>• Portfolio</li> </ul>

### **Suggested Delivery Methods**

- Discussion
- Role play
- Brainstorming

### **Recommended Resources**

- Desktop computers/laptops
- Internet connection
- Projectors
- Telephone
- Report writing templates

## NUMERACY SKILLS

**UNIT CODE:** CON/CU/MA/BC/02/4A

### **Relationship to Occupational Standards:**

This unit addresses the unit of competency: Demonstrate numeracy skills

**Duration of Unit:** 25 hours

### **Unit Description**

This unit describes the competencies required by a worker in order to competently identify and use whole numbers and simple fractions, decimals and percentages; Identify, measure and estimate familiar quantities for work, Read and use familiar maps, plans and diagrams for work, Identify and describe common 2D and some 3D shapes for work, Construct simple tables and graphs for work using familiar data, Identify and interpret information in familiar tables, graphs and charts for work.

### **Summary of Learning Outcomes**

1. Identify and use whole numbers and simple fractions, decimals and percentages for work
2. Identify, measure and estimate familiar quantities for work
3. Read and use familiar maps, plans and diagrams for work
4. Identify and describe common 2D and some 3D shapes for work
5. Construct simple tables and graphs for work using familiar data
6. Identify and interpret information in familiar tables, graphs and charts for work

### **Learning Outcomes, Content and Suggested Assessment Methods**

<b>Learning Outcome</b>	<b>Content</b>	<b>Suggested Assessment Methods</b>
1. Identify and use whole numbers and simple fractions, decimals and percentages for work	<ul style="list-style-type: none"> <li>▪ Whole numbers</li> <li>▪ Simple fractions</li> <li>▪ Decimals</li> <li>▪ Percentages</li> <li>▪ Sizes</li> <li>▪ Problem solving methods</li> <li>▪ calculations using the 4 operations</li> <li>▪ Recording and communicating numerical information</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Oral</li> <li><input type="checkbox"/> Written</li> <li><input type="checkbox"/> Practical test</li> <li><input type="checkbox"/> Observation</li> </ul>
2. Identify, measure and estimate familiar	<ul style="list-style-type: none"> <li>▪ Measurement information</li> <li>▪ Units of measurement</li> <li>▪ Estimate familiar and simple amounts</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Oral</li> <li><input type="checkbox"/> Written</li> <li><input type="checkbox"/> Practical test</li> </ul>

quantities for work	<ul style="list-style-type: none"> <li>▪ Selection of appropriate measuring equipment</li> <li>▪ Calculate using familiar units of measurement</li> <li>▪ Check measurements and results against estimates</li> <li>▪ Using informal and some formal mathematical and general language</li> <li>▪ Record or report results</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Observation</li> </ul>
3. Read and use familiar maps, plans and diagrams for work	<ul style="list-style-type: none"> <li>▪ Maps, plans and diagrams</li> <li>▪ Locate items and places in familiar maps, plans and diagrams</li> <li>▪ Recognize common symbols and keys in familiar maps, plans and diagrams</li> <li>▪ Direction and location of objects, or route or places</li> <li>▪ Use of informal and some formal oral mathematical language and symbols</li> <li>▪</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Oral</li> <li><input type="checkbox"/> Written</li> <li><input type="checkbox"/> Practical test</li> <li><input type="checkbox"/> Observation</li> </ul>
4. Identify and describe common 2D and some 3D shapes for work	<ul style="list-style-type: none"> <li>▪ Common 2D shapes and 3D shapes</li> <li>▪ Classification of common 2D shapes and designs</li> <li>▪ Description of Use informal and some formal language to describe common two dimensional shapes and some common three dimensional shapes</li> <li>▪ Construction of common 2D shapes</li> <li>▪ Match common 3D shapes to their 2D sketches or nets</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Oral</li> <li><input type="checkbox"/> Written</li> <li><input type="checkbox"/> Practical test</li> <li><input type="checkbox"/> Observation</li> </ul>
5. Construct simple tables and graphs for work using familiar data	<ul style="list-style-type: none"> <li>▪ Types of graphs</li> <li>▪ Determination of data to be collected</li> <li>▪ Selection of data collection method</li> <li>▪ Collection of data</li> <li>▪ Determination of variables from the data collected</li> <li>▪ Order and collate data</li> <li>▪ Construct a table and enter data</li> <li>▪ Construct a graph using data from table</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Oral</li> <li><input type="checkbox"/> Written</li> <li><input type="checkbox"/> Practical test</li> <li><input type="checkbox"/> Observation</li> </ul>

	<ul style="list-style-type: none"> <li>▪ Check results</li> <li>▪ Report or discuss graph information related to work using informal and some formal mathematical and general language</li> </ul>	
6. Identify and interpret information in familiar tables, graphs and charts for work	<ul style="list-style-type: none"> <li>▪ Tables construction and labeling i.e. title, headings, rows and columns</li> <li>▪ Interpreting information and data in simple tables</li> <li>▪ Relaying information of relevant workplace tasks on/in a table</li> <li>▪ Identify familiar graphs and charts in familiar texts and contexts</li> <li>▪ Locate title, labels, axes, scale and key from familiar graphs and charts</li> <li>▪ Identify and interpret information and data in familiar graphs and charts</li> <li>▪ Relate information to relevant workplace tasks</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Oral</li> <li><input type="checkbox"/> Written</li> <li><input type="checkbox"/> Practical test</li> <li><input type="checkbox"/> Observation</li> </ul>

### **Suggested Delivery Methods**

- Instructor led facilitation of theory
- Practical demonstration of tasks by trainer
- Practice by trainees/ role play
- Discussion
- Observations and comments and corrections by trainers

### **Recommended Resources**

- Standard operating and/or other workplace procedures manuals
- Specific job procedures manuals
- Mathematical tables

## DIGITAL LITERACY

**UNIT CODE:** CON/CU/MA/BC/03/4A

### Relationship to Occupational Standards

This unit addresses the unit of competency: Demonstrate digital literacy

**Duration of Unit:** 35 hours

### Unit Description

This unit covers the competencies required to effectively demonstrate digital literacy in a working environment. It entails identifying and using digital devices such as smartphones, tablets, laptops and desktop PCs for purposes of communication and performing work related tasks at the work place.

### Summary of Learning Outcomes

1. Identify computer hardware and software
2. Apply security measures to data, hardware and software
3. Apply computer software in solving tasks
4. Apply internet and email in communication at workplace

### Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Identify computer hardware and software	<ul style="list-style-type: none"><li>• Meaning of a computer</li><li>• Functions of a computer</li><li>• Components of a computer</li><li>• Classification of computers</li></ul>	<ul style="list-style-type: none"><li>• Written</li><li>• Oral</li><li>• Observation</li></ul>
2. Apply security measures to data, hardware and software	<ul style="list-style-type: none"><li>• Data security and control</li><li>• Security threats and control measures</li><li>• Types of computer crimes</li><li>• Detection and protection against computer crimes</li></ul>	<ul style="list-style-type: none"><li>• Written tests</li><li>• Oral presentation</li><li>• Observation</li><li>• Projects</li></ul>
3. Apply computer software in solving tasks	<ul style="list-style-type: none"><li>• Operating system</li><li>• Word processing</li><li>• Spread sheets</li><li>• Data base</li></ul>	<ul style="list-style-type: none"><li>• Oral questioning</li><li>• Observation</li><li>• Project</li></ul>



4. Apply internet and email in communication at workplace	<ul style="list-style-type: none"> <li>• Computer networks</li> <li>• Uses of internet</li> <li>• Electronic mail (e-mail) concept</li> </ul>	<ul style="list-style-type: none"> <li>• Oral questioning</li> <li>• Observation</li> <li>• Oral presentation</li> <li>• Written report</li> </ul>
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**Suggested Delivery Methods**

- Instructor led facilitation of theory
- Demonstration by trainer
- Practical work by trainee
- Viewing of related videos
- Project
- Group discussions

**Recommended Resources**

- Desk top computers
- Laptop computers
- Other digital devices
- Printers
- Storage devices
- Internet access
- Computer software

## ENTREPRENEURIAL SKILLS

**UNIT CODE:** CON/CU/MA/BC/04/4A

### **Relationship to occupational standards**

This unit addresses the unit of competency: Demonstrate entrepreneurial skills

**Duration of unit:** 60 hours

### **Unit description**

This unit describes the competencies critical to demonstration of entrepreneurial skills. It includes creating and maintaining small scale business, establishing small scale business customer base, managing and growing a small business.

### **Summary of Learning Outcomes**

1. Create and maintain small scale business
2. Establish small scale business customer base
3. Manage small scale business
4. Grow/ expand small scale business

### **Learning Outcomes, Content and Suggested Assessment Methods**

Learning Outcome	Content	Suggested Assessment Methods
1. Create and maintain small scale business	<ul style="list-style-type: none"> <li>• Starting a small business</li> <li>• Legal regulatory requirements in starting a small business</li> <li>• SWOT/ PESTEL analysis</li> <li>• Conducting market/industry survey</li> <li>• Generation and evaluation of business ideas</li> <li>• Matching competencies with business opportunities</li> <li>• Forms of business ownership</li> <li>• Location of a small business</li> <li>• Legal and regulatory requirement</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Observation</li> <li><input type="checkbox"/> Case studies</li> <li><input type="checkbox"/> Individual/group assignments</li> <li><input type="checkbox"/> projects</li> <li><input type="checkbox"/> Written</li> <li><input type="checkbox"/> Oral</li> </ul>

	<ul style="list-style-type: none"> <li>• Resources required to start a small business</li> <li>• Common terminologies in entrepreneurship</li> <li>• Entrepreneurship in national development</li> <li>• Self-employment</li> <li>• Formal and informal employment</li> <li>• Entrepreneurial culture</li> <li>• Myths associated with entrepreneurship</li> <li>• Types, characteristics, qualities &amp; role of entrepreneurs</li> <li>• History, development and importance of entrepreneurship</li> <li>• Theories of entrepreneurship</li> <li>• Quality assurance for small businesses</li> <li>• Policies and procedures on occupational safety and health and environmental concerns</li> </ul>	
<p>2. Establish small scale business customer base</p>	<ul style="list-style-type: none"> <li>• Good staff/workers and customer relations</li> <li>• Marketing strategy</li> <li>• Identifying and maintain new customers and markets</li> <li>• Product/ service promotions</li> <li>• Products / services diversification</li> <li>• SWOT / PESTEL analysis</li> <li>• Conducting a business survey</li> <li>• Generating Business ideas</li> <li>• Business opportunities</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Observation</li> <li><input type="checkbox"/> Case studies</li> <li><input type="checkbox"/> Individual/group assignments</li> <li><input type="checkbox"/> projects</li> <li><input type="checkbox"/> Written</li> <li><input type="checkbox"/> Oral</li> </ul>

<p>3. Manage small scale business</p>	<ul style="list-style-type: none"> <li>• Organization of a small business</li> <li>• Small business' business plan</li> <li>• Marketing for small businesses</li> <li>• Managing finances for small business</li> <li>• Production/ operation process for goods/services</li> <li>• Small business records management</li> <li>• Book keeping and auditing for small businesses</li> <li>• Business support services</li> <li>• Small business resources mobilization and utilization</li> <li>• Basic business social responsibility</li> <li>• Management of small business</li> <li>• Word processing concepts in small business management</li> <li>• Computer application software</li> <li>• Monitoring and controlling business operations</li> </ul>	<ul style="list-style-type: none"> <li>□ Oral</li> <li>□ Observation</li> <li>□ Case studies</li> <li>□ Individual/group assignments</li> <li>□ projects</li> <li>□ Written</li> </ul>
<p>4. Grow/expand small scale business</p>	<ul style="list-style-type: none"> <li>• Methods of growing small business</li> <li>• Resources for growing small business</li> <li>• Small business growth plan</li> <li>• Computer software in business development</li> <li>• ICT and business growth</li> </ul>	<ul style="list-style-type: none"> <li>□ Observation</li> <li>□ Case studies</li> <li>□ Individual/group assignments</li> <li>□ projects</li> <li>□ Written</li> </ul>

**Suggested Delivery Methods**

- Instructor led facilitation of theory
- Demonstration by trainer
- Practice by trainee
- Role play
- Case study

### **Recommended Resources**

- Case studies for small businesses
- Business plan templates
- Lap top/ desk top computer
- Internet
- Telephone
- Writing materials

## EMPLOYABILITY SKILLS

**UNIT CODE:** CON/CU/MA/BC/05/4A

### Relationship to Occupational Standards

This unit addresses the Unit of Competency: Demonstrate employability skills

**Duration of Unit:** 30 hours

### Unit Description

This unit covers competencies required to demonstrate employability skills. It involves conducting self-management, demonstrating critical safe work habits, demonstrating workplace learning and workplace ethics.

### Summary of Learning Outcomes

1. Conduct self-management
2. Demonstrate critical safe work habits
3. Demonstrate workplace learning
4. Demonstrate workplace ethics

### Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Conduct self-management	<ul style="list-style-type: none"><li>• Self-awareness</li><li>• Formulating personal vision, mission and goals</li><li>• Strategies for overcoming life challenges</li><li>• Emotional intelligence</li><li>• Assertiveness</li><li>• Expressing personal thoughts, feelings and beliefs</li><li>• Developing and maintaining high self-esteem</li><li>• Developing and maintaining positive self-image</li><li>• Articulating ideas and aspirations</li></ul>	<ul style="list-style-type: none"><li>• Observation</li><li>• Written</li><li>• Oral interview</li><li>• Third party report</li></ul>

	<ul style="list-style-type: none"> <li>• Accountability and responsibility</li> <li>• Good work habits</li> <li>• Self-awareness</li> <li>• Self-development</li> <li>• Financial literacy</li> <li>• Healthy lifestyle practices</li> </ul>	
2. Demonstrate critical safe work habits	<ul style="list-style-type: none"> <li>• Stress and stress management</li> <li>• Punctuality and time consciousness</li> <li>• Interpersonal communication</li> <li>• Sharing information</li> <li>• Leisure</li> <li>• Integrating personal objectives into organizational objectives</li> <li>• Resources utilization</li> <li>• Setting work priorities</li> <li>• HIV and AIDS</li> <li>• Drug and substance abuse</li> <li>• Handling emerging issues</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Written</li> <li>• Oral interview</li> <li>• Third party report</li> </ul>
3. Demonstrate workplace learning	<ul style="list-style-type: none"> <li>• Personal training needs identification and assessment</li> <li>• Managing own learning</li> <li>• Contributing to the learning community at the workplace</li> <li>• Cultural aspects of work</li> <li>• Variety of learning context</li> <li>• Application of learning</li> <li>• Safe use of technology</li> <li>• Identifying opportunities</li> <li>• Workplace innovation</li> <li>• Performance improvement</li> <li>• Handling emerging issues</li> <li>• Future trends and concerns in learning</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Oral interview</li> <li>• Written</li> <li>• Third party report</li> </ul>
4. Demonstrate workplace ethics	<ul style="list-style-type: none"> <li>• Meaning of ethics</li> <li>• Ethical perspectives</li> <li>• Principles of ethics</li> <li>• Values and beliefs</li> <li>• Ethical standards</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Oral interview</li> <li>• Written</li> <li>• Third party report</li> </ul>

	<ul style="list-style-type: none"> <li>• Organization code of ethics</li> <li>• Common ethical dilemmas</li> <li>• Organization culture</li> <li>• Corruption, bribery and conflict of interest</li> <li>• Privacy and data protection</li> <li>• Diversity, harassment and mutual respect</li> <li>• Financial responsibility/accountability</li> <li>• Etiquette</li> <li>• Personal and professional integrity</li> <li>• Commitment to jurisdictional laws</li> <li>• Emerging issues in ethics</li> </ul>	
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**Suggested Methods of Delivery**

- Instructor lead facilitation of theory
- Demonstrations
- Simulation/Role play
- Group Discussion
- Presentations
- Projects
- Case studies
- Assignments

**Recommended Resources**

- Computers
- Stationery
- Charts
- Video clips
- Audio tapes
- Radio sets
- TV sets
- LCD projectors



## ENVIRONMENTAL LITERACY

**UNIT CODE:**CON/CU/MA/BC/06/4A

### Relationship to Occupational Standards

This unit addresses the unit of competency: Demonstrate environmental literacy

**Duration of Unit:** 20 hours

### Unit Description

This unit describes the competencies required to control environmental hazard, control environmental pollution, comply with workplace sustainable resource use and evaluate current practices in relation to resource usage.

### Summary of Learning Outcomes

1. Control environmental hazard
2. Control environmental Pollution
3. Demonstrate sustainable resource use
4. Evaluate current practices in relation to resource usage

### Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Control environmental hazard	<ul style="list-style-type: none"><li>• Purposes and content of Environmental Management and Coordination Act 1999</li><li>• Purposes and content of Solid Waste Act</li><li>• Storage methods for environmentally hazardous materials</li><li>• Disposal methods of hazardous wastes</li><li>• Types and uses of PPE in line with environmental regulations</li><li>• Occupational Safety and Health Standards (OSHS)</li></ul>	<ul style="list-style-type: none"><li>• Written questions</li><li>• Oral questions</li><li>• Observation of work procedures</li></ul>
2. Control environmental Pollution control	<ul style="list-style-type: none"><li>• Types of pollution</li><li>• Environmental pollution control measures</li><li>• Types of solid wastes</li><li>• Procedures for solid waste management</li><li>• Different types of noise pollution</li><li>• Methods for minimizing noise pollution</li></ul>	<ul style="list-style-type: none"><li>• Written questions</li><li>• Oral questions</li><li>• Observation of work procedures</li><li>• Role play</li></ul>

<p>3. Demonstrate sustainable resource use</p>	<ul style="list-style-type: none"> <li>• Types of resources</li> <li>• Techniques in measuring current usage of resources</li> <li>• Calculating current usage of resources</li> <li>• Methods for minimizing wastage</li> <li>• Waste management procedures</li> <li>• Principles of 3Rs (Reduce, Reuse, Recycle)</li> <li>• Methods for economizing or reducing resource consumption</li> </ul>	<ul style="list-style-type: none"> <li>• Written questions</li> <li>• Oral questions</li> <li>• Observation of work procedures</li> <li>• Role play</li> </ul>
<p>4. Evaluate current practices in relation to resource usage</p>	<ul style="list-style-type: none"> <li>• Collection of information on environmental and resource efficiency systems and procedures,</li> <li>• Measurement and recording of current resource usage</li> <li>• Analysis and recording of current purchasing strategies.</li> <li>• Analysis of current work processes to access information and data</li> <li>• Identification of areas for improvement</li> </ul>	<ul style="list-style-type: none"> <li>• Written questions</li> <li>• Oral questions</li> <li>• Observation of work procedures</li> <li>• Role play</li> </ul>
<p>5. Identify Environmental legislations/conventions for environmental concerns</p>	<ul style="list-style-type: none"> <li>• Environmental issues/concerns</li> <li>• Environmental legislations /conventions and local ordinances</li> <li>• Industrial standard /environmental practices</li> <li>• International Environmental Protocols (Montreal, Kyoto)</li> <li>• Features of an environmental strategy</li> </ul>	<ul style="list-style-type: none"> <li>• Written questions</li> <li>• Oral questions</li> <li>• Observation of work procedures</li> </ul>

**Suggested Delivery Methods**

- Instructor led facilitation of theory
- Practical demonstration of tasks by trainer
- Practice by trainees/ role play
- Discussion
- Observations and comments and corrections by trainers

**Recommended Resources**

- Standard operating and/or other workplace procedures manuals

- Specific job procedures manuals
- Solid Waste Act
- Environmental Management and Coordination Act 1999
- Machine/equipment manufacturer's specifications and instructions
- Personal Protective Equipment (PPE)

## OCCUPATIONAL SAFETY AND HEALTH PRACTICES

**UNIT CODE:**CON/CU/MA/BC/07/4A

### **Relationship to Occupational Standards**

This unit addresses the unit of competency: Demonstrate Safety and Health Practices

**Duration of Unit:** 20 hours

### **Unit Description**

This unit describes the competencies required to practice safety and health, and comply with OSH requirements relevant to work.

### **Summary of Learning Outcomes**

1. Observe workplace procedures for hazards and risk prevention
2. Participate in arrangements for workplace safety and health maintenance

### **Learning Outcomes, Content and Suggested Assessment Methods**

<b>Learning Outcome</b>	<b>Content</b>	<b>Suggested Assessment Methods</b>
1. Observe workplace procedures for hazards and risk prevention	<ul style="list-style-type: none"><li>• Arrangement of work area and items in accordance with Company housekeeping procedures</li><li>• Adherence to work standards and procedures</li><li>• Application of preventive and control measures, including use of safety gears/PPE</li><li>• Study and apply standards and procedures for incidents and emergencies.</li></ul>	<ul style="list-style-type: none"><li>• Oral questions</li><li>• Written questions</li><li>• Observation of work procedures</li></ul>
2. Participate in arrangements for workplace safety and health maintenance	<ul style="list-style-type: none"><li>• Participating in orientations on OSH requirements/regulations of tasks</li><li>• Providing feedback on health, safety, and security concerns to appropriate personnel as required in a sufficiently detailed manner</li><li>• Practice workplace procedures for</li></ul>	<ul style="list-style-type: none"><li>• Oral questions</li><li>• Written tests</li><li>• Practical test</li><li>• Observation of practical work by trainees</li></ul>

	<p>reporting hazards, incidents, injuries and sickness</p> <ul style="list-style-type: none"> <li>• OSH requirements/ regulations and workplace safety and hazard control procedures are reviewed and compliance reported to appropriate personnel</li> <li>• Identification of needed OSH-related trainings are proposed to appropriate personnel</li> </ul>	
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### **Suggested Delivery Methods**

- Instructor led facilitation of theory
- Practical demonstration of tasks by trainer
- Practice by trainees/ role play
- Discussion
- Observations and comments and corrections by trainers

### **Recommended Resources**

- Standard operating and/or other workplace procedures manuals
- Specific job procedures manuals
- Machine/equipment manufacturer's specifications and instructions
- Personal Protective Equipment (PPE) e.g.
  - Mask
  - Face mask/shield
  - Safety boots
  - Safety harness
  - Arm/Hand guard, gloves
  - Eye protection (goggles, shield)
  - Hearing protection (ear muffs, ear plugs)
  - Hair Net/cap/bonnet
  - Hard hat
  - Face protection (mask, shield)
  - Apron/Gown/coverall/jump suit
  - Anti-static suits
  - High-visibility reflective vest

## COMMON UNITS OF LEARNING

### MENSURATION AND CALCULATION

**UNIT CODE:** CON/CU/MA/CC/01/4A

#### **Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Measure and calculate objects' parameters

**Duration of Unit:** 70 hours

#### **Unit Description**

This unit of competency covers the competencies required to measure and calculate various parameters of an object. It entails taking measurements on given objects and making calculations of a variety of parameters using measuring and calculation tools. It also involves maintenance of measuring and calculation tools.

#### **Summary of Learning Outcomes**

1. Distinguish objects to be measured and calculated
2. Use and care for measuring and calculation instruments
3. Calculate parameters of a given object.

#### **Learning Outcomes, Content and Suggested Assessment Methods**

<b>Learning Outcome</b>	<b>Content</b>	<b>Suggested Assessment Methods</b>
1. Distinguish objects to be measured and calculated	<ul style="list-style-type: none"><li>• Geometrical shapes</li><li>• Types of geometrical objects</li><li>• Dimensions</li><li>• Measurements specifications</li><li>• Sources of measurement specification</li></ul>	<ul style="list-style-type: none"><li>• Written tests</li><li>• Observation</li><li>• Oral questioning</li><li>• Third party report</li><li>• Interviewing</li></ul>

<p>2. Use and care for measuring and calculation instruments</p>	<ul style="list-style-type: none"> <li>• Measurement tools <ul style="list-style-type: none"> <li>○ Types</li> <li>○ Use</li> <li>○ Care and maintenance practices</li> </ul> </li> <li>• Calculation tools <ul style="list-style-type: none"> <li>○ Types</li> <li>○ Use</li> <li>○ Care and maintenance practices</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Written tests</li> <li>• Oral questioning</li> <li>• Interviewing</li> <li>• Third party report</li> </ul>
<p>3. Calculate parameters of a given object</p>	<ul style="list-style-type: none"> <li>• Fundamental operations</li> <li>• Linear measurements</li> <li>• Taking measurements</li> <li>• Readings measurements</li> <li>• Dimensions</li> <li>• Ratio and proportions</li> <li>• Algebraic equations</li> <li>• Systems of measurements and calculations</li> <li>• Numerical computation</li> <li>• Documentation of measurements and calculations</li> <li>• Material estimation and costing</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Written tests</li> <li>• Oral questioning</li> <li>• Interviewing</li> <li>• Third party report</li> </ul>

**Suggested Methods of Delivery:**

- Demonstration
- Practical
- Field trips
- Discussions
- Direct instruction
- ICT presentations

**Recommended Resources**

**Functional Masonry Workshop with the following:**

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**Tools and Equipment**

- Micrometer gauge (In-out, depth)
- Vernier calipers (out, inside)
- Straight edge
- Try-square
- Protractor
- Steel rule
- Gauges
- Tape measure
- Pair of compass
- Pair of dividers
- Calculator
- T-Square
- SMP table
- Digital weighing machines

**Supplies**

- Stationery
- A work station (desk)
- Display board
- Lcd projector



## INTERPRETATION OF WORKING DRAWINGS

**UNIT CODE:** CON/CU/MA/CC/02/4A

### Relationship to Occupational Standards

This unit addresses the Unit of Competency: Interpret and draw simple working drawings

**Duration of Unit:** 70 hours

### Unit Description

This unit deals with competencies required to interpret construction working drawings. It entails identification of symbols, differentiation of working drawings, identification of parts of a drawing and sketching out details of different elements of a drawing.

### Summary of Learning Outcomes

1. Interpret working drawings
2. Use drawing instruments, supplies and materials
3. Apply isometric drawings
4. Apply different types of scales

### Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Interpret working drawings	<ul style="list-style-type: none"><li>• Types of working drawings</li><li>• Scales</li><li>• Measurements</li><li>• symbols</li></ul>	<ul style="list-style-type: none"><li>• Written tests</li><li>• Observation</li><li>• Oral questioning</li><li>• Third party report</li><li>• Project</li><li>• Portfolio</li></ul>
2. Use drawing instruments, supplies and materials	<ul style="list-style-type: none"><li>• Types of drawing instruments</li><li>• Drawing supplies and materials</li><li>• Maintenance of drawing instruments</li><li>• Disposal of waste supplies and materials</li></ul>	<ul style="list-style-type: none"><li>• Written tests</li><li>• Observation</li><li>• Oral questioning</li><li>• Third party report</li><li>• Interviewing</li></ul>

3. Apply isometric drawings	<ul style="list-style-type: none"> <li>• Types of isometric drawings</li> <li>• Use of isometric drawing</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Written tests</li> <li>• Oral questioning</li> <li>• Interviewing</li> </ul>
4. Apply different types of scales	<ul style="list-style-type: none"> <li>• Interpretation of scales</li> <li>• drawing of simple details</li> <li>• Measurement transfer to the ground</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Written tests</li> <li>• Oral questioning</li> <li>• Interviewing</li> <li>• Third party report</li> <li>• Project</li> <li>• Portfolio</li> </ul>

**Suggested Methods of Delivery:**

- Demonstration
- Practical
- Field trips
- Discussions
- Direct instruction
- ICT presentations

**Recommended Resources**

**Functional Masonry Workshop with the following:**

**Tools and Equipment**

- Calculator
- T-Square
- Steel rule
- Lettering stencil
- Scale rule
- Drawing boards
- T-Square
- Set square
- Blue print machine
- Printer
- Plotter
- digitizer

**Supplies**

- Drawing papers
- Drawing pencils
- Drawing sets

- Masking tape  
Construction drawing

## **CORE UNITS OF LEARNING**

## CONSTRUCTION OF BUILDING SUBSTRUCTURE

**UNIT CODE:** CON/CU/MA/CR/01/4A

### RELATIONSHIP TO OCCUPATIONAL STANDARDS

This unit addresses the Unit of Competency: Construct building substructure

**Duration of Unit:** 120 hours

### UNIT DESCRIPTION

This unit specifies the competencies required to construct building substructure. It entails interpreting working drawings, estimating and costing materials and supplies, use of tools and equipment, setting out the building, preparing and positioning formwork and reinforcement bars, casting the foundation, construction of foundation walling and ground floor slab.

This standard applies in the construction industry.

### Summary of Learning Outcomes

1. Interpret working drawings
2. Estimate and cost materials and supplies
3. Use masonry tools and Equipment
4. Set-out building
5. Prepare and position formwork and reinforcement bars
6. Cast the foundation
7. Construct foundation walling
8. Construct ground floor slab.

### LEARNING OUTCOMES, CONTENT AND SUGGESTED ASSESSMENT METHODS

Learning Outcome	Content	Suggested Assessment Methods
1. Interpret working drawings	<ul style="list-style-type: none"><li>• Working drawings</li><li>• Scales</li><li>• Conversion of measurements</li><li>• Construction symbols</li><li>• Reference points</li></ul>	<ul style="list-style-type: none"><li>• Written tests</li><li>• Observation</li><li>• Oral questioning</li><li>• Third party report</li><li>• portfolio</li><li>• Interviewing</li></ul>
2. Estimate and cost Materials and supplies	<ul style="list-style-type: none"><li>• Construction materials</li><li>• Estimation of materials and supplies</li><li>• Costing of materials and supplies</li><li>• Preparation of schedule of</li></ul>	<ul style="list-style-type: none"><li>• Observation</li><li>• Written tests</li><li>• Oral questioning</li><li>• Interviewing</li><li>• Third party report</li></ul>

	materials and supplies	<ul style="list-style-type: none"> <li>• portfolio</li> </ul>
3. Use masonry tools and Equipment	<ul style="list-style-type: none"> <li>• PPEs and their application</li> <li>• Masonry tools and equipment</li> <li>• Manufacturer's instructions</li> <li>• Use ,care and maintenance of masonry tools and equipment</li> <li>• Storage</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Written tests</li> <li>• Oral questioning</li> <li>• Interviewing</li> <li>• Third party report</li> </ul>
4. Set-out building	<ul style="list-style-type: none"> <li>• Reference points</li> <li>• Setting out tools and equipment's</li> <li>• Setting out methods</li> <li>• Profiling</li> <li>• levelling</li> <li>• Transferring measurements to the ground</li> <li>• Excavation</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Written tests</li> <li>• Oral questioning</li> <li>• Interviewing</li> <li>• Third party report</li> <li>• Portfolio</li> </ul>
5. Prepare and position formwork ,reinforcement bars and cast foundation concrete	<ul style="list-style-type: none"> <li>• Foundations</li> <li>• Formwork</li> <li>• Reinforcement</li> <li>• Concreting</li> <li>• Structural drawing</li> <li>• curing</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Written tests</li> <li>• Oral questioning</li> <li>• Interviewing</li> <li>• Third party report</li> <li>• Portfolio</li> </ul>
6. Construct Foundation Walls	<ul style="list-style-type: none"> <li>• Walling types</li> <li>• Masonry units</li> <li>• Backfilling</li> <li>• Anti-termites</li> <li>• Structural drawings</li> <li>• curing</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Written tests</li> <li>• Oral questioning</li> <li>• Interviewing</li> <li>• Third party report</li> <li>• Portfolio</li> </ul>
7. Construct ground floor Slab	<ul style="list-style-type: none"> <li>• hard-core</li> <li>• Blinding</li> <li>• Reinforcement</li> <li>• Formwork</li> <li>• Damp proofing</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Written tests</li> <li>• Oral questioning</li> <li>• Interviewing</li> <li>• Third party report</li> </ul>

	<ul style="list-style-type: none"> <li>• Ground floor beds</li> <li>• Concreting</li> <li>• Curing</li> </ul>	<ul style="list-style-type: none"> <li>• Portfolio</li> </ul>
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### **Suggested Methods of Delivery**

- Demonstration
- Practice
- Field trips
- Discussions
- Direct instruction
- ICT presentations

### **Recommended Resources**

**Functional Masonry Workshop with the following:**

#### **Tools and Equipment**

- Club hammer
- Mason's hammer
- Chisel
- Trowels (Brick, pointing, window, corner and finishing trowels)
- Spirit level
- Brick bat gauge
- Bolster
- Cold chisel
- Hawk (Hand board)
- Sandpaper/Sponge
- Jointing knife/rod
- Stepping ladder
- Mason's line
- Plumb bob
- Measuring tools (Tape measure,
- Power tools
- PPE's
- Spade
- Sieve
- Brush
- Straight edge
- Sputter dash

- Vibrator
- Mixer
- Tamper
- Wheelbarrow
- Mason's Square
- Helmet
- Dumper

### **Supplies and Materials**

- Cement
- Sand
- Ballast
- Water
- Masonry units e.g. quarry stones, bricks, concrete hollow blocks, precast products, capped stones, dressed stones
- Reinforcing steel
- Formworks
- Additives
- Quarry dust
- Gravel
- Anti- Termite treatment
- DPM
- DPC
- Hoop iron



## CONSTRUCTION OF BUILDING SUPERSTRUCTURE

**UNIT CODE:** CON/CU/MA/CR/02/4A

### RELATIONSHIP TO OCCUPATIONAL STANDARDS

This unit addresses the Unit of Competency: Construct building superstructure

**Duration of Unit:** 120 hours

### UNIT DESCRIPTION:

This unit specifies the competencies required to construct building superstructure. It entails interpreting working drawings, estimating and costing materials and supplies, setting out superstructure elements and constructing superstructure walls, constructing reinforced concrete columns, constructing masonry in-fills with openings and casting suspended slabs and beams.

This standard applies in the construction industry

### SUMMARY OF LEARNING OUTCOMES

1. Interpret working drawings
2. estimate, cost materials and supplies
3. Set-out superstructure elements
4. Construct superstructure walls
5. Construct reinforced concrete columns
6. Construct masonry wall with openings
7. Cast suspended floor slabs and beams

### Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Interpret working drawings	<ul style="list-style-type: none"><li>• Working drawings</li><li>• Scales</li><li>• measurements</li><li>• Construction symbols</li></ul>	<ul style="list-style-type: none"><li>• Observation</li><li>• Written tests</li><li>• Oral questioning</li><li>• Interviewing</li><li>• Third party reports</li></ul>
2. Estimate, cost materials and supplies	<ul style="list-style-type: none"><li>• Construction materials</li><li>• supplies</li><li>• Estimation and costing</li><li>• schedule of materials</li></ul>	<ul style="list-style-type: none"><li>• Observation</li><li>• Written tests</li><li>• Oral questioning</li><li>• Interviewing</li><li>• Third party</li><li>• portfolio</li></ul>

3. Set-out superstructure elements	<ul style="list-style-type: none"> <li>• PPEs</li> <li>• Working drawings</li> <li>• Walling techniques</li> <li>• Tools and equipment</li> <li>• Use, care and maintenance of tools and equipment</li> <li>• Storage</li> <li>• Reference points</li> <li>• Measurements</li> <li>• Screeding</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Written tests</li> <li>• Oral questioning</li> <li>• Interviewing</li> <li>• Third party reports</li> </ul>
4. Construct reinforced concrete columns	<ul style="list-style-type: none"> <li>• Measurements</li> <li>• Setting out columns</li> <li>• Formwork</li> <li>• Reinforcements</li> <li>• Structural drawings</li> <li>• Casting</li> <li>• Curing</li> <li>• Alignments</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Written tests</li> <li>• Oral questioning</li> <li>• Interviewing</li> <li>• Third party reports</li> </ul>
5. Construct superstructure walling units with openings	<ul style="list-style-type: none"> <li>• Working drawings</li> <li>• Wall units</li> <li>• Wall types</li> <li>• Opening</li> <li>• Levelling</li> <li>• Alignment</li> <li>• Water</li> <li>• Curing</li> <li>• screeding</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Written tests</li> <li>• Oral questioning</li> <li>• Interviewing</li> <li>• Third party reports</li> <li>• portfolio</li> </ul>
6. Construct suspended floor slab and beams	<ul style="list-style-type: none"> <li>• Suspended floors</li> <li>• Beams</li> <li>• Formwork</li> <li>• Reinforcements</li> <li>• Structural drawings</li> <li>• Reference points</li> <li>• Levelling</li> <li>• Alignment</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Written tests</li> <li>• Oral questioning</li> <li>• Interviewing</li> <li>• Third party reports</li> <li>• Portfolio</li> <li>• project</li> </ul>

### **Suggested Methods of Delivery:**

- Demonstration
- Practice
- Field trips
- Discussions
- Direct instruction
- ICT presentations

### **Recommended Resources**

#### **Functional Masonry Workshop with the following:**

##### **Tools and Equipment**

- Club hammer
- Mason's hammer
- Chisel
- Trowels (Brick, pointing, window, corner and finishing trowels)
- Spirit level
- Brick bat gauge
- Bolster
- Cold chisel
- Hawk (Hand board)
- Sandpaper/Sponge
- Jointing knife/rod
- Stepping ladder
- Mason's line
- Plumb bob
- Measuring tools (Tape measure,
- Power tools
- PPE's
- Spade
- Sieve
- Brush
- Straight edge
- Sputter dash
- Vibrator
- Mixer
- Tamper
- Wheelbarrow
- Mason's Square
- Helmet
- Dumper
- Sledge Hammer

### **Supplies and Materials**

- Cement
- Sand
- Ballast
- Water
- Masonry units e.g. quarry stones, bricks, concrete hollow blocks, precast products, capped stones, dressed stones
- Reinforcing steel
- Formworks
- Additives
- Quarry dust
- Gravel
- Anti- Termite treatment
- DPM
- DPC
- Hoop iron

## FINISHING OF MASONRY WORKS

**UNIT CODE: CON/CU/MA/CR/03/4A**

### RELATIONSHIP TO OCCUPATIONAL STANDARDS

This unit addresses the Unit of Competency: Finish Masonry Works

**Duration of Unit:** 120 hours

### UNIT DESCRIPTION

This unit specifies the competencies required to finish masonry works. It involves interpreting working drawings, estimating and costing materials, supplies, use of tools and equipment, plastering and rendering, floor screeding, tiling and terrazzo finishing. It also entails facing, jointing and pointing of masonry walls.

This standard applies in the Construction industry.

#### Summary of Learning Outcomes

1. Interpret working drawings
2. Estimating and costing materials and supplies
3. Use masonry tools and Equipment
4. Apply Plaster and render walls
5. Lay Floor Screed
6. Apply tiles and Terrazzo finish
7. Joint and point masonry walls
8. Face masonry walls

#### Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Interpret working drawings	<ul style="list-style-type: none"><li>• working drawings</li><li>• Scales</li><li>• measurements</li><li>• Construction symbols</li><li>• Reference points</li></ul>	<ul style="list-style-type: none"><li>• Observation</li><li>• Written tests</li><li>• Oral questioning</li><li>• Interviewing</li><li>• Third party reports</li></ul>
2. Estimate and cost materials and supplies	<ul style="list-style-type: none"><li>• Construction materials</li><li>• Estimation and costing of materials</li><li>• Types of Finishing</li><li>• Schedule of materials and supplies</li></ul>	<ul style="list-style-type: none"><li>• Observation</li><li>• Written tests</li><li>• Oral questioning</li><li>• Interviewing</li><li>• Third party reports</li></ul>

3. Use masonry tools and Equipment	<ul style="list-style-type: none"> <li>• PPEs</li> <li>• Masonry tools and equipment</li> <li>• Use, care and maintenance of tools and equipment</li> <li>• Storage</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Written tests</li> <li>• Oral questioning</li> <li>• Interviewing</li> <li>• Third party reports</li> </ul>
4. Apply Wall Plaster and render walls	<ul style="list-style-type: none"> <li>• Surface preparation</li> <li>• mortar mix</li> <li>• Plastering</li> <li>• Rendering</li> <li>• Curing</li> <li>• Alignment</li> <li>• Square-ness</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Written tests</li> <li>• Oral questioning</li> <li>• Interviewing</li> <li>• Third party reports</li> </ul>
5. Lay Floor Screed	<ul style="list-style-type: none"> <li>• Surface preparation</li> <li>• mortar mix</li> <li>• Screeding techniques</li> <li>• Levelling</li> <li>• Alignment</li> <li>• slope</li> <li>• Curing techniques</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Written tests</li> <li>• Oral questioning</li> <li>• Interviewing</li> <li>• Third party reports</li> </ul>
6. Apply Tile and Terrazo finish	<ul style="list-style-type: none"> <li>• Surface preparation</li> <li>• Materials</li> <li>• Reference point</li> <li>• Terrazo application techniques</li> <li>• curing</li> <li>• Tiling</li> <li>• Grouting</li> <li>• Levelling</li> <li>• alignment</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Written tests</li> <li>• Oral questioning</li> <li>• Interviewing</li> <li>• Third party reports</li> <li>• portfolio</li> </ul>
8. Joint and point masonry walls	<ul style="list-style-type: none"> <li>• Joint preparation</li> <li>• Mortar mix</li> <li>• Jointing</li> <li>• Pointing</li> <li>• Plumbness</li> <li>• Alignment</li> <li>• curing</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Written tests</li> <li>• Oral questioning</li> <li>• Interviewing</li> <li>• Third party reports</li> <li>• portfolio</li> </ul>

2. Face masonry walls	<ul style="list-style-type: none"> <li>• Materials and supplies</li> <li>• Surface preparation</li> <li>• Mortar mix</li> <li>• Facing</li> <li>• Plumpness</li> <li>• Alignment</li> <li>• Curing</li> <li>• Measurement</li> <li>• Working drawing</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Written tests</li> <li>• Oral questioning</li> <li>• Interviewing</li> <li>• Third party reports</li> <li>• portfolio</li> </ul>
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**Suggested Methods of Delivery:**

- Demonstration
- Practice
- Field trips
- Discussions
- Direct instruction
- ICT presentations

**Recommended Resources**

**Functional Masonry Workshop with the following:**

**Tools and Equipment**

- Club hammer
- Mason's hammer
- Chisel
- Trowels (Brick, pointing, window, corner and finishing trowels) • Spirit level
- Brick bat gauge
- Bolster
- Cold chisel
- Hawk (Hand board)
- Sandpaper/Sponge
- Jointing knife/rod
- Stepping ladder
- Mason's line
- Plumb bob
- Measuring tools (Tape measure)
- Power tools
- PPE's
- Spade
- Sieve

- Brush
- Straight edge
- Sputter dash
- Vibrator
- Mixer
- Tamper
- Wheelbarrow
- Mason's Square
- Helmet
- Dumper
- Sledge hammer

### **Supplies and Materials**

- Cement
- Sand
- Ballast
- Water
- Masonry units (e.g. quarry stones, bricks, concrete hollow blocks, precast products, capped stones, dressed stones)
- Reinforcing steel
- Formworks
- Additives
- Quarry dust
- Gravel
- Anti- Termite treatment
- DPM
- DPC
- Hoop iron



## PRODUCTION OF MASONRY CONSTRUCTION UNITS

**UNIT CODE:** CON/CU/MA/CR/04/4A

### Relationship to Occupational Standards

This unit addresses the Unit of Competency: Produce masonry construction units

**Duration of Unit:** 120 hours

### UNIT DESCRIPTION

This unit specifies the competencies required to produce masonry construction units. It entails Interpretation of working drawings, estimation, costing of materials and supplies, production of: masonry clay units, concrete masonry units, hand dressed stone masonry units and stabilized soil masonry units.

This standard applies in the construction industry.

### Summary of Learning Outcomes

1. Interpret working drawings
2. Estimate and cost materials and supplies
3. Produce clay masonry units
4. Produce concrete masonry units
5. Produce hand dressed stones
6. Produce stabilized masonry soil units

### Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Interpret working drawings	<ul style="list-style-type: none"><li>• Working drawings</li><li>• Scales</li><li>• Measurement</li><li>• Construction symbols</li></ul>	<ul style="list-style-type: none"><li>• Observation</li><li>• Written tests</li><li>• Oral questioning</li><li>• Interviewing</li><li>• Third party reports</li></ul>
2. Estimate and cost materials and supplies	<ul style="list-style-type: none"><li>• Material and supplies</li><li>• Types of masonry units</li><li>• Schedule of materials</li></ul>	<ul style="list-style-type: none"><li>• Observation</li><li>• Written tests</li><li>• Oral questioning</li><li>• Interviewing</li></ul>

		<ul style="list-style-type: none"> <li>• Third party reports</li> </ul>
3. Produce clay masonry units	<ul style="list-style-type: none"> <li>• Tools and equipment</li> <li>• Material and supplies</li> <li>• Types of clays</li> <li>• clays products</li> <li>• Preparation of clay</li> <li>• Moulding</li> <li>• Drying</li> <li>• Firing</li> <li>• sorting</li> <li>• Storage</li> <li>• Quality control</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Written tests</li> <li>• Oral questioning</li> <li>• Interviewing</li> <li>• Third party reports</li> <li>• portfolio</li> </ul>
4. Produce concrete masonry units	<ul style="list-style-type: none"> <li>• Tools and equipment</li> <li>• materials and supplies</li> <li>• concrete mix</li> <li>• mould preparation and assembly</li> <li>• casting</li> <li>• curing</li> <li>• sorting</li> <li>• storage</li> <li>• Quality control</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Written tests</li> <li>• Oral questioning</li> <li>• Interviewing</li> <li>• Third party reports</li> </ul>
5. Produce hand dressed stones	<ul style="list-style-type: none"> <li>• Tools and equipment</li> <li>• Materials and supplies</li> <li>• Types of stones</li> <li>• Dressing techniques</li> <li>• Working drawings</li> <li>• Storage</li> <li>• Quality control</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Written tests</li> <li>• Oral questioning</li> <li>• Interviewing</li> <li>• Third party reports</li> <li>• portfolio</li> </ul>
6. Produce stabilized soil masonry units	<ul style="list-style-type: none"> <li>• Types of soils</li> <li>• Tools and equipment</li> <li>• Supplies and materials</li> <li>• Soil stabilization</li> <li>• Moulding</li> <li>• Curing</li> <li>• Storage</li> <li>• Quality control</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Written tests</li> <li>• Oral questioning</li> <li>• Interviewing</li> <li>• Third party reports</li> </ul>

**Suggested Methods of Delivery:**

- Demonstration
- Practice
- Field trips
- Discussions
- Direct instruction
- ICT presentations

**Recommended Resources****Functional Masonry Workshop with the following:****Tools and Equipment**

- Club hammer
- Mason's hammer
- Chisel
- Trowels (Brick, pointing, window, corner and finishing trowels) • Spirit level
- Brick bat gauge
- Bolster
- Cold chisel
- Hawk (Hand board)
- Sandpaper
- Stepping ladder
- Mason's line
- Plumb bob
- Measuring tools (Tape measure)
- Power tools
- PPE's
- Spade
- Sieve
- Brush
- Straight edge
- Vibrator
- Mixer
- Tamper
- Wheelbarrow
- Mason's Square
- Helmet
- Dumper
- Sledge hammer

**Supplies and Materials**

- Cement
- Sand
- Ballast

- Water
- Masonry units (e.g. quarry stones, bricks, concrete hollow blocks, precast products, capped stones, dressed stones)
- Formworks
- Additives(**Lime**)
- Quarry dust
- Gravel
- Clay
- Grass
- Firewood

***END***