REPUBLIC OF KENYA

NATIONAL OCCUPATIONAL STANDARDS

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. The policy document requires that training in TVET shall be competency based, curriculum development shall be industry led, certification shall be based on demonstration of competence and mode of delivery shall allow 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 these Occupational Standards were developed for the purpose of developing a competency based curriculum for Masons Level 4. These Occupational Standards will also be the bases for assessment of an individual for competence certification.

It is my conviction that these Occupational Standards 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 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.

The TVET Curriculum Development, Assessment and Certification Council (TVET CDACC), in conjunction with Construction Sector Skills Advisory Committee (SSAC) have developed these Occupational Standards for Masons Level 4. These occupational standards will be the bases for development of competency based curriculum for Masons. These Standards will also be the bases for assessment of an individual for competence certification.

The occupational standards are designed and organized with clear performance criteria for each element of a unit of competency. These standards also outline the required knowledge and skills as well as evidence guide.

I am grateful to Council Secretariat, Council Technical Committee, Construction SSAC and expert workers and all those who participated in the development of these occupational standards.

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

CHAIRMAN, TVET CDACC

ACKNOWLEDGMENT

These Occupational Standards were developed through combined effort of various stakeholders from private and public organizations. I am sincerely thankful to the management of these organizations for allowing their staff to participate in this course. I wish to acknowledge the invaluable contribution of industry players who provided inputs towards the development of these Standards.

I thank TVET Curriculum Development, Assessment and Certification Council (TVET CDACC) for providing guidance on the development of these Standards. My gratitude goes to the Construction Sector Skills Advisory Committee (SSAC) members for their contribution to the development of these Standards. I also thank all the individuals and organizations who participated in the validation of these Standards.

I acknowledge any other institution which in one way or another contributed to the success of development of these Standards but has not been mentioned.

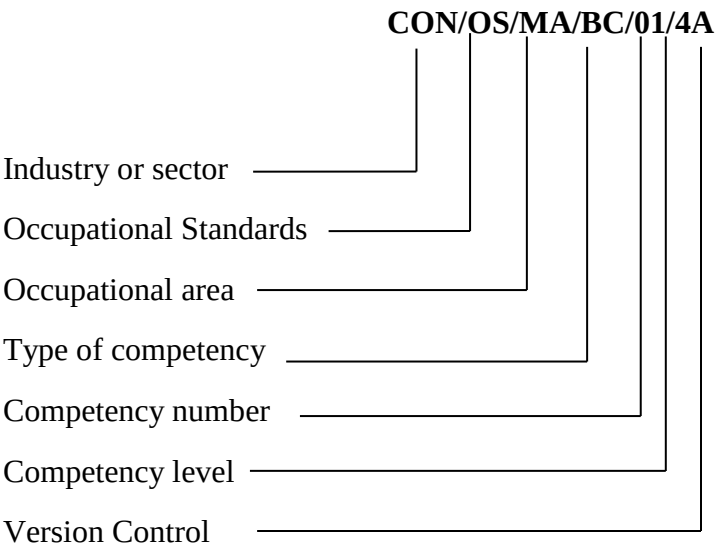
CHAIRMAN

CONSTRUCTION SECTOR SKILLS ADVISORY COMMITTEE

ACRONYMS

BC	Basic Competency
CC	Common Competency
CDACC	Curriculum Development, Assessment and Certification Council
CPU	Central Processing Unit
CR	Core Competency
CON	Construction Sector
MA	Masonry
ICT	Information Communication Technology
KCSE	Kenya Certificate of secondary Education
KNQA	Kenya National Qualifications Authority
NEMA	National Environmental Management Authority
OS	Occupational Standards
OSHA	Occupation Safety and Health Act
OSHS	Occupation Safety and Health Standards
PPE	Personal Protective Equipment
SOPs	Standard Operating Procedures
SSAC	Sector Skills Advisory Committee
TVET	Technical and Vocational Education and Training

KEY TO UNIT CODE



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 qualification consists of the following basic, common and core competencies:

BASIC UNITS OF COMPETENCY

Unit Code	Unit Title
CON/OS/MA/BC/01/4A	Demonstrate communication skills
CON/OS/MA/BC/02/4A	Demonstrate numeracy skills
CON/OS/MA/BC/03/4A	Demonstrate digital literacy
CON/OS/MA/BC/04/4A	Demonstrate entrepreneurial skills
CON/OS/MA/BC/05/4A	Demonstrate employability skills
CON/OS/MA/BC/06/4A	Demonstrate environmental literacy
CON/OS/MA/BC/07/4A	Demonstrate occupational safety and health practices

COMMON UNITS OF COMPETENCY

Unit Code	Unit Title
CON/OS/MA/CC/01/4A	Measure and calculate objects' parameters
CON/OS/MA/CC/02/4A	Interpret and draw simple working drawings

CORE UNITS OF COMPETENCY

Unit Code	Unit Title
CON/OS/MA/CR/01/4A	Construct building substructures
CON/OS/MA/CR/02/4A	Construct building superstructures
CON/OS/MA/CR/03/4A	Finish masonry works
CON/OS/MA/CR/04/4A	Produce masonry construction units

BASIC UNITS OF COMPETENCY

DEMONSTRATE COMMUNICATION SKILLS

UNIT CODE: CON/OS/MA/BC/01/4A

UNIT DESCRIPTION

This unit covers the competencies required to gather, interpret and convey information in response to workplace requirements and to lead in the dissemination and discussion of ideas, information and issues in the workplace.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace function	**PERFORMANCE CRITERIA** These are assessable statements which specify the required level of performance for each of the elements. ***Bold and italicized terms are elaborated in the Range***
1. Obtain and convey workplace information	1.1 Specific and relevant information is accessed from ***appropriate sources*** 1.2 Effective questioning, active listening and speaking skills are used to gather and convey information 1.3 Appropriate ***medium*** is used to transfer information and ideas 1.4 Appropriate non- verbal communication is used 1.5 Appropriate lines of communication with supervisors and colleagues are identified and followed 1.6 Defined workplace procedures for the location and ***storage*** of information are used 1.7 Personal interaction is carried out clearly and concisely
2. Complete relevant work related documents	2.1 Range of forms relating to conditions of employment are completed accurately and legibly 2.2 Workplace data is recorded on standard workplace forms and documents 2.3 Basic mathematical processesare used for routine calculations 2.4 Errors in recording information on forms/ documents are identified and properly acted upon 2.5 Reporting requirements to supervisor are completed according to organizational guidelines
3. Communicate information about workplace processes	3.1 Appropriate method of communication is selected 3.2 Multiple operations involving several topics areas are communicated accordingly 3.3 Questions are used to gain extra information

	3.4 Correct sources of information are identified 3.5 Information is selected and organized correctly 3.6 Verbal and written reporting is undertaken when required 3.7 Communication skills are maintained in all situations
4. Lead workplace discussion	4.1 Response to workplace issues are sought 4.2 Response to workplace issues are provided immediately 4.3 Constructive contributions are made to workplace discussions on such issues as production, quality and safety 4.4 Goals/objectives and action plan undertaken in the workplace are communicated accordingly
5. Identify and communicate issues arising in the workplace	5.1 Issues and problems are identified as they arise 5.2 Information regarding problems and issues are organized coherently to ensure clear and effective communication 5.3 Dialogue is initiated with appropriate personnel 5.4 Communication problems and issues are raised as they arise

RANGE

This section provides work environment and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

Variable	**Range**
1.***Methods of communication***include but not limited to:	1.1. Non-verbal gestures 1.2. Verbal 1.3. Face to face 1.4. Two-way radio 1.5. Speaking to groups 1.6. Using telephone 1.7. Written 1.8. Internet
2.***Workplace discussion*** include but not limited to:	2.1. Coordination meetings 2.2. Toolbox discussion 2.3. Peer-to-peer discussion

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- Organize information
- Understand and convey intended meaning
- Participate in variety of workplace discussions

- Comply with organization requirements for the use of written and electronic communication methods
- Effective report writing
- Effective clarifying and probing skills

Required Knowledge

The individual needs to demonstrate knowledge of:

- Organization requirements for written and electronic communication methods
- Effective verbal communication methods
- Report writing
- Effective questioning techniques (clarifying and probing)
- Workplace etiquette

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Dealt with a range of communication/information at one time 1.2 Made constructive contributions in workplace issues 1.3 Sought workplace issues effectively 1.4 Responded to workplace issues promptly 1.5 Presented information clearly and effectively in written form 1.6 Used appropriate sources of information 1.7 Asked appropriate questions 1.8 Provided accurate information
2. Resource Implications	The following resources should be provided: 2.1 Variety of Information 2.2 Communication tools 2.3 Simulated workplace
3. Methods of Assessment	3.1 Case Study 3.2 Third-party reports 3.3 Portfolio 3.4 Interview 3.5 Role Play
4. Context of Assessment	Competency may be assessed individually in the actual workplace or through accredited institution
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

DEMONSTRATE NUMERACY SKILLS

UNIT CODE: CON/OS/MA/BC/02/4A

UNIT DESCRIPTION

This unit covers the competencies required to perform numerical functions.The person who is competent in this unit shall be able to: 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.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace function.	**PERFORMANCE CRITERIA** These are assessable statements which specify the required level of performance for each of the elements. ***Bold and italicized termsare elaborated in the Range.***
1. Identify and use whole numbers and simple fractions, decimals and percentages for work	1.1 Simple fractions, decimals and percentages identified and interpreted 1.2 understanding of place value by organising numbers from smallest to largest demonstrated 1.3 Required numerical information located and decision made on appropriate method to solve a problem 1.4 Limited range of calculations performed using the 4 operations 1.5 Links between operations described 1.6 Estimations made to check reasonableness of results of problem solving process 1.7 Numerical information recorded and the result of the task communicated using informal and some formal language and symbolism

2. Identify, measure and estimate familiar quantities for work	2.1 Measurement information in workplace tasks and texts identified and interpreted 2.2 Familiar units of measurement needed for tasks is identified 2.3 Familiar and simple amounts estimated 2.4 Appropriate measuring equipment selected 2.5 Simple measuring equipment graduated in familiar units to measure relevant quantities is used 2.6 Calculation done using familiar units of measurement 2.7 measurements and results checked against estimates 2.8 Results are recorded or reported 2.9 Results relevant to the workplace task are communicated using informal and some formal mathematical and general language
3. Read and use familiar maps, plans and diagrams for work	3.1 Items and places are located in familiar maps, plans and diagrams 3.2 Common symbols and keys recognised in familiar maps, plans and diagrams 3.3 Understanding of direction and location demonstrated by describing the location of objects, or route to familiar places 3.4 Instructions to locate familiar objects or places are given and followed 3.5 Informal and some formal oral mathematical language and symbols are used
4. Identify and describe common 2D and some 3D shapes for work	4.1 Common 2D shapes and some common 3D shapes in familiar situations are identified and named 4.2 Common 2D shapes and designs are compared and classified 4.3 Informal and some formal language used to describe common two dimensional shapes and some common three dimensional shapes 4.4 Simple items used to draw or construct common 2D shapes 4.5 Common 3D shapes matched to their 2D sketches or nets
5.Construct simple tables and graphs for work using familiar data	5.1 Common types of graphs are identified and named 5.2 Familiar data to be collected is determined 5.3 A method to collect data is selected 5.4 A small amount of simple familiar data is collected 5.5 One or two variables determined from the data collected 5.6 Data ordered and collated

	5.7 A table constructed and data enter 5.8 Graphs are constructed using data from table 5.9 Results are promptly checked 5.10 Graph information related to work is reported or discussed using informal and some formal mathematical and general language
6. Identify and interpret information in familiar tables, graphs and charts for work	6.1 Simple tables are identified in familiar texts and contexts 6.2 Title, headings, rows and columns located in familiar tables 6.3 Information and data in simple tables identified and interpreted 6.4 Information is related to relevant workplace tasks 6.5 Familiar graphs and charts are identified in familiar texts and contexts 6.6 Title, labels, axes, scale and key from familiar graphs and charts are located 6.7 Information and data in familiar graphs and charts is identified and interpreted 6.8 Information related to relevant workplace tasks

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	**Range**
1. Simple measuring equipment	May include but not limited to: 1.1 Rulers 1.2 Watches/clocks 1.3 Scales 1.4 Thermometers 1.5 AVO meter
2. Common 2D shapes and common 3D shapes	May include but not limited to: 2.1 Round 2.2 Square 2.3 Rectangular 2.4 Triangle 2.5 Sphere 2.6 Cylinder 2.7 Cube 2.8 Polygons 2.9 Cuboids
3. Diagrammatical	May include but not limited to:

representation	3.1 Charts 3.2 Maps 3.3 Graphs

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit of competency.

Required Skills
The individual needs to demonstrate the following skills:

- Applying Fundamental operations (addition, subtraction, division, multiplication)
- Using calculator
- Using different measuring tools

Required knowledge
The individual needs to demonstrate knowledge of:

- Types of common shapes
- Differentiation between two dimensional shapes / objects
- Formulae for calculating area and volume
- Types and purpose of measuring instruments
- Units of measurement and abbreviations
- Fundamental operations (addition, subtraction, division, multiplication)
- Rounding techniques
- Types of fractions
- Different types of tables and graphs
- Meaning of graphs, such as increasing, decreasing, and constant value
- Preparation of basic data, tables & graphs

EVIDENCE GUIDE
This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Simple fractions, decimals and percentages are correctly identified and interpreted 1.2 Performed a limited range of calculations using the 4 operations 1.3 Performed calculations using familiar units of measurement 1.4 Recognised common symbols and keys in familiar maps, plans and diagrams 1.5 Constructed simple tables and graphs using familiar data 1.6 Identified and interpret information in familiar tables, graphs

	and charts
2. Resource Implications	2.1 Calculator 2.2 Basic measuring instruments
3. Methods of Assessment	Competency may be assessed through: 3.1 Written Test 3.2 Interview/Oral Questioning 3.3 Demonstration
4. Context of Assessment	Competency may be assessed in an off the job setting
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

DEMONSTRATE DIGITAL LITERACY

UNIT CODE: CON/OS/MA/BC/03/4A

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 smart-phones, tablets, laptops and desktop PCs for purposes of communication and performing work related tasks at the work place.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace function	**PERFORMANCE CRITERIA** These are assessable statements which specify the required level of performance for each of the elements. ***Bold and italicized termsare elaborated in the Range***
1. Identify computer software and hardware	1.1 ***Appropriate computer software***are identified according to manufacturer's specification 1.2 ***Appropriate computer hardware***are identified according to manufacturer's specification
2. Apply security measures to data, hardware, software	2.1 ***Data security and privacy are classified*** in accordance with the technological situation 2.2 ***Security and control measures*** are applied in accordance with laws governing protection of ICT 2.3 Computer threats and crimes are detected. 2.4 Protection against computer crimes is undertaken in accordance with laws governing protection of ICT
3. Apply computer software in solving tasks	3.1 Basic ***word processing concepts*** are applied in resolving workplace tasks 3.2 ***Word processing utilities*** are applied in accordance with workplace procedures 3.3 Data is manipulated on worksheet in accordance with office procedures
4. Apply internet and email in communication at workplace	4.1 Electronic mail is applied in workplace communication in accordance with office procedures 4.2 Office internet functions are defined and executed in accordance with office procedures 4.3 ***Network configuration*** and uses are determined in accordance with office operations procedures

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Range	Variable
Appropriate computer softwaremay include but not limited to:	• A collection of instructions that enable the user to interact with a *computer*, its hardware, or perform tasks. • Computer tools that will help *computer* users interact with the hardware in a *computer*.
Appropriate computer hardwaremay include but not limited to:	Collection of physical parts of a computer system. This includes the computer case, monitor, keyboard, and mouse and all the parts inside the computer case, such as the hard disk drive, motherboard, video card,
Data security and privacymay include but not limited to:	• Confidentiality • Cloud computing • Confidentiality • Cyber terrorism • Integrity -but-curious data serving
Security and control measuresmay include but not limited to:	• Countermeasures and risk reduction • Cyber threat issues • Risk management
Word processing conceptsmay include but not limited to:	Using a special program to create, edit, and print documents
Network configurationmay include but not limited to:	Organizing and maintaining information on the components of a computer network

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- Analytical skills
- Interpretation
- Typing
- Communication
- Computing (applying fundamental operations such as addition, subtraction, division and multiplication)

- Using calculator
- Basic ICT skills

Required Knowledge

The individual needs to demonstrate knowledge of:

- Input and output devices
- Central processing Unit (CPU)
- Peripherals
- Storage Media
- Software concept
- Types of concept
- Function of computer software
- Data security and privacy
- Security threats and control measures
- Computer crimes
- Detection and protection of computer crimes
- Laws governing protection of ICT
- Word processing;
    - ✓ Functions and concepts of word processing.
    - ✓ Documents and tables creation and manipulations
    - ✓ Mail merging
    - ✓ Word processing utilities
- Spread sheet;
    - ✓ Meaning, formulae, function and charts, uses, layout, data manipulation and application to cell
- Networking and Internet;
    - ✓ Meaning, functions and uses of networking and internet.
    - ✓ Electronic mail and world wide web
- Emerging trends and issues in ICT;
    - ✓ Identify and apply emerging trends and issues in ICT
    - ✓ Challenges posed by emerging trends and issues

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Identified input, output, CPU and storage media devices of computers in accordance to computer specification 1.2 Identified concepts, types and functions of computer software

	according to operation manual 1.3 Identified and controlled security threats 1.4 Detected and protected computer crimes 1.5 Applied word processing in office tasks 1.6 Prepared work sheet and applied data to the cells in accordance to workplace procedures 1.7 Used Electronic Mail for office communication as per workplace procedure 1.8 Applied internet and World Wide Web for office tasks in accordance with office procedures 1.9 Applied laws governing protection of ICT
2. Resource Implications	2.1 Smartphones 2.2 Tablets 2.3 Laptops 2.4 Desktop computers 2.5 Calculators 2.6 Internet 2.7 Operation Manuals
3. Methods of Assessment	Competency may be assessed through: 3.1 Written Test 3.2 Demonstration 3.3 Practical assignment 3.4 Interview/Oral Questioning 3.5 Demonstration
4. Context of Assessment	Competency may be assessed in an off and on the job setting
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

DEMONSTRATE ENTREPRENEURIAL SKILLS

UNIT CODE : CON/OS/MA/BC/04/4A

UNIT DESCRIPTION

This unit covers the competencies required for creating and maintaining small scale business, establishing small business customer base, managing and growing a micro/small-scale business.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the **key outcomes** which make up workplace function.	**PERFORMANCE CRITERIA** These are assessable statements which specify the required level of performance for each of the elements. ***Bold and italicized terms are elaborated in the Range***
1. Create and maintain small-scale business	1.1 Generation and evaluation of business ideas is undertaken in accordance with the existing procedure 1.2 Competencies are matched with business opportunities in accordance with business practices. 1.3 Procedure for starting a small business is identified as per the legal requirements 1.4 SWOT/ PESTEL analysis and or industrial survey is carried out according to office procedures 1.5**Business operations** are monitored and controlled following established procedures. 1.6Quality assurance measures are implemented consistently. 1.7 Good relations are maintained with staff/workers. 1.8Policies and procedures on occupational safety and health and environmental concerns are constantly observed.
2. Establish small business customer base	2.1 Good customer relations are maintained in accordance with office procedures 2.2 New customers and markets are identified, explored and reached out to according to the marketing plan 2.3 Promotions/Incentives are offered to loyal customers in accordance with office procedures 2.4 Additional products and services are evaluated and tried in accordance with marketing strategy

	2.5 Customer record is maintained in accordance with office procedures
3. Manage small scale business	3.1 Enterprise is built up and sustained through judicious control of cash flows. 3.2 **Profitability of enterprise** is ensured though appropriate internal controls. 3.3 Unnecessary or lower-priority expenses and purchases are avoided to ensure profitability 3.4 Basic cost-benefit analysis are undertaken in accordance with office procedures 3.5 Basic financial management are undertaken in accordance with office procedures 3.6 Basic financial accounting in undertaken in accordance with office procedures 3.7 Business **internal controls** are implemented in accordance with office procedure 3.8 Setting business priorities and strategies is carried out according to office procedures 3.9 Preparation and interpretation of basic financial statements is undertaken in accordance with set procedures 3.10Preparation of business plans for small business is undertaken in accordance with business strategy 3.11 Business Social Responsibility is maintained in accordance with Standard Operations Procedures (SOP)
4.Grow/ expand small scale business	4.1 Prepared business growth strategy for small sale business in accordance with office procedures 4.2 Incorporated technology in small scale business growth in accordance with technological trends 4.3 Emerging issues and trends are considered in accordance with business growth strategy 4.4 Built audience interest in product/service according to growth strategy 4.5 Boosted cooperate communication according to business **communication strategy**

RANGE

This section provides work environment and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

Variable	**Range**

Business Strategy include but not limited to:	Manage wastages, environmental conservation
Business Operations include but not limited to:	• Purchasing • Accounting/administrative • Workproduction/operations/sales • Marketing
Internal control include but not limited to:	• Accounting systems • Financial statements/reports • Cash management • Human resource management
Profitability of enterprise include but not limited to:	Operating expenses lower than income
Communication strategy include but not limited to:	• Blue print of exchange of information • Technology and exchange of information

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- Individual marketing skills
- Using basic advertising (posters/ tarpaulins, flyers, social media,
- Basic bookkeeping/ accounting skills
- Communication skills

Required Knowledge

The individual needs to demonstrate knowledge of:

- Generation and evaluation of business ideas
- Legal requirements for starting a small business
- SWOT/ PESTEL analysis
- Occupational Safety and Health
- Public relations concepts
- Business plan
- Business financing
- Marketing strategies
- Business management and control
- Production/ operation process

- Product promotion strategies
- Market and feasibility studies
- Business ethics
- Building customer relations
- Business models and strategies
- Types and categories of businesses
- Business internal controls
- Relevant national and local legislation and regulations
- Basic quality control and assurance concepts
- Building relations with customer and employees
- Building competitive advantage of the enterprise
- Business growth strategies

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Demonstrated entrepreneurial skills 1.2 Demonstrate competencies to create a small-scale business 1.2 Demonstrated ability to conceptualize and plan a micro/small business 1.3 Grew customer base for the small scale business 1.3 Demonstrated ability to manage/operate a micro/small-scale business 1.4 Demonstrated competencies to grow a micro/small-scale business
2. Resource Implications	The following resources should be provided: 2.1 Case studies on micro/small-scale enterprises 2.2 Materials and location relevant to the proposed activity and tasks
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Case studies 3.2 Oral Questioning 3.3 Portfolio 3.4 Projects
4. Context of Assessment	4.1 Competency may be assessed in workplace or in a simulated workplace setting

	4.2 Assessment shall be observed while tasks are being undertaken whether individually or in-group
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

DEMONSTRATE EMPLOYABILITY SKILLS

UNIT CODE: CON/OS/MA/BC/05/4A

UNIT DESCRIPTON

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.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace function.	**PERFORMANCE CRITERIA** These are assessable statements which specify the required level of performance for each of the elements. ***Bold and italicized terms are elaborated in the Range***
1. Conduct self-management	1.1 Personal vision, mission and goals are formulated based on potential and in relation to organization objectives 1.2 Emotions are managed as per workplace requirements 1.3 Individual performance is evaluated and monitored according to the agreed targets. 1.4 Assertiveness is developed and maintained based on the requirements of the job. 1.5 Accountability and responsibility for own actions are demonstrated. 1.6 Self-esteem and a positive self-image are developed and maintained. 1.7 Time management, attendance and punctuality are observed as per the organization policy. 1.8 Goals are managed as per the organization's objective 1.9 Self-strengths and weaknesses are identified as per ***personal objectives*** 1.10 Critics are managed as per personal objectives 1.11 Demonstrate interpersonal communication 1.12 Information is shared as per communication structure 1.13 Work activity is organized with other involved personnel as per the SOPs

2. Demonstrate critical safe work habits	2.1 Stress is managed in accordance with workplace procedures. 2.2 Punctuality and time consciousness is demonstrated in line with workplace policy. 2.3 Personal objectives are integrated with organization goals based on organization's strategic plan. 2.4 Work priorities are set in accordance to workplace procedures. 2.5 ***Feedback*** on performance is collected and evaluated based on established ***team*** learning process 2.6 Leisure time is recognized in line with organization policy. 2.7 Abstinence from ***drug and substance abuse*** is observed as per workplace policy. 2.8 Awareness of HIV and AIDS is demonstrated in line with workplace requirements. 2.9 Safety consciousness is demonstrated in the workplace based on organization safety policy. 2.10 ***Emerging issues*** are dealt with in accordance with organization policy.
3. Demonstrate workplace learning	3.1 Personal training needs are identified and assessed in line with the requirements of the job 3.2 Own learning is managed as perworkplace policy. 3.3 Learning opportunities are sought and allocated based on job requirement and in line with organization policy. 3.4 Contribution to the learning community at the workplace is carried out. 3.5 ***Range of media for learning*** are identified as per the training need 3.6 Application of learning is demonstrated in both technical and non-technical aspects based on requirements of the job 3.7 Enthusiasmfor ongoing learning is demonstrated 3.8 Time and effort is invested in learning new skills-based job requirements 3.9 Willingness to learn in different context is demonstrated based on available learning opportunities arising in the workplace. 3.10 Opportunities for performance improvement are identified proactively in area of work. 3.11 Awareness of personal role in workplace ***innovation*** is demonstrated.
4. Demonstrate workplace ethics	4.1 Policiesand guidelines are observed as per the workplace requirements 4.2 Self-worth and profession is exercised in line with personal

	goals and organizational policies 4.3 Code of conduct is observed as per the workplace requirements 4.4 Personal and professional integrity is demonstrated as per the personal goals 4.5 Commitment to jurisdictional laws is demonstrated as per the workplace requirements

RANGE

This section provides work environment and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

Range	**Variable**
Drug and substance abuse includes but not limited to:	Commonly abused • Alcohol • Tobacco • Miraa • Over-the-counter drugs • Cocaine • Bhang • Glue
Feedback includes but not limited to:	• Verbal • Written • Informal • Formal
Team includes but not limited to:	• Small work group • Staff in a section/department • Inter-agency group
Personal objectives include but not limited to:	• Long term • Short term • Broad • Specific
Innovation include but not limited to:	• New ideas • Original ideas • Different ideas

	• Methods/procedures • Processes • New tools
Emerging issues include but not limited to:	• Terrorism • Social media • National cohesion • Open offices
Range of media for learning include but not limited to:	• Mentoring • peer support and networking • IT and courses

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- Personal hygiene practices
- Intra and Interpersonal skills
- Communication skills
- Knowledge management
- Interpersonal skills
- Critical thinking skills
- Observation skills
- Organizing skills
- Negotiation skills
- Monitoring skills
- Evaluation skills
- Record keeping skills
- Problem solving skills
- Decision Making skills
- Resource utilization skills
- Resource mobilization skills

Required Knowledge

The individual needs to demonstrate knowledge of:

- Work values and ethics
- Company policies

- Company operations, procedures and standards
- Occupational Health and safety procedures
- Fundamental rights at work
- Personal hygiene practices
- Workplace communication
- Concept of time
- Time management
- Decision making
- Types of resources
- Work planning
- Resources and allocating resources
- Organizing work
- Monitoring and evaluation
- Record keeping
- Workplace problems and how to deal with them
- Negotiation
- Assertiveness
- Team work
- Gender mainstreaming
- HIV and AIDS
- Drug and substance abuse
- Leadership
- Safe work habits
- Professional growth and development
- Technology in the workplace
- Learning
- Creativity
- Innovation
- Emerging issues
    - Social media
    - Terrorism
    - National cohesion

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical aspects of	Assessment requires evidence that the candidate:

Competency	1.1 Conducted self-management 1.2 Demonstrated critical safe work habits 1.3 Demonstrated workplace learning 1.4 Demonstrated workplace ethics
2. Resource Implications	The following resources should be provided: 2.1 Case studies/scenarios
3. Methods of Assessment	Competency in this unit may be assessed through: • Oral Interview • Observation • Third Party Reports • Written
4. Context of Assessment	4.1 Competency may be assessed in workplace or in a simulated workplace setting 4.2 Assessment shall be observed while tasks are being undertaken whether individually or in-group
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

DEMONSTRATE ENVIRONMENTAL LITERACY

UNIT CODE : CON/OS/MA/BC/06/4A

UNIT DESCRIPTION

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

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace function.	**PERFORMANCE CRITERIA** These are assessable statements which specify the required level of performance for each of the elements. ***Bold and italicized termsare elaborated in the Range***
1. Control environmental hazard	1.1 ***Storage methods*** for environmentally hazardous materials are strictly followed according to environmental regulations and OSHS. 1.2 ***Disposal methods*** of hazardous wastes are followed at all times according to environmental regulations and OSHS. 1.3 ***PPE*** is used according to OSHS.
2. Control environmental Pollution control	2.1 Environmental pollution ***control measures*** are compiled following standard protocol. 2.2 Procedures for solid waste management are observed according Environmental Management and Coordination Act 1999 2.3 Methods for minimizing ***noise pollution*** complied following environmental regulations.
3. Demonstrate sustainable resource use	3.1 Methods for minimizing wastage are complied with. 3.2 Waste management procedures are employed following principles of 3Rs (Reduce, Reuse, Recycle) 3.3 Methods for economizing or reducing resource consumption are practiced.
4. Evaluate current practices in relation to resource usage	4.1 Information on resource efficiency ***systems and procedures*** are collected and provided to the work group where appropriate. 4.2 Current resource usage is measured and recorded by members of the work group. 4.3 Current purchasing strategies are analyzed and recorded according to industry procedures. 4.4 Current work processes to access information and data is

	analyzed following enterprise protocol.

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range
1. PPE may include but are not limited to:	1.1 Masks 1.2 Gloves 1.3 Goggles 1.4 Safety hat 1.5 Overall 1.6 Hearing protector 1.7 Safety boots
2. Environmental pollution control measures may include but are not limited to:	1.1 Methods for minimizing or stopping spread and ingestion of airborne particles 1.2 Methods for minimizing or stopping spread and inhaling gases and fumes 1.3 Methods for minimizing or stopping spread and ingestion of liquid wastes
3. Waste management Procedures may include but are not limited to:	3.1 Sorting 3.2 Storing of items 3.2 Recycling of items 3.3 Disposal of items 3.4 Handling 3.5 Transport
4. Resources may include but are not limited to:	4.1 Electric 4.2 Water 4.3 Fuel 4.3 Telecommunications 4.4 Supplies 4.5 Materials
5. Workplace environmental hazards may include but are not limited to:	5.1Biological hazards 5.2 Chemical and dust hazards 5.3 Physical hazards
6. Organizational systems and procedures may include but are not limited to:	7.1 Supply chain, procurement and purchasing 7.2 Quality assurance 7.3 Making recommendations and seeking approvals

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Controlled environmental hazard 1.2 Controlled environmental pollution 1.3 Demonstrated sustainable resource use 1.4 Evaluated current practices in relation to resource usage
2. Resource Implications	The following resources should be provided: 2.1 Workplace with storage facilities 2.2 Tools, materials and equipment relevant to the tasks (ex. Cleaning tools, cleaning materials, trash bags, etc.) 2.3 PPE 2.4 Manuals and references 2.5 Legislation, policies, procedures, protocols and local ordinances relating to environmental protection 2.6 Case studies/scenarios relating to environmental Protection
3 Methods of Assessment	Competency in this unit may be assessed through: 3.1 Demonstration 3.2 Oral questioning 3.3 Written examination 3.4 Third Party Reports 3.5 Portfolio (citations/awards from GOs and NGOs, certificate of training – local and abroad) 3.6 Simulations and role-plays
4 Context of Assessment	Competency may be assessed on the job, off the job or a combination of these as well as in work placement (internship). Off the job assessment must be undertaken in a closely simulated workplace environment.
5 Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- Following storage methods of environmentally hazardous materials
- Following disposal methods of hazardous wastes
- Using PPE
- Practicing OSHS

- Complying environmental pollution control
- Observing solid waste management
- Complying methods of minimizing noise Pollution
- Complying methods of minimizing wastage
- Employing waste management procedures
- Economizing resource consumption
- Listing of resources used
- Measuring current usage of resources
- Identifying and reporting workplace environmental hazards
- Conveying all environmental issues
- Following environmental regulations
- Identifying environmental regulations
- Assessing procedures for assessing compliance
- Collecting information on environmental and resource efficiency systems and procedures, and Providing information to the work group
- Measuring and recording current resource usage
- Analysing and recording current purchasing strategies.
- Analysing current work processes to access information and data and Assisting identifying areas for improvement

Required Knowledge

The individual needs to demonstrate knowledge of:

- Storage methods of environmentallyhazardousmaterials
- Disposal methodsof hazardous wastes
- Usage of PPEEnvironmentalregulations
- OSHS
- Types of pollution
- Environmentalpollution controlmeasures
- Different solid wastes
- Solid wastemanagement
- Different noisepollution
- Methods ofminimizing noise pollution
- Solid Waste Act
- Methods ofminimizing wastage
- Wastemanagementprocedures
- Economizing ofresourceconsumption
- Principle of 3Rs
- Types of resources
- Techniques in measuring current usage of resources

- Calculating current usage of resources
- Types of workplace environmental hazards
- Environmental regulations
- Environmental regulations applying to the enterprise.
- Procedures for assessing compliance with environmental regulations.
- Collection of information on environmental and resource efficiency systems and procedures,
- Measurement and recording of current resource usage
- Analysis and recording of current purchasing strategies.
- Analysis current work processes to access information and data Analysis of data and information
- Identification of areas for improvement

DEMONSTRATE OCUPATIONAL SAFETY AND HEALTH PRACTICES

UNIT CODE: CON/OS/MA/BC/07/4A

UNIT DESCRIPTION

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

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace function.	**PERFORMANCE CRITERIA** These are assessable statements which specify the required level of performance for each of the elements. ***Bold and italicized termsare elaborated in the Range***
1. Observe workplace procedures for hazards and risk prevention	1.1 Arrangement of work area and items in accordance with Company housekeeping procedures is followed 1.2 Work standards and procedures are followed 1.3 ***Prevention and control measures***, including use of ***safety gears/PPE*** are applied 1.4 Standards and procedures for ***incidents and emergencies*** are studied and applied, as needed
2. Participate in arrangements for workplace safety and health maintenance	2.1 Orientations on ***OSH requirements/regulations*** of tasks is participated 2.2 Feedback on health, safety, and security concerns are provided to appropriate personnel as required in a sufficiently detailed manner. 2.3 Workplace procedures for reporting hazards, incidents, injuries and sickness are practiced 2.4 OSH requirements/ regulations and workplace safety and hazard control procedures are reviewed and compliance reported to appropriate personnel, as needed 2.5 Needed ***OSH-related trainings*** are identified and proposed to appropriate personnel

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	**Range**

1. ***Prevention and control measures*** may include but are not limited to:	1.1 Eliminate the hazard (i.e., get rid of the dangerous machine 1.2 Isolate the hazard (i.e. keep the machine in a closed room and operate it remotely; barricade an unsafe area off) 1.3 Substitute the hazard with a safer alternative (i.e., replace the machine with a safer one) 1.4 Use administrative controls to reduce the risk (i.e. give trainings on how to use equipment safely; OSH-related topics, issue warning signages, rotation/shifting work schedule) 1.5 Use engineering controls to reduce the risk (i.e. use safety guards to machine) 1.6 Use personal protective equipment 1.7 Safety, Health and Work Environment Evaluation 1.8 Periodic and/or special medical examinations of workers
2. ***Safety gears /PPE*** (Personal Protective Equipments) may include but are not limited to:	2.1 Arm/Hand guard, gloves 2.2 Eye protection (goggles, shield) 2.3 Hearing protection (ear muffs, ear plugs) 2.4 Hair Net/cap/bonnet 2.5 Hard hat 2.6 Face protection (mask, shield) 2.7 Apron/Gown/coverall/jump suit 2.8 Anti-static suits 2.9 High-visibility reflective vest
3. ***Incidents and emergencies*** may include but are not limited to:	3.1 Chemical spills 3.2 Equipment/vehicle accidents 3.3 Explosion 3.4 Fire 3.5 Gas leak 3.6 Injury to personnel 3.7 Structural collapse 3.8 Toxic and/or flammable vapours emission.
4. ***OSH requirements / regulations*** may include but are not limited to:	4.2 Building code 4.5 Permit to Operate

5. ***OSH-related trainings*** may include but are not limited to:	5.1 Safety Orientations relevant to tasks 5.2 Safe and Correct Operation of Tools and Equipment 5.3 Health Orientations/trainings (Healthy Lifestyle, Prevention of drug/alcohol dependence, violence in the workplace, work-stress) 5.4 Prevention and Control of OSH Hazards in the workplace 5.5 Chemical Handling 5.6 Safety Trainings (Fire Safety, Construction Safety, Confined Space) 5.7 Prevention and Control of Work-related Injuries and Illness 5.8 Basic First-aid Trainings 5.9 Emergency Response Trainings 5.10 Trainings on use of fire-extinguisher

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- Communication Skills
- Knowledge management
- Collaborating skills
- Interpersonal Skills
- Troubleshooting skills
- Critical thinking Skills
- Observation Skills

Required Knowledge

The individual needs to demonstrate knowledge of:

- General OSHprinciples andlegislations
- Principles ofgoodhousekeeping(5S)
- Company/workplacepolicies/guidelines
- Standards andsafetyrequirements ofwork processand procedures
- StandardWorkplaceemergency planand procedures
- Safety and health requirements of tasks
- Workplace guidelines on providing feedback on OSH and security concerns
- OSH regulations
- Hazard control procedures
- OSH trainings relevant to work

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Follows work and housekeeping procedures, and complies with its requirements 1.2 Follows work standards and procedures 1.3 Applies OSH preventive and control measures, including emergency plan, standards and procedures 1.4 Participates in orientations on OSH requirements of tasks 1.5 Provides feedback on health, safety, and security concerns in a sufficiently detailed manner. 1.6 Practices workplace procedures for reporting hazards, incidents, injuries and sickness 1.7 Reviews and reports compliance to workplace OSH regulations and hazard control procedures 1.8 Identifies and proposes OSH trainings relevant to work
2. Resource Implications	The following resources should be provided: 2.1 Facilities, materials tools and equipment necessary for the activity
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Observation/Demonstration with oral questioning 3.2 Third party report 3.3 Written exam
4. Context of Assessment	Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment.
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

COMMON UNITS OF COMPETENCY

MEASURE AND CALCULATE OBJECTS' PARAMETERS

UNIT CODE: CON/OS/MA/CC/01/4A

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. It also involves maintenance of measuring and calculation tools.

This standard applies in the Construction industry.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace function.	**PERFORMANCE CRITERIA** These are assessable statements which specify the required level of performance for each of the elements. ***Bold and italicized terms are elaborated in the Range***
1. Identify objects to be measured and calculated	1.1 ***Object or component*** to be measured is identified, classified and interpreted according to the appropriate ***geometric shapes.*** ***1.2 Objects parameters*** are identified and measured as per the specifications or job requirements 1.3 Specifications for measurement and calculations are obtained from relevant sources.
2. Use and care for measuring tools and calculation instruments	2.1***Measuring tools and calculating instruments*** are obtained according to job requirements. 2.2 Measuring tools and calculation instruments are checked to the limit of accuracy as per manufacturer's manual. 2.3 Measuring and calculation instruments are maintained as per manufacturer's instructions. 2.4 ***Personal Protective Equipment*** is used in line with occupational safety and health regulations.
3. Calculate parameters of a given object.	3.1Object is measured and readings recorded based of specification of the job. 3.2 Systems of measurement are identified and converted according to job requirements. 3.3 Calculations needed to complete tasks are performed based on job specifications. 3.4 Numerical computation are checked and corrected for

	accuracy as per workplace policy. 3.5 Measurements and calculations are documented as per workplace policy.

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	**Range:** Include but is not limited to:
1. Objects/components	• Building blocks • Bricks • Doors • Windows • Aggregates • Cement • Timber • Reinforcement bars
2. Geometric shapes	• Round • Square • Rectangular • Triangle • Sphere • Conical • Prism • cylinder
3. Measuring tools and calculation instruments	• Micrometer gauge (In-out, depth) • Vernier calipers (outside, inside, depth) • Straight edge • Try-square • Protractor • Steel rule • Gauges • Tape measure • Pair of compass • Pair of dividers • Calculator

	• T-Square • Scale rule • Set square($60^0$and 45^0) • Digital weighing machine • Optical instruments
4. Object parameters	• Linear • Volume • Area • Displacement • Inside diameter • Circumference • Length • Thickness • Outside diameter • Tapering • Out of roundness

REQUIRED SKILLS AND KNOWLEDGE

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit of competency.

Required skills

The individual needs to demonstrate the following skills:

- Numeracy.
- Measuring
- Problem solving
- Visualizing
- Interpreting
- Tool handling
- Communication

- Inter personal
- Reading
- Analytical
- Teamwork
- Time management

Required knowledge:
The individual needs to demonstrate knowledge of:

- Four fundamental operations
- Linear measurements
- Dimensions
- Unit conversion
- Ratio and proportion
- Algebraic equations
- Use and maintenance of masonry tools and equipment
- Geometrical shapes.

EVIDENCE GUIDE
This provides advice on assessment and must be read in conjunction with the Performance Criteria, required skills and knowledge and range

1. Critical Aspects	Assessment requires evidence that the candidate: 1.1 Identified objects and object parameters correctly 1.2 Selected and prepared measuring and calculation instruments correctly. 1.3 Performed measurements and calculations accurately 1.4 Checked measuring and calculation instruments accuracy correctly 1.5 Measured and recorded object(s) readings accurately 1.6 Identified and converted systems correctly 1.7 Self-checked and corrected numerical computations accurately
2. Resource implications	The following resources should be provided: 2 .1Workplace location 2 .2 Institutional workshop 2 .3 Measuring tools and instruments 2 .4 Instructional materials
3. Methods of assessment	Competency may be assessed through: 3.1Observation. 3.2Written test 3.3Interview

	3.4Oral questioning 3.5Project
4. Context of assessment	Competency may be assessed : 4.1On-the-job, 4.2Off-the-job or 4.3 During Work placement
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

INTERPRET AND DRAW SIMPLEWORKING DRAWINGS

UNIT CODE:CON/OS/MA/CC/02/4A

UNIT DESCRIPTION

This unit deals with competencies required to interpret and draw simple working drawings. It entails identifying symbols, differentiating various types of drawings, identifying parts of a drawing, sketching and drawing different elements.

This standard applies in the Construction Industry.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace function.	**PERFORMANCE CRITERIA** These are assessable statements which specify the required level of performance for each of the elements. ***Bold and italicized terms are elaborated in the Range***
1. Interpret working drawings	1.1 ***Working drawings*** are identified based on type**.** 1.2 Scale of the drawing is read based on the drawing. 1.3 Measurements are converted based on best practice. 1.4 Symbols are identified based on technical drawings standards.
2.Use drawing instruments, supplies and materials	1.1 ***Drawing instrumentsand supplies*** are identified and gathered based on job requirements. 1.2 Drawing instruments are used and maintained as per manufacturer's instructions. 1.4 Supplies and materials are used as per workplace policy. 1.5 Waste is disposed in due regard to environmental protection and conservation. 1.6 ***Personal Protective Equipment*** is used in line with occupational safety and health regulations.
3.Apply isometric drawings	3.1***Types of isometric drawings*** are identified based on international standards. 3.2Various objects are in isometric. 3.3 Principles of isometric drawing are applied in construction working drawings.

4. Apply different types of scales	4.1 ***Scaled measurements*** are interpreted in accordance with international standards. 4.2 ***Scales*** are used in drawing simple details and drawings. 4.3 ***Measurements*** are transferred to the ground according to the working drawings.

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	**Range**: May include but not limited to:
1. Working drawings	• Architectural drawings • Structural drawings • Orthographic drawings • Schematic drawings • Isometric projections • Sectional drawings • Mechanical drawings • Scaffolding and shoring plans • Formwork drawings and details • Stone dressing details drawings • Finishing detail drawings • Electrical drawings
2. Personal Protective Equipment:	• Hard hat / helmet • Dust Mask • Dust coat / coverall • Gloves • Safety boots • Gum boots • Reflector jackets
2. Symbols	• Architectural symbols • Piping / plumbing symbols • Electrical symbols • Mechanical symbols • Steelworks details symbols • Scaled measurements symbols • Site development symbols

3. Measurements	• Linear • Square-ness • Slope/gradient • Depth • Width • Level-ness
4.Scaled measurements	• Reducing scales • Enlarging scales
5.Drawing tools and instruments	• Drawing boards • T square • Set square • Blueprinting machine • Steel rule • Lettering stencil • Scale rule • Desktop computer • Printer • scanner • plotter
6. Drawing supplies and materials	• Drawing papers • Drawing pencils • Drawing sets • Masking tape • clips • Working drawing
7. Types of isometric drawings	• Cube • Cuboid • spherical • Cylindrical • Conical

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required skills:

The individual needs to demonstrate the following skills:

- Numeracy

- Drawing and sketching
- Visualizing
- Critical thinking
- Interpreting
- Tool handling
- Communication
- Inter personal
- Reading
- Analytical
- Measuring
- Team work
- Time management

Required knowledge:
The individual needs to demonstrate knowledge of:
- Working drawings
- Terms and symbols used in working drawings
- Types of lines used in working drawings.
- Common units of measurements,
- Taking measurements
- Conversion of units of measurement.
- Tools and materials for production a working drawing
- Developing a working drawing
- Interpretation of working drawings

EVIDENCE GUIDE
This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Demonstrated interpretation of the working drawings correctly. 1.2 Identified symbols of working drawings correctly 1.4 Identified types of working drawings in a construction site appropriately. 1.5 Identified types of isometric drawings correctly 1.6 Drew various objects in isometric correctly 1.7 Applied principles of isometric drawing appropriately 1.8 Interpreted scaled measurements correctly 1.9 drew simple details of a working drawing to scales accurately 1.10 Transferred measurements on the working drawings to the ground correctly.
2. Resource Implications	The following resources must be provided: 2.1Workplace location 2.2 Tools, and equipment for production of working drawings 2.3 Materials relevant production of working drawings. 2.4 A complete set of construction working drawings
3. Methods of Assessment	Competency may be assessed through: 3.1 Observation 3.2 Oral Questions 3.3 Third party report 3.4 Oral interview 3.5 project 3.6 Written tests 3.7 portfolio
4. Context for Assessment	Competency may be assessed through: 4.1 On – the –job 4.2 Off-the –job 4.3 During work placement setting
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended

CORE UNITS OF COMPETENCY

CONSTRUCT BUILDING SUBSTRUCTURE

UNIT CODE: CON/OS/MA/CR/01/4A

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.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace function.	**PERFORMANCE CRITERIA** These are **assessable** statements which specify the required level of performance for each of the elements. ***Bold and italicized terms are elaborated in the Range***
1. Interpret working drawings	1.5 ***Working drawings*** are identified based on their features and title block**.** 1.6 Scale of the drawing is read based on the drawing. 1.7 Measurements are converted based on best practice. 1.8 Symbols are identified based on working drawings standards.

2. Estimate and costmaterials and supplies	2.1 ***Materials and supplies***required for masonry works are identified based on the drawing and site. 2.2 Schedule of materials and suppliesis prepared based on the drawings. 2.3 Materials and supplies are estimated and costed based on working drawings and specifications.
3. Set-out building	3.1 ***Personal Protective Equipment*** is identified and used in line with occupational safety and health regulations. 3.2 ***Masonry tools and equipment*** are usedbased on manufacturer's instructions. 3.3 ***Preliminary preparation activities*** are carried out as per drawings and standard procedures 3.4 ***Reference points*** are located on the ground as per drawings. 3.5 Profilesand profile boards are fixed and levelled on the ground according to drawings and standard procedures. 3.6 Measurement and square-ness are checked based on standard procedure. 3.7 Profile lines are fixed and marked on the ground according to the drawings. 3.8 Masonry tools and equipment are maintained and stored based on manufacturer's instructions.
4. Prepare and position formwork and reinforcement bars	4.1 Excavations and levels are ascertained based on working drawings and best practise 4.2 Measurements are transferred to the foundation bed based on specifications. 4.3 Blinding is done based on specifications. 4.4 Formwork is prepared and positioned based on working drawings and specifications. 4.5 Reinforcement bars are prepared positioned and fixed based on working drawings and specifications.
5.Cast foundation walling	5.1 Assemble materials for foundation base as per the specifications 5.2 Mix concreting materials as per the specifications 5.3 Cast the ***foundation base*** as per the specifications. 5.4 Concrete is cured as per the standard procedure

6. Construct foundation walling	6.1 Foundation walling units are identified based on specifications. 6.2 ***Foundation walling units*** are laid as per drawing and specification. 6.3 Curing of foundation units is done as per the standard procedure 6.4 Excavations are backfilled with stable soil as per best practice and specifications. 6.5 Soil around and in the building is treated against termites and ants as per the best practice
7. Construct ground floor Slab	7.1 Floor slab bed is prepared based on specifications. 7.2 ***Damp proofing*** is fixed as per specifications. 7.3 Formwork is prepared, positioned and fixed as per specifications and best practice. 7.4 Slab steel reinforcement is done according to working drawings and specifications. 7.5 Concrete is casted according to working drawings and specifications. 7.6 Concrete slab is ***cured*** as per standard procedure.

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variables	**Range**
1. Working drawings may include but not limited to:	• Architectural drawings • Structural • MEP drawings • Site development drawings • Survey maps

2. Supplies and Materials may include but not limited to:	• Ballast • Sand • Cement • Additives • Water • Timber • boards • Reinforcement Steel Bars • Damp Proofing Materials and Supplies • Lime • Chalk • Termite Control Chemicals • Hard core • Nails • Strings • Murram • BRC • Poles
3. Personal Protective Equipment may include but not limited to:	• Hard hat / helmet • Dust Mask • Goggles • Ear plugs / ear muffs • Dust coat / coverall • Gloves • Safety boots • Gum boots • Reflector jackets
4. Masonry tools and equipment may include but not limited to:	• Mason square • Spirit level • Plumb bob • Trowels • Spades • Wheel barrow • Dumper • Mason string • Straight edge • Float • Concrete mixer • Dumpy level • Vibrator

	• Compactor • Hammer • Mattock • Machete • Sledge Hammer • Buckets • Mixing platform • Hose Pipe
5. Preliminary preparation activities may include but not limited to:	• Site clearance • Hoarding • Site services • Site office/hut
6. Reference points may include but not limited to:	• Datum • Building line • Temporary bench mark (TBM)
7. Foundation walling may include but not limited to:	• Natural quarry stones • Engineering bricks • High density concrete blocks
8. Foundation may include but not limited to:	• Slab Foundation / Raft • Suspended Foundation • Strip Foundation • Concrete Masonry Units Foundation • Footing & columns • Piles
9. Damp proofing may include but not limited to:	• Damp Proofing Membrane • Damp Proof Spray • Waterproofing additives

10. Curing may include but not limited to:	• Water • Jute Sacks • Blankets • Sand • Curing agents

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- Interpersonal
- Communication
- Drawing
- Interpretation of working drawings
- Problem-solving
- Critical thinking
- Organizing
- Measuring
- Numeracy
- Mortar handling
- Concrete materials mixing
- Masonry units handling
- Tool and equipment handling
- Team work
- Time management

Required Knowledge

The individual needs to demonstrate knowledge of:

- Interpretation of drawings and symbols
- Calculations
- Conversion of units
- Measurement
- Square-ness checking techniques
- Concrete mix ratios (Batching)
- Aggregates
- Cement types and uses
- Types of foundations and applications
- Soil type, structures and stabilization techniques
- Types of timber
- Water

- Formwork
- Levelling
- Steel reinforcement fixing
- Masonry units
- Use and maintenance of tools and equipment

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Identified working drawings correctly**.** 1.2 Read drawing scale correctly. 1.3 Converted measurements accurately. 1.4 Identified symbols correctly. 1.5 Identified masonry materials, supplies, tools and equipment correctly. 1.6 Prepared schedule of materials, supplies, tools and equipment appropriately. 1.7 Identified appropriate personal protective equipment. 1.8 Used personal protective equipment correctly. 1.9 Used and maintained masonry tools and equipment appropriately. 1.10 Carried out preliminary preparation activities appropriately. 1.11 Located reference points on the ground accurately. 1.12 Fixed and levelled profiles and profile boards on the ground accurately. 1.13 Checked measurement and square-ness correctly. 1.14 Fixed and marked profile lines on the ground accurately. 1.15 Maintained and stored masonry tools and equipment appropriately. 1.16 Transferred measurements to the foundation bed accurately. 1.17 Laid blinding layer correctly. 1.18 Prepared and positioned formwork accurately. 1.19 Prepared and positioned reinforcement bars accurately. 1.20 Mixed concrete materials correctly

	1.21 Casted foundation base correctly. 1.22 Identified foundation walling units correctly. 1.23 Laid foundation walling units correctly. 1.24 Backfilled and stabilized excavations appropriately. 1.25 Treated soil around and in the building appropriately. 1.26 Prepared floor slab bed appropriately. 1.27 Laid damp proofing appropriately. 1.28 Prepared, positioned and fixed formwork accurately. 1.29 Fixed and positioned slab reinforcement accurately. 1.30 Casted concrete slab appropriately. 1.31 Cured concrete slab appropriately. 1.32 Demonstrated understanding of construction of building substructure.
2. Resource implications	The following resources must be provided: 2.1 A functional workshop with masonry tools, equipment, materials and supplies. 2.2 References and manuals including construction working drawings 2.3Personal protective equipment
3. Methods of assessment	Competency may be assessed through: 3.1Observation 3.2Oral questioning 3.3Written tests 3.4Portfolio 3.5 Third party report

4. Context of Assessment	Assessment may be done: 4.1. On-the-job, 4.2. Off-the-job or 4.3. During Work placement.
5. Guidance information for assessment	The unit may be assessed alone or together with other related units.

CONSTRUCT BUILDING SUPERSTRUCTURE

UNIT CODE: CON/OS/MA/CR/02/4A

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

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ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace function.	**PERFORMANCE CRITERIA** These are **assessable** statements which specify the required level of performance for each of the elements. ***Bold and italicized terms are elaborated in the Range***
1. Interpret working drawings	1.1 ***Working drawings*** are identified based on their features and title block**.** 1.2 Scale of the drawing is read based on the drawing. 1.3 Measurements are converted based on best practice. 1.4 Symbols are identified based on working drawings standards.
2. Estimate and cost materials and supplies	2.1 ***Materials and supplies*** required for masonry works are identified based on the drawing and site. 2.2 Schedule of materials and supplies is prepared based on the drawings. 2.3 Materials and supplies are estimated and costed based on working drawings and specifications.

3.Set-out building super structure	3.1 ***Personal Protective Equipment*** is identified and used in line with occupational safety and health regulations. 3.2 ***Masonry tools and equipment*** are used and maintained based on manufacturer's instructions. 3.3 ***Preliminary preparation activities*** are carried out as per drawings and standard procedures 3.4 ***Reference points*** are located on the floor slab as per drawings. 3.5 Measurements are transferred from profile boards to the floor slab according to drawings and standard procedures. 3.6 Measurement and square-ness are checked based on standard procedure. 3.7 Profile lines are marked on the floor slab according to the drawings. 3.8 Column kickers are casted as per the standard procedures 3.9 Wall screeding is done as per working drawings and specification. 3.10 Masonry tools and equipment are maintained and stored based on manufacturer's instructions and best practice.
4.Prepare, position and cast columns	4.1 Measurements are transferred to the floor slab based on specifications. 4.2 Formwork is prepared and positioned based on working drawings and standard procedure. 4.3 Reinforcement bars are prepared and positioned based on working drawings and based on specifications. 4.4 Columns are casted based on working drawings and specifications. 4.5 Columns vertical alignment is checked as per standard procedures. 4.6 Columns are cured as per standard procedure.
5.Construct super-structure walling	5.1 ***Superstructure walling units*** are identified based on specifications. 5.2 Wall openings are marked based on working drawings and specifications. 5.3 Masonry in-fills are constructed as per working drawings and best practice.

	5.4 Masonry works horizontal and vertical alignment is checked as per standard procedures. 5.5 Masonry in-fills are cured as per standard procedure.
6. Construct suspended floor slab and beams	6.1 Measurements for the ***floor slab(s)*** and the beams are transferred from the reference point and marked as per working drawing. 6.2 Formwork is prepared and positioned based on working drawings and standard procedure. 6.3 Reinforcement bars are prepared, positioned and fixed based on working drawings and based on specifications. 6.4 Beams and slabs are casted based on working drawings and specifications. 6.5 Slab and beams levelness and horizontal alignment is checked as per standard procedures. 6.6 Slab and beams are ***cured*** as per standard procedure.

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variables	**Range**
1. Working drawings may include but not limited to:	• Architectural drawings • Structural • MEP drawings • Site development drawings • Survey maps
2. Supplies and Materials may include but not limited to:	• Ballast • Sand • Cement • Additives • Water • Timber • Scaffolds • Used oil • Binding wire • Deformed Steel Bars • Damp proof course • Lime

	• Chalk • Nails • Strings • BRC • Poles
3. Personal Protective Equipment may include but not limited to:	• Hard hat / helmet • Dust Mask • Goggles • Ear plugs / ear muffs • Dust coat / coverall • Gloves • Safety boots • Gum boots • Reflector jackets
4. Masonry tools and equipment may include but not limited to:	• Mason square • Spirit level • Plumb bob • Trowels • Spades • Wheel barrow • Dumper • Mason string • Straight edge • Float • Concrete mixer • Dumpy level • Vibrator • Compactor • Hammer • Bend bar • Mattock • Machete • Sledge Hammer • Buckets • Mixing platform • Hose Pipe

5. Preliminary preparation activities may include but not limited to:	• Ground floor slab preparation
	  ○ Cleaning
	  ○ Watering
	  ○ Hacking

	• Wall screeding • Kickers preparation
6. Reference points may include but not limited to:	• Datum • Building line • Temporary bench mark (TBM) • Profile boards
7. Superstructure walling units may include but not limited to:	• Dressed quarry stones • Common bricks • Concrete blocks • Machine cut stones
8. Slabs may include but not limited to:	• Suspended hollow pots • Suspended solid slab • Waffled slab • Inclined/stairs
9. Damp proofing may include but not limited to:	• Damp Proofing Membrane • Damp Proof Spray • Waterproofing additives • Bituminous
10. Curing may include but not limited to:	• Water spraying • Jute sacks • Blankets • Sand • Pool curing • Curing agents

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- Interpersonal
- Communication
- Drawing
- Interpretation of working drawings
- Problem-solving
- Critical thinking
- Organizing

- Measuring
- Numeracy
- Mortar handling
- Concrete materials mixing
- Masonry units handling
- Tool and equipment handling
- Team work
- Time management

Required Knowledge

The individual needs to demonstrate knowledge of:

- Interpretation of drawings and symbols
- Estimate and cost
- Conversion of units
- Measurement
- Safety and access
- Scaffold erection and dismantling
- Square-nesschecking techniques
- Concrete mix ratios (Batching)
- Aggregates
- Additives
- Damp proofing materials
- Cement types and uses
- Types of suspended slabs and applications
- Types of timber
- Water
- Concreting
- Formwork
- Levelling
- Structural alignment
- Steel reinforcement fixing
- Masonry units
- Masonry works curing
- Use and maintenance of tools and equipment
- Curing

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Identifiedworking drawings correctly**.** 1.2 Read drawing scale correctly. 1.3 Converted measurements accurately. 1.4 Identified symbols correctly. 1.5 Identifiedmasonry materials, supplies, tools and equipment correctly. 1.6 Prepared schedule of materials and suppliesappropriately. 1.7 Estimated and costedmaterials and supplies accurately. 1.8 Identified appropriatepersonal protective equipment. 1.9 Used personal protective equipment correctly. 1.10 Used and maintained masonry tools and equipment appropriately. 1.11 Carried out preliminary preparation activities appropriately. 1.12 Locatedreference points on the ground floor accurately. 1.13 Transferred measurements formprofile boards to the groundfloor accurately. 1.14 Checked measurement and square-ness correctly. 1.15 Marked profile lines on the ground floor accurately. 1.16 Maintained and stored masonry tools and equipment appropriately. 1.17 Prepared ground floor slab appropriately. 1.18 Laid wall screeding layer correctly. 1.19 Laid damp proofing appropriately. 1.20 Prepared and positioned column formwork accurately. 1.21 Prepared and positioned column reinforcement bars accurately. 1.22 Casted columns correctly. 1.23 Cured columns adequately 1.24 Identified superstructure in-fill walling units correctly. 1.25 Laidsuperstructure walling units correctly. 1.26 Prepared, positioned and fixed suspended floor slab and beams formwork accurately. 1.27 Fixed and positioned suspended floor slab and beams reinforcement accurately.

	1.28 Casted concrete suspended floor slab and beamsappropriately. 1.29 Cured concrete suspended floor slab and beamsappropriately. 1.30 Demonstrated understanding of construction of building super-structure.
2. Resource implications	The following resources must be provided: 2.1 A functional workshop with basic masonry tools, equipment, materials and supplies. 2.2 References and manuals including construction working drawings 2.3 Personal protective equipment
3. Methods of Assessment	Competency may be assessed through: 3.1 Observation 3.2 Oral 3.3 Written 3.4 Portfolio 3.5project 3.6Third party report
4. Context of Assessment	Assessment may be done: 4.1 On-the-job, 4.2 Off-the-job or 4.3 During Work placement.
5. Guidance information for assessment	The unit may be assessed alone or together with other related units.

FINISH MASONRY WORKS

UNIT CODE: CON/OS/MA/CR/03/4A

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.

ELEMENT These describe the key outcomes which make up workplace function.	**PERFORMANCE CRITERIA** These are **assessable** statements which specify the required level of performance for each of the elements. ***Bold and italicized terms are elaborated in the Range***
1. Interpret working drawings	1.1 ***Working drawings*** are identified based on their features and title block***.*** 1.2 Scale of the drawing is read based on the drawing. 1.3 Measurements are converted based on best practice. 1.4 Symbols are identified based on working drawings standards.
2. Estimate and cost materials and supplies	2.1 ***Materials and supplies*** required for finishing masonry works are identified based on the working drawings and specifications. 2.2 Schedule of materials and supplies is prepared based on the drawings and specifications 2.3 Materials and supplies are estimated and costed based on working drawings and specifications.
3. Apply plaster and render walls	3.1 Required***tools and equipment*** for finishing masonry works are identified and used based on the working drawings and specifications. 3.2 Required ***PPEs***are identified and used based on job requirements. 3.3 2.3 ***Wall surface is prepared***based on its condition and job requirements. 3.4 2.4 Mortar mix is prepared as per specification and working drawing. 3.5 2.5 Dot guides are laid, plumbed and aligned as per standard procedure. 3.6 Plastering and renderingare applied as per specification and

	standard procedure. 3.7 Plastered and rendered surfaces are cured as per standard procedure.
4. Lay floor screed	4.1 Floor surface is prepared based on its condition and job requirements. 4.2 Mortar mix is prepared as per specification and working drawing. 4.3 Dot guides are laid, levelled and aligned as per standard procedure. 4.4 Screed is applied as per specification and standard procedure. 4.5 Screed floor surfaces is cured as per specification and standard procedure.
5. Apply tile and terrazzo finishing	5.1 Surface is prepared based on its condition and job requirements. 5.2 Terrazo mortar mix is prepared as per specification and working drawing. 5.3 Groutfor tiling is prepared as per specification and working drawing. 5.4 ***Reference points*** are marked on the wall as per specification and standard procedure. 5.5 Terrazo is applied as per specification and standard procedure. 5.6 Finished surfaces are cured as per specification and standard procedure 5.7 Terrazo surface issmoothenedas per specification and standard procedure. 5.8 Tiles are applied as per specification and standard procedure. 5.9 Tile joints are grouted as per specification and standard procedure.

6. Joint and point masonry walls	6.1 Wall surface is prepared based on its condition and job requirements. 6.2 Mortar mix is prepared as per specification and working drawing. 6.3 Jointing and pointing is done as per specification and standard procedure. 6.4 Joints are checked for plumbness, vertical and horizontal alignment as per standard procedure. 6.5 Pointing is checked forvertical and horizontal alignment as per standard procedure. 6.6 Curing is per standard procedure.
7.Face masonry walls	7.1 ***Facing materials and supplies***are identifiedbased on working drawings and specifications. 7.2 Wall surface is prepared based on its condition and job requirements. 7.3 Mortar mix is prepared as per specification and working drawing. 7.4 Facing is fixed as per specification and standard procedure. 7.5 Faced wall is checked for plumbness and alignment as per standard procedure. 7.6 Faced wall is cured as per standard procedure.

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variables	**Range**
1. Working drawings may include but not limited to:	• Architectural drawings • MEP drawings • Site development drawings /landscape architectural drawings

2. Supplies and Materials may include but not limited to:	• Ballast • Sand • Cement • Additives • Water • Timber • Scaffolds • Lime • Chalk • Nails • Strings • Poles
3. 4. Personal Protective 5. Equipment may include but not limited to:	• Hard hat / helmet • Dust Mask • Goggles • Ear plugs / ear muffs • Dust coat / coverall • Gloves • Safety boots • Gum boots • Reflector jackets
6. Masonry tools and equipment may include but not limited to:	• Mason square • Spirit level • Plumb bob • Trowels • Terrazo grinder • Spatter dash • Spades • Wheel barrow • Dumper • Mason string • Straight edge • Float • Concrete mixer • Dumpy level • Key • Compactor • Assorted hammer • Mattock • Chisel

	• Machete • Sledge Hammer • Buckets • Mixing platform • Hose Pipe • Hawk • Scrapper
7. Surface preparation activities may include but not limited to:	• Cleaning • Watering • Hacking
8. Reference points may include but not limited to:	• Datum • Temporary bench mark (TBM)
9. Curing may include but not limited to:	• Water spraying • Jute sacks • Blankets • Sand • Pool curing • Curing agents
10. Facing materials and supplies may include but not limited to:	• Tiles • Mazeras • Bricks • Wood • Natural stones • Slates • Artificial moulds

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- Interpersonal
- Communication
- Drawing
- Interpretation of working drawings
- Problem-solving

- Critical thinking
- Organizing
- Measuring
- Numeracy
- Mortar handling
- Concrete materials mixing
- Masonry units handling
- Tool and equipment handling
- Team work
- Time management

Required Knowledge

The individual needs to demonstrate knowledge of:

- Interpretation of drawings and symbols
- Estimate and cost
- Conversion of units
- Measurement
- Safety and access
- Scaffold erection and dismantling
- Square-nesschecking techniques
- Finishing techniques
- Terrazo mix ratios
- Aggregates
- Additives
- Damp proofing materials
- Cement types and uses
- Types of timber
- Water
- Formwork
- Levelling
- Structural alignment
- Facing masonry units
- Finishing works curing
- Use and maintenance of tools and equipment
- Interpretation of symbols
- Type of rendering and its application

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Identifiedworking drawings correctly**.** 1.2 Read drawing scale correctly. 1.3 Converted measurements accurately. 1.4 Identified symbols correctly. 1.5 Identifiedmasonry materials, supplies, tools and equipment correctly. 1.6 Prepared schedule of materials and supplies appropriately. 1.7 Estimated and cost materials and supplies accurately. 1.8 Identified appropriatepersonal protective equipment. 1.9 Used personal protective equipment correctly. 1.10 Used and maintained masonry tools and equipment appropriately. 1.11 Carried out preliminary preparation activities appropriately. 1.12 Locatedreference points on the wallaccurately. 1.13 Prepared wall surface appropriately. 1.14 Laid, plumbed and aligned plaster dot guides accurately. 1.15 Applied plaster and render appropriately. 1.16 Cured plastered and rendered surfaces correctly. 1.17 Prepared floor surface appropriately. 1.18 Prepared mortar mix appropriately. 1.19 Laid, levelled and aligned screed dot guides correctly. 1.20 Applied floor screed appropriately. 1.21 Cured screed floor surfaces correctly. 1.22 Prepared wall or floor surface for tiling and terrazzo application appropriately. 1.23 Prepared terrazzo mortar mix accurately. 1.24 Prepared tiling grout correctly. 1.25 Marked wall reference points accurately. 1.26 Applied terrazzo finish appropriately. 1.27 Cured finished surfaces appropriately. 1.28 Smoothened terrazzo surface effectively. 1.29 Applied tiles correctly. 1.30 Grouted tile joints correctly. 1.31 Jointed and pointed masonry walls correctly. 1.32 Plumbed and aligned joints and points correctly. 1.33 Identifiedfacing materials and suppliescorrectly.

	1.34 Fixed masonry wall facings correctly. 1.35 Plumbed and aligned masonry wall facings correctly. 1.36 Cured faced masonry wall appropriately. 1.37 Demonstrated understanding of masonry works finishes.
2. Resource Implications	The following resources must be provided: 2.1A functional workshop with appropriately masonry tools, equipment, materials and supplies. 2.2References and manuals including construction working drawings 2.3Personal protective equipment
3. Methods of Assessment	Competency may be assessed through: 3.1Observation 3.2Oral 3.3Written 3.4Third party report 3.5Portfolio
4. Context of Assessment	Assessment may be done: 4.1On-the-job, 4.2Off-the-job or 4.3During Work placement.
5. Guidance Information for Assessment	The unit may be assessed alone or together with other related units.

PRODUCE MASONRY CONSTRUCTION UNITS

UNIT CODE: CON/OS/MA/CR/04/4A

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.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace function.	**PERFORMANCE CRITERIA** These are assessable statements which specify the required level of performance for each of the elements. ***Bold and italicized terms are elaborated in the Range***
1. Interpret working drawings	1.1 Working drawings are identified based on their features and title block**.** 1.2 Scale of the drawing is read based on the drawing. 1.3 Measurements are converted based on best practice. 1.4 Symbols are identified based on working drawings standards.
2. Estimate and costmaterials and supplies	2.1 ***Materials and supplies***required for production ofconstruction unitsare identified based on the working drawings and specifications. 2.2 Schedule of materials and suppliesis prepared based on the drawings and specifications. 2.3 Materials and supplies are estimated and costed based on working drawings and specifications.
3.Produce clay masonry units	3.1 Required ***tools and equipment*** for production of clay masonry units are identified based on the working drawings and specifications. 3.2 Tools and equipment are used and maintained based on manufacturers' instructions. 3.3 Required ***PPEs***are identified and used based on job requirements and manufacturers' instructions. 3.4 Materials and supplies for production of clay masonry units are identified based on specifications.

	3.5 Clay mix is prepared based on best practice. 3.6 Clay moulds are assembled and prepared as per standard procedure. 3.7 Moulding is carried out and products allowed to dry as per standard procedure. 3.8 Dry products are arranged in a kiln in readiness for firing as per best practice. 3.9 Firing is carried out as per best practice. 3.10 ***Fired clay products*** are harvested, sorted and stored as per best practice.
4. Produce concrete masonry units	4.1 Required ***tools and equipment*** for production of concrete masonry units are identified based on the working drawings and specifications. 4.2 Tools and equipment are used and maintained based on manufacturers' instructions. 4.3 Required ***PPEs***are identified and used based on job requirements and manufacturers' instructions. 4.4 Materials and supplies for production of concrete masonry units are identified based on specifications. 4.5 Concrete mix is prepared based on specifications. 4.6 Concrete moulds are assembled and prepared as per standard procedure. 4.7 Moulding is carried out and productscuredas per standard procedure. 4.8 ***Concrete masonry units*** are sorted, arranged and stored as per best practice.
5. Produce hand dressed stones	5.1 Required ***tools and equipment*** for production of hand dressed masonry units are identified based on the working drawings and specifications. 5.2 Tools and equipment are used and maintained based on manufacturers' instructions. 5.3 Required ***PPEs***are identified and used based on job requirements and manufacturers' instructions. 5.4 Stones for production of hand dressed masonry units are identified based on specifications. 5.5 Stones are dressed based on working drawings and specifications. 5.6 Dressed stones are sorted based on size and job requirements

6. Produce stabilized soil masonry units	6.1 Required ***tools and equipment*** for production of stabilized soil masonry units are identified based on the working drawings and specifications. 6.2 Tools and equipment are used and maintained based on manufacturers' instructions. 6.3 Required ***PPEs***are identified and used based on job requirements and manufacturers' instructions. 6.4 Moulding machine/boxes are assembled and prepared based on standard procedure. 6.5 Materials are mixed based on best practice and job specification. 6.6 ***Stabilized soil masonry units***are moulded, arranged and cured as per standard procedure. 6.7 Stabilized soil masonry unitsare sorted based on quality.

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variables	**Range**
1. Supplies and Materials may include but not limited to:	Clay masonry units • Water • Clay soil • Grass • Used oil • Moulds Concrete masonry units • Ballast • Quarry dust • Cement • Sand • Water • Wire mesh • Reinforcement bars • Mould • Used oil Stabilized soil masonry units • Cement • Water

	• Soil • Sisal • Mould • Used oil Quarry stones • Bush • Smooth • medium
2. Masonry tools and equipment	• Mason square • Trowels • Spades • Wheel barrow • Dumper • Float • Hawk • Concrete mixer • Vibrator • Compactor • Hammer • Mattock • Machete • Buckets • Mixing platform • Hose Pipe • Drum • Moulding boxes • Molding machine • Chisels
3. Personal protective equipment may include but not limited to:	• Hard hat / helmet • Dust mask • Goggles • Ear plugs / ear muffs • Dust coat / coverall • Gloves • Safety boots • Gum boots • Reflector jackets

4. Concrete masonry units may include but not limited to:	• Paving slabs • Channels • Culverts • Roads kerbs • Wall vents • Vent blocks • Hollow blocks • Solid blocks • Concrete posts • Bollards • Balustrades • Interlocking blocks
5. Fired clay units may include but not limited to:	• Roofing tiles • Wall tiles • Window sills • Bricks • Vents • Louvers
6. Stabilized soil masonry units may include but not limited to:	• Interlocking blocks • Blocks

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- Interpersonal
- Communication
- Drawing
- Interpretation of working drawings
- Problem-solving
- Critical thinking
- Organizing

- Measuring
- Numeracy
- Mortar handling
- Clay mixing and blending
- Mould assembling and preparing
- Soil mixing and blending
- Time management
- Time work
- Concrete materials mixing
- Masonry units handling
- Moulding masonry units
- Tool and equipment handling

Required Knowledge

The individual needs to demonstrate knowledge of:

- Interpretation of drawings and symbols
- Estimate and cost
- Conversion of units
- Measurement
- Safety
- Materials properties
- Mouldassembling and dismantling
- Moulding masonry units techniques
- Finishing techniques
- concrete
- Aggregates
- Soil types
- lime
- Cement types and uses
- Water
- curing of finished masonry units
- Use and maintenance of tools and equipment
- Type of masonry units and its application
- Extraction of materials

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Identified features correctly 1.2 Read Scaled drawing accurately. 1.3 Converted Measurements correctly 1.4 Identified working drawings Symbols appropriately 1.5 Identified Materials and supplies required correctly 1.6 Prepared Schedule of materials and supplies correctly 1.7 Estimated and costed Materials and supplies accurately 1.8 Identified required tools and equipment for production of clay masonry units correctly 1.9 Used and maintained Tools and equipment appropriately 1.10 Identified and used Required PPEs appropriately 1.11 Identified Materials and supplies for production of clayunitscorrectly 1.12 Prepared and mixedclayaccurately. 1.13 Prepared and assembled Clay mouldappropriately 1.14 Moulded and dried clay products appropriately 1.15 Arranged dried products are in a kiln correctly 1.16 Fired clay productsappropriately 1.17 Harvested, sorted and stored Fired clay products appropriately. 1.18 Identified tools and equipmentrequired for production of concrete masonry units correctly 1.19 Identified Materials and supplies for production of concrete masonry units correctly. 1.20 Preparedandmixedconcrete correctly. 1.21 Prepared and assembled concrete mouldappropriately 1.22 Moulded andcuredconcrete products correctly 1.23 Sorted, arranged and stored Concrete masonry products appropriately 1.24 Identified tools and equipment required for production of hand dressed masonry units correctly 1.25 Identified Stones for production of hand dressed masonry units correctly 1.26 Dressed Stones appropriately 1.27 Identified tools and equipment required for production of stabilized soil masonry units correctly 1.28 Prepared and assembled Moulding machine/boxes

	are appropriately. 1.29 Mixed Materials for stabilized soil masonry units correctly 1.30 Moulded, arranged and cured stabilized soil masonry units appropriately. 1.31 Sorted Stabilized soil masonry units appropriately 1.32 Demonstrated understanding of production of masonry construction units
2. Resource Implications	The following resources must be provided: 2.1 A functional workshop with basic masonry tools, equipment, materials and supplies. 2.2 References and manuals including construction working drawings 2.3 Personal protective equipment
3. Methods of Assessment	Competency may be assessed through: 3.1 Observation 3.2 Oral 3.3 Written 3.4 Third party report 3.5 Portfolio
4. Context of Assessment	Assessment may be done: 4.1 On-the-job, 4.2 Off-the-job or 4.3 During Work placement.
5. Guidance information for assessment	The unit may be assessed alone or together with other related units.

END