



THE REPUBLIC OF KENYA

NATIONAL OCCUPATIONAL STANDARDS

FOR

BUILDING ARTISAN (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 of Kenya's development blueprint, Vision 2030 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 of Kenya 2010. A key feature of this policy is the radical change in the design and delivery of the TVET training. This policy document requires that training in TVET 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 programmes.

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 Building(Masonry) Technology Level 4. These Occupational Standards will also be the basis 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 Building and 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, emphasized the need to reform Curriculum development, assessment and certification in TVET. This called for shift to CBET in order 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 Building Sector Skills Advisory Committee (SSAC), have developed these Occupational Standards for a Building Artisan (Masonry) Level 4. These standards will be the basis for development of competency-based Curriculum for Building (Masonry) Technology Level 4.

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 the Council members, Council Secretariat, Building SSAC, expert workers and all those who participated in the development of these Occupational Standards.

CHAIRPERSON, TVET CDACC

ACKNOWLEDGMENT

These Occupational Standards have been designed for competency-based training and has independent units of learning that allow the trainee flexibility in entry and exit. In developing the Curriculum, significant involvement and support was received from various organisations.

I appreciate the funding of the Government of Canada and its implementing partner Colleges and Institutes Canada (CICan) which enabled the development of these standards through the Kenya Education for Employment Program (KEFEP).

I also appreciate the Kisii National Polytechnic and its Canadian technical partners from Vancouver Island University who collaborated to identify industry skills gaps and develop these standards.

I recognize with appreciation the role of industry partners including the National Polytechnic's Industry Advisory Committee and the national Building and Construction Sector Skills Advisory Committee (SSAC) in ensuring that competencies required by the industry are addressed in these standards. I also thank all stakeholders in the sector for their valuable input and all those who participated in the process of developing these standards.

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

CHAIRPERSON

**BUILDING AND CONSTRUCTION INDUSTRY SECTOR SKILLS ADVISORY
COMMITTEE**

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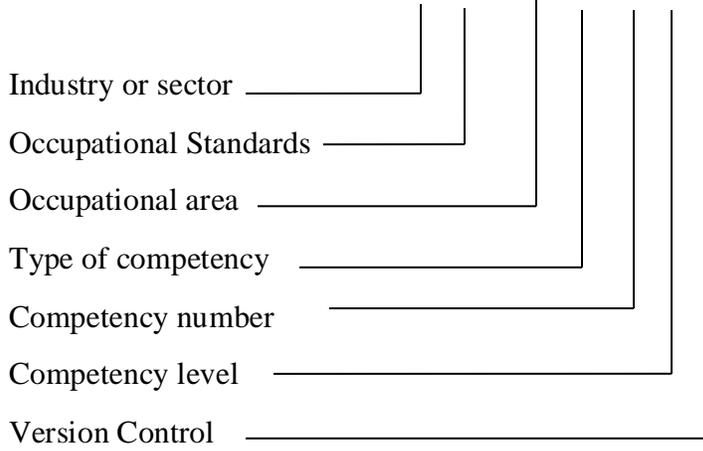
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ABBREVIATIONS AND ACRONYMS

BRC	British Reinforcement Concrete
BS	British Standards
CAD	Computer Aided Design
CCTV	Closed-Circuit Television (Surveillance)
CDACC	Curriculum Development Assessment And Certification Council
CPU	Central Processing Unit
DPM	Damp Proof Membrane
ICT	Information Computer Technology
ICT	Information Computer Technology
PPE	Personal Protective Equipment
TVET	Technical And Vocational Education And Training

KEY TO UNIT CODE

CON/OS/BUT/BC/01/4/A



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OVERVIEW

The present occupational standard presents a coherent and significant set of competencies to acquire in order to perform the occupation of a **Building Artisan (Masonry) - Level 4**. The competency-based approach, used to design the occupational standard, is industry driven and has considered the training needs, the work situation, as well as the goals and the means to implement training units of competencies.

The units of competencies, within the present occupational standard, include a description and a set of elements and performance criteria required to achieve the competency. It also clearly identifies the range for which the performance criteria apply, the required knowledge and skills needed to be considered competent within the unit, and an evidence guide to assist in assessing competence within the unit.

The present occupational standard consists of 15 units of competencies divided in three main lots:

Basic units of learning:

(also known as employability skills or key skills) skills which are not specific to work in a specific occupation or industry, but are important for work, education and life generally, as per the list in the following table:

BASIC UNITS OF COMPETENCY

Unit Code	Unit Title
CON/OS/BUT/BC/01/4/A	Demonstrate Communication Skills
CON/OS/BUT/BC/02/4/A	Demonstrate Numeracy Skills
CON/OS/BUT/BC/03/4/A	Demonstrate Digital Literacy
CON/OS/BUT/BC/04/4/A	Demonstrate Entrepreneurial Skills
CON/OS/BUT/BC/05/4/A	Demonstrate Employability Skills
CON/OS/BUT/BC/06/4/A	Demonstrate Environmental Literacy
CON/OS/BUT/BC/07/4/A	Demonstrate Occupational Safety and Health Practices

COMMON UNITS OF COMPETENCY

Unit Code	Unit Title
CON/OS/BUT/CC/01/4/A	Apply Building Materials Science
CON/OS/BUT/CC/02/4/A	Apply Workshop Technology Practices
CON/OS/BUT/CC/03/4/A	Perform Building Temporary Works

CORE UNITS OF COMPETENCY

Describe the skills, knowledge and attitudes within a competency standard that an industry sector has agreed are essential to be achieved if a person is to be accepted as competent at a particular level. Core competency units are normally those central to work in a particular industry as per the list in the following table:

Unit of Learning Code	Unit of Learning Title
CON/OS/BT/CR/01/4/A	Perform Site Preliminary Works
CON/OS/BT/CR/02/4/A	Perform Substructure Works
CON/OS/BT/CR/03/4/A	Perform Superstructure Works
CON/OS/BT/CR/04/4/A	Perform Building Finishes
CON/OS/BT/CR/05/4/A	Install Building Services

BASIC UNITS OF COMPETENCY

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DEMONSTRATE COMMUNICATION SKILLS

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

UNIT DESCRIPTION

This unit covers the competencies required demonstrate communication skills. It involves obtaining and conveying workplace information, completing relevant work-related documents, communicating information about workplace processes, leading workplace discussion and communicating workplace issues.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
<p>These describe the key outcomes which make up workplace function</p>	<p>These are assessable statements which specify the required level of performance for each of the elements.</p> <p><i>Bold and italicized terms are elaborated in the Range</i></p>
<p>1. Obtain and convey workplace information</p>	<p>1.1 Specific and relevant information is accessed from <i>appropriate sources</i> based on standard procedures</p> <p>1.2 Effective questioning, active listening and speaking skills are used to gather and convey information based on communication needs</p> <p>1.3 Appropriate <i>medium</i> is used to transfer information and ideas in accordance with workplace guidelines</p> <p>1.4 Appropriate non- verbal communication is used as per the communication needs</p> <p>1.5 Appropriate lines of communication with supervisors and colleagues are identified and followed based on workplace requirements</p> <p>1.6 Location and storage of information is undertaken according to workplace procedures</p>
<p>2. Complete relevant work-</p>	<p>1.1 Personal interaction is carried out clearly and concisely according to workplace requirements</p> <p>2.1 Range of forms relating to conditions of employment are completed according to workplace procedures</p>

related documents	<p>2.2 Workplace data is recorded based on workplace requirements</p> <p>2.3 Errors in recording information are identified and acted upon in accordance with workplace policies</p> <p>2.4 Reporting requirements are completed according to organizational guidelines</p>
3. Communicate information about workplace processes	<p>3.1 Information sources are identified according to workplace procedures</p> <p>3.2 Methods of communication are selected based on workplace guidelines</p> <p>3.3 Multiple operations are communicated according to workplace structure</p> <p>3.4 Work-related questions are asked and responded based on set protocols</p> <p>3.5 Information is selected and organized according to workplace requirements</p> <p>3.1 Verbal and written reporting is undertaken as per workplace requirements</p> <p>3.2 Communication is maintained according to workplace standards</p>
4. Lead workplace discussions	<p>4.1 Response to workplace issues is sought and provided as per workplace protocol</p> <p>4.2 Constructive contributions are made based on workplace discussions</p> <p>4.3 Workplace objectives and action plan are communicated according to workplace requirements</p>
5. Identify and communicate issues arising in the workplace	<p>5.1 Issues and problems are identified as per workplace guidelines</p> <p>5.2 Problems and issues in the workplace are organized according to workplace operations</p> <p>5.3 Dialogue is initiated with appropriate personnel as per workplace structure</p> <p>5.4 Problems and issues raised are communicated as per the workplace reporting procedures</p>

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 may include but not limited to:	<ul style="list-style-type: none"> • Non-verbal gestures • Verbal • Face to face • Two-way radio • Speaking to groups • Using telephone • Written • Internet
2. Workplace discussion may include but not limited to:	<ul style="list-style-type: none"> • Coordination meetings • Toolbox discussion • Peer-to-peer discussion

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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
- Active listening
- Interpretation
- Negotiation
- Writing

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
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	<p>1.7 Asked appropriate questions</p> <p>1.8 Provided accurate information</p>
2. Resource Implications	<p>2.1 Access to relevant workplace where assessment can take place</p> <p>2.2 Appropriately simulated environment where assessment can take place</p> <p>2.3 Materials relevant to the proposed activity or tasks</p>
3. Methods of Assessment	<p>3.1 Third-party reports</p> <p>3.2 Portfolio</p> <p>3.3 Interview</p> <p>3.4 Written tests</p> <p>3.5 Observation</p> <p>3.6 Oral questioning</p>
4. Context of Assessment	<p>Competency may be assessed</p> <p>4.1 On the job</p> <p>4.2 Off the job</p> <p>4.3 During industrial attachment</p>
5. Guidance information for assessment	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.</p>

DEMONSTRATE NUMERACY SKILLS

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

UNIT DESCRIPTION

This unit covers the competencies required to demonstrate numeracy skills. It involves identifying and using whole numbers and simple fractions, decimals and percentages for work, identifying, measuring and estimating familiar quantities for work, reading and using familiar maps, plans and diagrams for work, identifying and describing common 2D and some 3D shapes for work, constructing simple tables and graphs for work using familiar data and identifying and interpreting information in familiar tables, graphs and charts for work.

ELEMENTS AND PERFORMANCE CRITERIA

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

<p>2. Identify, measure and estimate familiar quantities for work</p>	<p>2.1 Measurement information in workplace tasks and texts identified and interpreted as per workplace procedures.</p> <p>2.2 Familiar units of measurement needed for tasks is identified as per measurements manuals/charts</p> <p>2.3 Familiar and simple amounts estimated as per workplace procedures.</p> <p>2.4 Appropriate measuring equipment selected as per SOPs</p> <p>2.5 <i>Simple measuring equipment</i> graduated in familiar units to measure relevant quantities is used as per graduation manuals.</p> <p>2.6 Calculation done using familiar units of measurement as per SOPs</p> <p>2.7 Measurements and results checked against estimates as per job specifications.</p> <p>2.8 Results are recorded or reported as per workplace procedures</p> <p>2.9 Results relevant to the workplace task are communicated using informal and some formal mathematical and general language as per workplace procedures.</p>
<p>3. Read and use familiar maps, plans and diagrams for work</p>	<p>3.1 Items and places are in familiar maps, plans and diagrams as per SOPs</p> <p>3.2 Common symbols and keys recognised in familiar maps, plans and diagrams as per SOPs</p> <p>3.3 Understanding of direction and location demonstrated by describing the location of objects, or route to familiar places as per SOPs</p> <p>3.4 Instructions to locate familiar objects or places are given and followed as per SOPs</p> <p>3.5 Informal and some formal oral mathematical language and symbols are used as per SOPs</p>

<p>4. Identify and describe common 2D and some 3D shapes for work</p>	<p>4.1 <i>Common 2D shapes and some common 3D shapes</i> in familiar situations are identified and named as per job requirements</p> <p>4.2 Common 2D shapes and designs are compared and classified as per SOPs</p> <p>4.3 Informal and some formal language used to describe common two-dimensional shapes and some common three-dimensional shapes in accordance with workplace procedures.</p> <p>4.4 Simple items used to draw or construct common 2D shapes as per workplace procedures.</p> <p>4.5 Common 3D shapes matched to their 2D sketches or nets as per SOPs</p>
<p>5. Construct simple tables and graphs for work using familiar data</p>	<p>5.1 Common types of graphs are identified and named as per SOPs</p> <p>5.2 Familiar data to be collected is determined in accordance with job specifications.</p> <p>5.3 A method to collect data is selected in accordance with workplace procedures.</p> <p>5.4 A small amount of simple familiar data is collected as per workplace procedures</p> <p>5.5 One or two variables determined from the data collected as per SOPs.</p> <p>5.6 Data ordered and collated as per standard operating procedures.</p> <p>5.7 A table is constructed and data entered as per SOPs</p> <p>5.8 Graphs are constructed using data from table as per job specifications</p> <p>5.9 Results are promptly checked as per workplace procedures</p> <p>5.10 Graph information related to work is reported or discussed using informal and some formal mathematical and general language as per workplace procedures</p>

<p>6. Identify and interpret information in familiar tables, graphs and charts for work</p>	<p>6.1 Simple tables are identified in familiar texts and contexts in accordance with workplace procedures</p> <p>6.2 Title, headings, rows and columns located in familiar tables as per SOPs</p> <p>6.3 Information and data in simple tables identified and interpreted as per workplace procedures.</p> <p>6.4 Information is related in accordance with workplace tasks</p> <p>6.5 Familiar graphs and charts are identified in familiar texts and contexts as per SOPs</p> <p>6.6 Title, labels, axes, scale and key from familiar graphs and charts are located as per SOPs</p> <p>6.7 Information and data in familiar graphs and charts are identified and interpreted as per job requirements</p> <p>6.8 Information is related to relevant workplace tasks as per job requirements.</p>
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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
<p>1. Simple measuring equipment may include but not limited to:</p>	<ul style="list-style-type: none"> • Rulers • Watches/clocks • Scales • Thermometers • AVO meter
<p>2. Common 2D shapes and common 3D shapes may include but not limited to:</p>	<ul style="list-style-type: none"> • Round • Square • Rectangular • Triangle • Sphere • Cylinder • Cube • Polygons • Cuboids

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:

- Measuring
- Logical thinking
- Computing
- Drawing of graphs
- Applying mathematical formulas
- Analytical

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.

<p>1. Critical aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 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
<p>2. Resource Implications</p>	<ul style="list-style-type: none"> 2.1 Access to relevant workplace where assessment can take place 2.2 Appropriately simulated environment where assessment can take place 2.3 Materials relevant to the proposed activity or tasks
<p>3. Methods of Assessment</p>	<p>Competency may be assessed through:</p> <ul style="list-style-type: none"> 3.1 Written Test 3.2 Interview 3.3 Oral Questioning
<p>4. Context of Assessment</p>	<p>Competency may be assessed</p> <ul style="list-style-type: none"> 4.1 On the job 4.2 Off the job 4.3 During industrial attachment
<p>5. Guidance information for assessment</p>	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.</p>

DEMONSTRATE DIGITAL LITERACY

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

UNIT DESCRIPTION

This unit covers the competencies required to demonstrate digital literacy in a working environment. It entails identifying computer software and hardware, applying security measures to data, hardware, software, applying computer software in solving tasks and applying internet and email in communication at workplace.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make up workplace function	These are assessable statements which specify the required level of performance for each of the elements. <i>Bold and italicized terms are elaborated in the Range</i>
1. Identify computer software and hardware	1.1 <i>Appropriate computer software</i> is identified according to manufacturer's specification 1.2 <i>Appropriate computer hardware</i> is identified according to manufacturer's specification
2. Apply security measures to data, hardware, software	2.1 <i>Data security and privacy are classified</i> in accordance with the technological situation 2.2 <i>Security and control measures</i> are applied in accordance with laws governing protection of ICT 2.3 Computer threats and crimes are detected as per information security management guidelines. 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
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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
1. Appropriate computer software may include but not limited to:	<ul style="list-style-type: none"> • Operating system • MS office • Web browser • Media players
2. Appropriate computer hardware may include but not limited to:	<ul style="list-style-type: none"> • Computer Case • Monitor • Keyboard • Mouse • Hard Disk Drive • Motherboard • Video Card
3. Data security and privacy may include but not limited to:	<ul style="list-style-type: none"> • Confidentiality • Cloud computing • Confidentiality • Cyber terrorism • Integrity -but-curious data serving
4. Security and control measures may include but not limited to:	<ul style="list-style-type: none"> • Countermeasures and risk reduction • Cyber threat issues • Risk management

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
- Interpretation
- Typing
- Communication
- Computing

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.

<p>1. Critical Aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 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
<p>2. Resource Implications</p>	<ul style="list-style-type: none"> 2.1 Access to relevant workplace where assessment can take place 2.2 Appropriately simulated environment where assessment can take place 2.3 Materials relevant to the proposed activity or tasks
<p>3. Methods of Assessment</p>	<p>Competency may be assessed through:</p> <ul style="list-style-type: none"> 3.1 Written tests 3.2 Practical assignment 3.3 Interview 3.4 Oral Questioning 3.5 Observation
<p>4. Context of Assessment</p>	<p>Competency may be assessed</p> <ul style="list-style-type: none"> 4.1 On the job 4.2 Off the job 4.3 During industrial attachment

5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.
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DEMONSTRATE ENTREPRENEURIAL SKILLS

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

UNIT DESCRIPTION

This unit covers the competencies required demonstrate entrepreneurial skills. It involves creating and maintaining small scale business, establishing small scale business customer base, managing small scale business and growing/ expanding small scale business.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
<p>These describe the key outcomes which make up workplace function.</p>	<p>These are assessable statements which specify the required level of performance for each of the elements.</p> <p><i>Bold and italicized terms are elaborated in the Range</i></p>
<p>1. Create and maintain small scale business</p>	<p>1.1 Generation and evaluation of business ideas is undertaken in accordance with the existing procedure</p> <p>1.2 Competencies are matched with business opportunities in accordance with business practices.</p> <p>1.3 Procedure for starting a small business is identified as per the legal requirements</p> <p>1.4 SWOT/ PESTEL analysis and or industrial survey is carried out according to office procedures</p> <p>1.5 <i>Business operations</i> are monitored and controlled following established procedures.</p> <p>1.6 Quality assurance measures are implemented in accordance with the business practices.</p> <p>1.7 Good relations are maintained with staff/workers as per the workplace policies.</p> <p>1.8 Policies and procedures on occupational safety and health and environmental concerns are constantly observed as per the workplace policies</p>
<p>2. Establish small scale</p>	<p>2.1 Good customer relations are maintained in accordance with office procedures</p>

business customer base	<p>2.2 New customers and markets are identified, explored and reached out to according to the marketing plan</p> <p>2.3 Promotions/Incentives are offered to loyal customers in accordance with office procedures</p> <p>2.4 Additional products and services are evaluated and tried in accordance with marketing strategy</p> <p>2.5 Customer record is maintained in accordance with office procedures</p>
3. Manage small scale business	<p>3.1 Enterprise is built up and sustained in line with judicious control of cash flows.</p> <p>3.2 Profitability of enterprise is ensured as per the internal controls.</p> <p>3.3 Unnecessary or lower-priority expenses and purchases are avoided as per the marketing strategy</p> <p>3.4 Basic cost-benefit analysis are undertaken in accordance with office procedures</p> <p>3.5 Basic financial management are undertaken in accordance with office procedures</p> <p>3.6 Basic financial accounting in undertaken in accordance with office procedures</p> <p>3.7 Business <i>internal controls</i> are implemented in accordance with office procedure</p> <p>3.8 Setting business priorities and strategies is carried out according to office procedures</p> <p>3.9 Preparation and interpretation of basic financial statements is undertaken in accordance with set procedures</p> <p>3.10 Preparation of business plans for small business is undertaken in accordance with <i>business strategy</i></p> <p>3.11 Business Social Responsibility is maintained in accordance with Standard Operations Procedures (SOP)</p>
4. Grow/ expand small scale business	<p>4.1 Prepared business growth strategy for small sale business in accordance with office procedures</p> <p>4.2 Incorporated technology in small scale business growth in accordance with technological trends</p> <p>4.3 Emerging issues and trends are considered in accordance with business growth strategy</p>

	<p>4.4 Built audience interest in product/service according to growth strategy</p> <p>4.5 Boosted cooperate communication according to business <i>communication strategy</i></p>
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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. Business operations may include but not limited to:	<ul style="list-style-type: none"> • Purchasing • Accounting/administrative • Work production/operations/sales • Marketing
2. Internal control may include but not limited to:	<ul style="list-style-type: none"> • Accounting systems • Financial statements/reports • Cash management • Human resource management
3. Business Strategy may include but not limited to:	<ul style="list-style-type: none"> • Management of wastages • Environmental Conservation
4. Communication strategy may include but not limited to:	<ul style="list-style-type: none"> • 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:

- Marketing
- Advertising
- Basic bookkeeping
- Accounting
- Communication

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.

<p>1. Critical aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Demonstrated entrepreneurial skills 1.2 Demonstrate competencies to create a small-scale business 1.3 Demonstrated ability to conceptualize and plan a micro/small business 1.4 Grew customer base for the small-scale business 1.5 Demonstrated ability to manage/operate a micro/small-scale business 1.6 Demonstrated competencies to grow a micro/small-scale business
<p>2. Resource Implications</p>	<p>The following resources should be provided:</p> <ul style="list-style-type: none"> 2.1 Assessment location 2.2 Case studies on micro/small-scale enterprises 2.3 Assessment materials
<p>3. Methods of Assessment</p>	<p>Competency in this unit may be assessed through:</p> <ul style="list-style-type: none"> 3.1 Written tests 3.2 Observation 3.3 Oral questioning 3.4 Portfolio 3.5 Projects
<p>4. Context of Assessment</p>	<p>Competency may be assessed</p> <ul style="list-style-type: none"> 4.1 On the job 4.2 Off the job 4.3 During industrial attachment
<p>5. Guidance information for assessment</p>	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.</p>

DEMONSTRATE EMPLOYABILITY SKILLS

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

UNIT DESCRIPTION

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

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
<p>These describe the key outcomes which make up workplace function.</p>	<p>These are assessable statements which specify the required level of performance for each of the elements.</p> <p><i>Bold and italicized terms are elaborated in the Range</i></p>
<p>1. Conduct self-management</p>	<p>1.1 Personal vision, mission and goals are formulated based on potential and in relation to organization objectives</p> <p>1.2 Emotional intelligence is demonstrated as per workplace requirements.</p> <p>1.3 Individual performance is evaluated and monitored according to the agreed targets.</p> <p>1.4 Assertiveness is developed and maintained based on the requirements of the job.</p> <p>1.5 Accountability and responsibility for own actions are demonstrated based on workplace instructions.</p> <p>1.6 Self-esteem and a positive self-image are developed and maintained based on values.</p> <p>1.7 Time management, attendance and punctuality are observed as per the organization policy.</p> <p>1.8 Goals are managed as per the organization's objective</p> <p>1.9 Self-strengths and weaknesses are identified based on personal objectives</p>

<p>2. Demonstrate critical safe work habits</p>	<p>2.1. Stress is managed in accordance with workplace policy.</p> <p>2.2. Punctuality and time consciousness is demonstrated in line with workplace policy.</p> <p>2.3. Personal objectives are integrated with organization goals based on organization's strategic plan.</p> <p>2.4. Resources are utilized in accordance with workplace policy.</p> <p>2.5. Work priorities are set in accordance to workplace goals and objectives.</p> <p>2.6. Leisure time is recognized and utilized in line with personal objectives.</p> <p>2.7. Drugs and substances of abuse are identified and avoided based on workplace policy.</p> <p>2.8. HIV and AIDS prevention awareness is demonstrated in line with workplace policy.</p> <p>2.9. Safety consciousness is demonstrated in the workplace based on organization safety policy.</p> <p>2.10. Emerging issues are identified and dealt with in accordance with organization policy.</p>
<p>3. Demonstrate workplace learning</p>	<p>3.1 Learning opportunities are sought and managed based on job requirement and organization policy.</p> <p>3.2 Improvement in performance is demonstrated based on courses attended.</p> <p>3.3 Application of learning is demonstrated in both technical and non-technical aspects based on requirements of the job</p> <p>3.4 Time and effort is invested in learning new skills based on job requirements</p> <p>3.5 Initiative is taken to create more effective and efficient processes and procedures in line with workplace policy.</p> <p>3.6 New systems are developed and maintained in accordance with the requirements of the job.</p> <p>3.7 Awareness of personal role in workplace innovation is demonstrated based on requirements of the job.</p>
<p>4. Demonstrate workplace ethics</p>	<p>4.1 Policies and guidelines are observed as per the workplace requirements</p> <p>4.2 Self-worth and professionalism is exercised in line with personal goals and organizational policies</p>

	4.3 Code of conduct is observed as per the workplace requirements
	4.4 Integrity is demonstrated as per legal requirement

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
1. Personal objectives may include but not limited to:	<ul style="list-style-type: none"> • Long term • Short term • Broad • Specific
2. Feedback may include but not limited to:	<ul style="list-style-type: none"> • Verbal • Written • Informal • Formal
3. Team may include but not limited to:	<ul style="list-style-type: none"> • Small work group • Staff in a section/department • Inter-agency group
4. Drug and substance abuse may include but not limited to:	<ul style="list-style-type: none"> • Alcohol • Tobacco • Miraa • Over-the-counter drugs • Cocaine • Bhang • Glue
5. Emerging issues may include but not limited to:	<ul style="list-style-type: none"> • Terrorism • Social media • National cohesion • Open offices
6. Range of media for learning may include but not limited to:	<ul style="list-style-type: none"> • Mentoring • peer support and networking

	<ul style="list-style-type: none"> • IT and courses
7. Innovation may include but not limited to:	<ul style="list-style-type: none"> • New ideas • Original ideas • Different ideas • Methods/procedures • Processes • New tools

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
- Interpersonal
- Critical thinking
- Observation
- Organizing
- Record keeping
- Problem solving
- Decision Making
- Resource utilization

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
- Record keeping
- Workplace problems and how to deal with them
- Assertiveness
- Team work
- HIV and AIDS
- Drug and substance abuse
- Safe work habits
- Professional growth and development
- Technology in the workplace
- 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 Competency	Assessment requires evidence that the candidate: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 2.1. Access to relevant workplace where assessment can take place 2.2. Appropriately simulated environment where assessment can take place
3. Methods of Assessment	Competency in this unit may be assessed through: <ul style="list-style-type: none"> 3.1 Oral questioning

	<p>3.2 Portfolio of evidence</p> <p>3.3 Third Party Reports</p> <p>3.4 Written tests</p>
4. Context of Assessment	<p>Competency may be assessed:</p> <p>4.1 On-the-job</p> <p>4.2 Off-the-job</p> <p>4.3 During Industrial attachment</p>
5. Guidance information for assessment	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.</p>

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DEMONSTRATE ENVIRONMENTAL LITERACY

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

UNIT DESCRIPTION

This unit specifies the competencies required to demonstrate environmental literacy. It involves controlling environmental hazard, controlling environmental pollution, demonstrating sustainable resource use and evaluating current practices in relation to resource usage.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make up workplace function.	These are assessable statements which specify the required level of performance for each of the elements. <i>Bold and italicized terms are elaborated in the Range</i>
1. Control environmental hazard	1.1 Storage methods for environmentally hazardous materials are followed according to environmental regulations and OSHS. 1.2 Disposal methods of hazardous wastes are followed according to environmental regulations and OSHS. 1.3 <i>PPE</i> is used according to OSHS.
2. Control environmental pollution	2.1 <i>Environmental pollution control measures</i> 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 use of resource s	3.1 Methods for minimizing wastage are complied with. 3.2 <i>Waste management procedures</i> 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 <i>systems and procedures</i> are collected and provided as per work groups/sector 4.2 <i>Current resource usage</i> is measured and recorded as per work group/sector 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.
5. Identify environmental legislations/conventions for environmental concerns	5.1 Environmental legislations/conventions and local ordinances are identified according to the different environmental aspects/impact 5.2 Industrial standard/environmental practices are described according to the different environmental concerns

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:	<ul style="list-style-type: none"> • Masks • Gloves • Goggles • Safety hat • Overall • Hearing protector • Safety boots

2. Environmental pollution control measures may include but are not limited to:	<ul style="list-style-type: none"> • Methods for minimizing or stopping spread and ingestion of airborne particles • Methods for minimizing or stopping spread and inhaling gases and fumes • Methods for minimizing or stopping spread and ingestion of liquid wastes
3. Waste management procedures may include but are not limited to:	<ul style="list-style-type: none"> • Sorting • Storing of items • Recycling of items • Disposal of items • Handling • Transport
4. Current resources usage may include but are not limited to:	<ul style="list-style-type: none"> • Electric • Water • Fuel • Telecommunications • Supplies • Materials

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:

- Measuring
- Recording
- Analytical
- Monitoring
- Writing
- Communication

Required Knowledge

The individual needs to demonstrate knowledge of:

- Storage methods of environmentally hazardous materials

- Disposal methods of hazardous wastes
- Usage of PPE Environmental regulations
- OSHS
- Types of pollution
- Environmental pollution control measures
- Different solid wastes
- Solid waste management
- Different noise pollution
- Methods of minimizing noise pollution
- Solid Waste Act
- Methods of minimizing wastage
- Waste management procedures
- Economizing of resource consumption
- 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

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: <ul style="list-style-type: none"> 1.1 Controlled environmental hazards 1.2 Controlled environmental pollution 1.3 Demonstrated sustainable resource use 1.4 Evaluated current practices in relation to resource usage
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<p>2. Resource Implications</p>	<p>The following resources should be provided:</p> <ul style="list-style-type: none"> 2.1 Workplace with storage facilities 2.2 Tools, materials and equipment relevant to the tasks (e.g. cleaning tools, cleaning materials, trash bags, etc.) 2.3 PPEs 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
<p>3 Methods of Assessment</p>	<p>Competency in this unit may be assessed through:</p> <ul style="list-style-type: none"> 3.1 Observation 3.2 Oral questioning 3.3 Written tests 3.4 Third party reports 3.5 Portfolio
<p>4 Context of Assessment</p>	<p>Competency may be assessed:</p> <ul style="list-style-type: none"> 4.1 On the job 4.2 Off the job 4.3 During industrial attachment
<p>5 Guidance information for assessment</p>	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.</p>

DEMONSTRATE OCUPATIONAL SAFETY AND HEALTH PRACTICES

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

UNIT DESCRIPTION

This unit specifies the competencies required to practice safety and health and comply with OSH requirements relevant to work. It involves observing workplace procedures for hazards and risk prevention and participating in arrangements for workplace safety and health maintenance.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make up workplace function.	These are assessable statements which specify the required level of performance for each of the elements. <i>Bold and italicized terms are elaborated in the Range</i>
1. Adhere to workplace procedures for hazards and risk prevention	1.1 Arrangement of work area and items in accordance with workplace procedures requirements 1.2 Work standards and procedures are followed based on instructions 1.3 <i>Prevention and control measures</i> are applied based on instructions
2. Participate in arrangements for workplace safety and health maintenance	2.1 Orientations on <i>OSH requirements and regulations</i> is undertaken in line with policy. 2.2 Feedback on occupational health and safety are provided as per workplace instructions. 2.3 Workplace procedures for reporting hazards, incidents, injuries and sickness are adhered to as per workplace policy. 2.4 <i>OSH-related training needs</i> are identified and proposed 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
1. Prevention and control measures may include but are not limited to:	<ul style="list-style-type: none">• Eliminate the hazard• Isolate the hazard• Substitute the hazard with a safer alternative• Use administrative controls to reduce the risk• Use engineering controls to reduce the risk• Use personal protective equipment• Safety, Health and Work Environment Evaluation• Periodic and/or special medical examinations of workers
2. Safety gears /PPE (Personal Protective Equipment's) may include but are not limited to:	<ul style="list-style-type: none">• Arm/Hand guard, gloves• Eye protection (goggles, shield)• Hearing protection (ear muffs, ear plugs)• Hair Net/cap/bonnet• Hard hat• Face protection (mask, shield)• Apron/Gown/coverall/jump suit• Anti-static suits• High-visibility reflective vest
3. Incidents and emergencies may include but are not limited to:	<ul style="list-style-type: none">• Chemical spills• Equipment/vehicle accidents• Explosion• Fire• Gas leak• Injury to personnel• Structural collapse• Toxic and/or flammable vapors emission.

4. OSH requirements / regulations may include but are not limited to:	<ul style="list-style-type: none"> • Building code • Permit to Operate
5. OSH-related trainings may include but are not limited to:	<ul style="list-style-type: none"> • Safety Orientations relevant to tasks • Safe and Correct Operation of Tools and Equipment • Health Orientations/trainings • Prevention and Control of OSH Hazards in the workplace • Chemical Handling • Safety Trainings • Prevention and Control of Work-related Injuries and Illness • Basic First-aid Trainings • Emergency Response Trainings • 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
- Knowledge management
- Collaborating
- Interpersonal
- Troubleshooting
- Critical thinking
- Observation

Required Knowledge

The individual needs to demonstrate knowledge of:

- General OSH principles and legislations
- Principles of good housekeeping (5S)

- Company/workplace policies/ guidelines
- Standards and safety requirements of work process and procedures
- Standard Workplace emergency plan and 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

<p>1. This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range. Critical Aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <ol style="list-style-type: none"> 1.1. Arranged work area and items in accordance with 1.2. workplace procedures requirements 1.3. Followed work standards and procedures based on instructions 1.4. Applied <i>Prevention and control measures</i> based on instructions 1.5. Undertook orientations on <i>OSH requirements and regulations</i> in line with policy. 1.6. Provided feedback on occupational health and safety as per workplace instructions. 1.7. Adhered to workplace procedures for reporting hazards, incidents, injuries and sickness to as per workplace policy. 1.8. Identified and proposed <i>OSH-related training needs</i> as per workplace policy.
<p>2. Resource Implications</p>	<p>The following resources should be provided:</p> <ol style="list-style-type: none"> 2.1 Access to relevant workplace where assessment can take place 2.2 Appropriately simulated environment where assessment can take place
<p>3. Methods of Assessment</p>	<p>Competency in this unit may be assessed through:</p> <ol style="list-style-type: none"> 3.1 Oral questioning 3.2 Portfolio of evidence 3.3 Third Party Reports 3.4 Written tests

4. Context of Assessment	Competency may be assessed: 4.1 On-the-job 4.2 Off-the –job 4.3 During Industrial attachment
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

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COMMON UNITS OF COMPETENCY

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APPLY BUILDING MATERIALS SCIENCE

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

UNIT DESCRIPTION

This unit describes the competence in applying building materials science. It involves identifying essential construction materials, identifying properties of construction materials, and demonstrating knowledge in use and handling of construction materials.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make up workplace function	These are assessable statements which specify the required level of performance for each of the elements. <i>Bold and italicized terms are elaborated in the Range</i>
1 Identify properties of construction materials	1.1 <i>Physical properties</i> of construction materials are identified based on the type of construction material and codes of practice 1.2 <i>Chemical properties</i> of construction materials are identified based on the type of construction material and codes of practice 1.3 <i>Mechanical properties</i> of construction materials are identified based on the type of construction material and codes of practice
2 Use construction materials appropriately	2.1 Construction materials, tools and equipment are assembled based on construction methods 2.2 Construction materials are used based on construction process
3 Handle construction materials safely	3.1 Construction materials to be handled are identified 3.2 Safety requirements are identified based on the construction materials 3.3 Construction materials are handled safely based on the safety requirements

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. Construction materials may include but is not limited to:	<ul style="list-style-type: none"> • stones • bricks • clay and clay products • lime • cement • timber and timber products • metals and alloys • roofing materials
2. physical properties may include but is not limited to:	<ul style="list-style-type: none"> • porosity • surface texture • strength • density • thermal conductivity • wear and tear
3. chemical properties may include but is not limited to:	<ul style="list-style-type: none"> • corrosion resistance • chemical resistance
4. Mechanical properties may include but is not limited to:	<ul style="list-style-type: none"> • Toughness • Hardness • Fatigue • Stress and strain • Creep and stress rapture

REQUIRED KNOWLEDGE

- Construction materials
- Quality assurance
- Materials handling safety procedures

SKILLS

- Analytical
- Quality control analysis
- Critical thinking

- Drawings interpretation

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 properties of construction materials 1.2 Appropriately used construction materials 1.3 Handled construction materials safely
2. Resource Implications	The following resources should be provided: 2.1 Samples of construction materials 2.2 Safety equipment
3. Methods of Assessment	Competency may be assessed through: 3.1 Written assignments 3.2 Written Exams 3.3 Practical projects 3.4 Practical exams 3.5 Oral questioning 3.6 Observation of work procedures
4. Context of Assessment	Competency may be assessed 4.1 On the Job, 4.2 Off the Job 4.3 During Industrial Attachment.
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

APPLY WORKSHOP TECHNOLOGY PRACTICES

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

UNIT DESCRIPTION

This unit describes the competence in applying workshop technology practices. It entails performing masonry, plumbing and carpentry tasks.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
<p>These describe the key outcomes which make up workplace function</p>	<p>These are assessable statements which specify the required level of performance for each of the elements.</p> <p><i>Bold and italicized terms are elaborated in the Range</i></p>
<p>1 Perform masonry tasks</p>	<p>1.1 Safety requirements in the workshop environment are identified</p> <p>1.2 <i>Masonry hand tools</i> are used appropriately to perform tasks in masonry workshop</p> <p>1.3 <i>Masonry machine tools</i> are used appropriately to perform tasks in masonry workshop</p> <p>1.4 Masonry tools used in construction works are maintained as per manufacturer's specifications</p>
<p>2 Perform plumbing tasks</p>	<p>2.1 Safety requirements in the workshop environment are identified</p> <p>2.2 <i>Plumbing hand tools</i> are used appropriately to perform tasks in plumbing workshop</p> <p>2.3 <i>Plumbing machine tools</i> are used appropriately to perform tasks in plumbing workshop</p> <p>2.4 Plumbing tools used in construction works are maintained as per manufacturer's specifications</p>
<p>3 Perform carpentry tasks</p>	<p>3.1 Safety requirements in the workshop environment are identified</p> <p>3.2 <i>Carpentry hand tools</i> are used appropriately to perform tasks in carpentry workshop</p> <p>3.3 <i>Carpentry machine tools</i> are used appropriately to perform tasks in carpentry workshop</p>

3.4 Carpentry tools used in construction works are maintained as per manufacturer's specifications

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. Masonry hand tools may include but is not limited to:	<ul style="list-style-type: none"> • Masons trowel • Wood float • Cold chisels • Masons square • Spade • Shovel • Plumb bob
2. Masonry machine tools may include but is not limited to:	<ul style="list-style-type: none"> • Concrete mixer • Block cutter • Vibrator • Pneumatic hammer • Compactors
3. Plumbing hand tools may include but is not limited to:	<ul style="list-style-type: none"> • Bench shears • Anvil • Pipe wrench • Pliers
4. Plumbing machine tools may include but is not limited to:	<ul style="list-style-type: none"> • Bending machine • Welding • Sheet metal holding machine • Portable power drill • Hand grinder
5. Carpentry hand tools may include but is not limited to:	<ul style="list-style-type: none"> • Saws • Planes • Hammer • Carpenter square • Marking gauges

	<ul style="list-style-type: none"> • Hand drill • Screw drivers
6. Carpentry machine tools may include but is not limited to:	<ul style="list-style-type: none"> • Circular saw • Thicknesser • Portable sander • Close cut saw • Portable drill machine
7. Conventional tools may include but is not limited to:	<ul style="list-style-type: none"> • Screw driver • Pliers • Long nose • Side cutter

REQUIRED KNOWLEDGE

- Tools and equipment
- Safety regulations
- Mathematics
- Plumbing
- Masonry
- Mortar mixing
- Carpentry and joinery

SKILLS

- Analytical
- Critical thinking
- Problem solving
- Quality control

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	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Identified safety requirements in the workshop environment</p> <p>1.2 Performed masonry tasks</p> <p>1.3 Performed plumbing tasks</p> <p>1.4 Performed carpentry tasks</p> <p>1.5 Appropriately used workshop tools</p>
2. Resource Implications	The following resources should be provided:

	<ul style="list-style-type: none"> 2.1 Practical projects 2.2 Observation of work procedures
3. Methods of Assessment	<p>Competency may be assessed through:</p> <ul style="list-style-type: none"> 3.1 Written text 3.2 Interview 3.3 Observation
4. Context of Assessment	<p>Competency may be assessed</p> <ul style="list-style-type: none"> 4.1 On job 4.2 Off job 4.3 During Industrial Attachment.
5. Guidance information for assessment	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.</p>

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PERFORM BUILDING TEMPORARY WORKS

UNIT CODE: CON/OS/BUT/CC/03/4/A

UNIT DESCRIPTION

This Unit describes the competencies required to perform building temporary works. It involves constructing and dismantling trench timbering, constructing and dismantling building formwork/shuttering, erecting and dismantling building scaffolding, and erecting and dismantling building shores.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make up workplace function	These are assessable statements which specify the required level of performance for each of the elements. <i>Bold and italicized terms are elaborated in the Range</i>
1. Construct and dismantle trench timbering	1.1 Personal protective equipment is selected, fitted and used according to safety rules and regulations 1.2 Trench timbering is constructed as per <i>soil type</i> and site topography 1.3 Trench timbering is dismantled according to site procedures and critical structural safety requirements
2. Construct and dismantle building formwork/shuttering	2.1 Personal protective equipment is selected, fitted and used according to safety rules and regulations 2.2 <i>Formwork type</i> is erected according to the structural element to be cast 2.3 Oiling of timber formwork surface is carried out for easy dismantling after concrete setting 2.4 Formwork is fixed into position in accordance with the construction rules and regulations 2.5 Formwork is dismantled according to site procedures and critical structural safety requirements
3. Erect and dismantle building scaffold	3.1 <i>Personal protective equipment</i> is selected, fitted and used according to safety rules and regulations and job specifications 3.2 Scaffolds are erected to plan according to safe work practices and engineers' specifications

	<p>3.3 Scaffolds are dismantled according to engineers' specifications, site procedures and critical structural safety requirements</p> <p>3.4 Site cleaned and cleared of all tools, excess material and waste</p>
4. Erect and dismantle building shores	<p>4.1 Personal protective equipment is selected, fitted and used according to safety rules and regulations</p> <p>4.2 Shoring is erected as per site conditions and building construction rules and regulations</p> <p>4.3 Shoring is dismantled according to site procedures and critical structural safety requirements</p>

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. Soil type may include but is not limited to:	<ul style="list-style-type: none"> • unconsolidated soils • consolidated soils
2. Formwork material may include but is not limited to:	<ul style="list-style-type: none"> • Timber • Metal plates • Plastic
3. Formwork type may include but is not limited to:	<ul style="list-style-type: none"> • column formwork • beam formwork • Slab formwork • staircase formwork
4. Personal protective equipment	<ul style="list-style-type: none"> • Helmets • Safety boots • Gloves • Overall • Reflectors

REQUIRED KNOWLEDGE AND SKILLS

Knowledge

- Measurement
- Formwork
- Scaffolding

- Soil properties
- Wall construction
- Trench excavation
- Basic arithmetic
- Technical drawings

Skills

- Measurement skills
- Basic mathematic skills
- Reading skills
- Communication skills
- Problem solving skills
- Critical thinking
- Construction tools handling skills

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 Erected and dismantled building scaffolds 1.2 Constructed and dismantled building formwork/shuttering 1.3 Constructed and dismantled trench timbering 1.4 Erected and dismantled building shores 1.5 Observed occupational health and safety procedures to create a safe working environment
2. Resource Implications	The following resources should be provided: 2.1 Training workshops 2.2 Construction tools and equipment 2.3 Occupational Safety and health manuals 2.4 Construction manuals 2.5 Reference textbooks 2.6 Qualified trainers 2.7 Personal protective equipment
3. Methods of Assessment	Competency may be assessed through: 3.1 Written assignments 3.2 Written Exams 3.3 Practical projects

	<p>3.4 Practical exams</p> <p>3.5 Oral questioning</p> <p>3.6 Observation of work procedures</p>
4. Context of Assessment	<p>Competency may be assessed</p> <p>4.1 On job</p> <p>4.2 Off job</p> <p>4.3 During industrial Attachment.</p>
5. Guidance information for assessment	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.</p>

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CORE UNITS OF COMPETENCIES

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PERFORM SITE PRELIMINARY WORKS

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

UNIT DESCRIPTION

This Unit describes the competencies required to perform site preliminary works. It involves clearing building site, hoarding/screening the site, and demolishing unwanted structures.

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. Clear and level building site	1.1 Building site is cleared as per set procedures and safety regulations 1.2 Debris disposal is carried out to health and safety regulations 1.3 Building site is levelled to accommodate construction
2. Hoard/screen building site	2.1 Building site is screened/hoarded as per client specifications and safety regulations
3. Basic demolition of unwanted structures	3.1 Hazardous materials are removed according to safety regulations 3.2 Safety procedures are adopted as per the demolition method 3.3 Unwanted structures are demolished and disposed as per set procedures

REQUIRED KNOWLEDGE AND SKILLS

Knowledge

- Occupational safety and health
- Codes of practice
- Construction machines, tools and equipment
- Demolition techniques
- National laws

Skills

- Reading skills
- Communication skills
- Problem solving skills
- Critical thinking
- Construction tools handling skills

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 Cleared and levelled the building site 1.2 Demolished unwanted structures
2. Resource Implications	The following resources should be provided: 2.1 Training workshops 2.2 Construction tools and equipment 2.3 Occupational Safety and health manuals 2.4 Construction materials 2.5 Qualified trainers
3. Methods of Assessment	Competency may be assessed through: 3.1 Written assignments 3.2 Written Exams 3.3 Practical projects 3.4 Practical exams 3.5 Oral questioning 3.6 Observation of work procedures
4. Context of Assessment	Competency may be assessed 4.1 On job 4.2 Off job 4.3 During Industrial Attachment.
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

PERFORM SUBSTRUCTURE WORKS

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

UNIT DESCRIPTION

This unit describes the competences required to perform substructure works. It involves setting out the building, excavating foundation, laying building foundation, erecting foundation and constructing solid ground floor.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make up workplace function	These are assessable statements which specify the required level of performance for each of the elements. <i>Bold and italicized terms are elaborated in the Range</i>
1. Set out the building	1.1 Building drawings are interpreted as per <i>working drawings</i> 1.2 Grounds measurement are taken as per the working drawings 1.3 Position of walls and columns are marked as per foundation plan 1.4 Profile boards are erected and marked as per the plan 1.5 Accuracy of setting out is determined as per architectural and structural details
2. Excavate building foundation	2.1 Foundation is excavated as per working drawings 2.2 Foundation timbering is done as per soil analysis report 2.3 Dewatering is carried out as per <i>dewatering method</i>
3. Lay building foundation	3.1 Foundations levels are taken according to <i>type of foundation</i> and structural specifications 3.2 Foundation blinding is laid according to building specifications 3.3 Foundation formwork is erected as per specifications 3.4 Foundation reinforcement is positioned as per the structural details 3.5 Concreting is carried out according to design requirements
4. Erect foundation walls	4.1 Foundation wall is set out as per working drawing 4.2 Foundation walling is constructed as per structural specifications

5. Construct solid ground floor	5.1 Floor base is levelled and compacted according to building code requirement 5.2 Hard-core layer is laid and compacted as per specifications and building code 5.3 Blinding layer is laid and compacted as per building code 5.4 Anti- termite is sprayed as per building code and manufacturers specifications 5.5 DPM is laid as per building code 5.6 BRC is laid as per building code 5.7 Spacer blocks are positioned as per specifications 5.8 Formwork to edges of slab is erected 5.9 Concrete is placed according to building code
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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. Dewatering method may include but is not limited to:	<ul style="list-style-type: none"> • Sump • Electrol osmosis • Freezing • Furrow • Pumping out
2. Type of foundation may include but is not limited to:	<ul style="list-style-type: none"> • Strip • Pile • Pad • Raft • Piers
3. Working drawings may include but is not limited to:	<ul style="list-style-type: none"> • Architectural • Structural • Plumbing • Mechanical • Electrical • Services • Civil engineering drawings

4. Building code may include but is not limited to:	<ul style="list-style-type: none"> • BS 8110 • BS 449
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REQUIRED KNOWLEDGE

- Surveying/levelling
- Basic arithmetic
- Masonry
- Concrete technology
- Structural reinforcement
- Methods of setting out
- Types of foundations
- Scheduling
- Concreting
- Bar bending and fixing

SKILLS

- Levelling
- Concrete and Mortar mixing
- Wall construction
- Measuring
- Bar bending and fixing
- Computation
- Concreting

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: <ul style="list-style-type: none"> 1.1 Interpreted building drawings 1.2 Recorded ground measurements 1.3 Set building 1.4 Excavated foundation trenches 1.5 Timbered foundation trenches 1.6 Dewatered foundation trenches 1.7 Positioned foundation reinforcement 1.8 Placed foundation concrete
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	<ul style="list-style-type: none"> 1.9 Constructed foundation wall 1.10 Constructed solid ground floor 1.11 Finished substructure works
2. Resource Implications	<p>The following resources should be provided:</p> <ul style="list-style-type: none"> 2.1 Measuring tools 2.2 Working drawing 2.3 Calculator 2.4 Surveying tools 2.5 Masonry tools and equipment 2.6 Timber/steel boards and nails 2.7 Concrete constituents
3. Methods of Assessment	<p>Competency may be accessed through:</p> <ul style="list-style-type: none"> 3.1 Written assignments 3.2 Written Exams 3.3 Practical projects 3.4 Practical exams 3.5 Oral questioning 3.6 Observation of work procedures
4. Context of Assessment	<p>Competency may be assessed</p> <ul style="list-style-type: none"> 4.1 On job 4.2 Off job 4.3 During Industrial Attachment
5. Guidance information for assessment	<p>Holistic assessment with other units relevant to the building sector, workplace and job role is recommended.</p>

PERFORM SUPERSTRUCTURE WORKS

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

UNIT DESCRIPTION

This Unit describes the competencies required to perform superstructure works. It involves setting out and constructing superstructure columns, setting out and erecting superstructure walling, setting and constructing superstructure beams and setting and erecting building roofs

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make up workplace function	These are assessable statements which specify the required level of performance for each of the elements. <i>Bold and italicized terms are elaborated in the Range</i>
1. Set out and construct superstructure columns	1.1 Kickers are positioned and cast as per specifications 1.2 Reinforcement bars are positioned as per structural design drawings 1.3 Column formwork is erected and aligned as per construction regulations 1.4 Concrete is mixed as per design requirements 1.5 Concrete is cast and compacted into forms as per construction regulations
2. Set out and erect superstructure walling	2.1 Wall dimensions and door openings are marked on the solid ground floor according to the design details 2.2 Building wall mortar is prepared as per building codes of practice 2.3 Wall screeding is laid in accordance with the plan layout and construction methods 2.4 Damp proof course is laid as per specifications 2.5 Building wall courses are laid according to prescribed bonding methods , building regulations and design details 2.6 Wall openings are bridged according to building codes and client specification
3. Set and construct superstructure beams	3.1 Beam formwork is constructed as per construction regulations and design dimensions 3.2 Props are erected in accordance to construction regulations

	<p>3.3 Reinforcement bars are positioned as per structural design drawings</p> <p>3.4 Concrete materials are mixed as per design ratio requirements</p> <p>3.5 Mixed concrete is placed and compacted as per construction regulations</p>
4. Set and erect building roof	<p>4.1 Roof truss is constructed according to the building design</p> <p>4.2 Roofing materials are laid according to construction regulations</p>

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. Bonding methods may include but is not limited to:	<ul style="list-style-type: none"> • Stretcher bond • English bond • Flemish bond • Header bond
2. Concrete materials may include but is not limited to:	<ul style="list-style-type: none"> • Cement • Sand • Ballast • Admixtures and additives
3. Roof truss may include but is not limited to:	<ul style="list-style-type: none"> • Timber truss • Steel truss
4. Roofing materials may include but is not limited to:	<ul style="list-style-type: none"> • Tiles • Iron sheets • Concrete • Wood shingles/shakes • any other approved covering materials

REQUIRED KNOWLEDGE AND SKILLS

Knowledge

- Measurement

- Formwork
- Scaffolding
- Wall construction
- Basic arithmetic
- Technical drawings
- Structural design
- Timber properties
- Steel properties
- Plan interpretation
- Occupational safety and health
- Codes of practice
- Roofing materials
- Types of roofs
- Materials science
- Concrete mix ratio
- Construction machines, tools and equipment
- Types of bonds
- Carpentry and joinery
- Waterproofing
- Admixtures and additives

Skills

- Measurement
- Basic mathematic
- Communication
- Problem solving
- Critical thinking
- Construction tools handling
- Bonding
- Bar bending
- Interpreting
- Cutting and fixing

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. Set out and erected superstructure walls 1.2. Constructed columns, beams 1.3. Erected building roof
2. Resource Implications	The following resources should be provided: 2.1 Training/assessment workshops 2.2 Construction tools and equipment 2.3 Occupational Safety and health manuals 2.4 Construction materials 2.5 Qualified trainers
3. Methods of Assessment	Competency may be assessed through: 3.1 Written assignments 3.2 Written Exams 3.3 Practical projects 3.4 Practical exams 3.5 Oral questioning 3.6 Observation of work procedures
4. Context of Assessment	Competency may be assessed 4.1 On job 4.2 Off job 4.3 During industrial attachment
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

PERFORM BUILDING FINISHES

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

UNIT DESCRIPTION

This unit describes the competencies required to perform building finishes. It entails installing door and window frames, applying floor finishes, applying building facings, applying wall finishes, carrying out pointing and jointing, performing rough casting, and paint building surfaces.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make up workplace function	These are assessable statements which specify the required level of performance for each of the elements. <i>Bold and italicized terms are elaborated in the Range</i>
1. Install door and window frames	1.1 <i>Door and window</i> installation tools are assembled 1.2 Door and window openings are prepared for installation 1.3 Doors and windows are installed 1.4 Door and window hardware is installed
2. Apply floor finishes	2.1 Finishing tools and equipment are assembled 2.2 Floor backgrounds are prepared to receive <i>floor finish.</i> 2.3 Floor finish is applied as per client specification and building code
3. Apply building facings	3.1 <i>Facing materials</i> are prepared as per the building code. 3.2 Facing background is prepared. 3.3 Facing are fixed on the prepared background.
4. Apply wall finishes	4.1 Finishing tools and equipment are assembled 4.2 Wall backgrounds are prepared to receive <i>wall finish.</i> 4.3 Wall finish is applied as per client specification and building code
5. Carry out pointing and jointing	5.1 Jointing and pointing materials, tools and equipment are assembled 5.2 Materials for pointing and jointing are prepared 5.3 Pointing and jointing background is prepared

	5.4 Pointing and jointing is carried out as per client specification
6. Perform building rough casting	6.1 Tools and equipment for rough casting are assembled 6.2 Materials for rough casting are selected and prepared depending on rough casting surface 6.3 Background for rough casting is prepared 6.4 Rough cast is applied as per the building code
7. Paint Building Surfaces	7.1 Painting materials are selected as per client specification. 7.2 Painting tools and equipment are assembled as per <i>painting method</i> . 7.3 Painting surface is prepared as per the building code 7.4 Paint is mixed as per client specification and producer specification. 7.5 Paint is applied as per the painting procedure. 7.6 Painted surfaces are protected.

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. Door and window may include but is not limited to:	<ul style="list-style-type: none"> • Wood doors • Metal windows
2. Floor finish may include but is not limited to:	<ul style="list-style-type: none"> • Tiles • Cement sand screed • Terrazzo • Wood parquets • Carpets
3. Facing materials may include but is not limited to:	<ul style="list-style-type: none"> • Bricks • Wooden blocks
4. Wall finish may include but is not limited to:	<ul style="list-style-type: none"> • Wall mastering • Wall lining • Clad building walls
5. Painting method may	<ul style="list-style-type: none"> • Manual

include but is not limited to:	<ul style="list-style-type: none"> • Mechanical
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REQUIRED KNOWLEDGE

- Mortar mixing
- Construction materials
- Building Tools And Equipments
- Safety
- Masonry
- Plastering/rendering

SKILLS

- Door and window installation
- Plastering
- Facing
- Lining
- Pointing and jointing
- Cladding
- Rough casting
- Painting

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	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Assembled tools and equipment 1.2 Prepared backgrounds and openings for finishes 1.3 Install doors and windows 1.4 Plastered walls 1.5 Finished floors 1.6 Faced walls 1.7 Mastered walls 1.8 Lined walls 1.9 Pointed and jointed walls 1.10 Rough casted walls 1.11 Mixed paints 1.12 Painted walls
2. Resource Implications	<p>The following resources should be provided:</p> <ul style="list-style-type: none"> 2.1 Workplace or assessment location 2.3 Masonry tools and equipment

	<p>2.5 Finishing units</p> <p>2.6 Cement</p> <p>2.7 Fine Aggregates</p> <p>2.8 Paints</p>
3. Methods of Assessment	<p>Competency may be assessed through:</p> <p>3.1 Written assignments</p> <p>3.2 Written Exams</p> <p>3.3 Practical projects</p> <p>3.4 Practical exams</p> <p>3.5 Oral questioning</p> <p>3.6 Observation of work procedures</p>
4. Context of Assessment	<p>Competency may be assessed</p> <p>4.1 On job</p> <p>4.2 Off job</p> <p>4.3 During Industrial Attachment.</p>
5. Guidance information for assessment	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.</p>

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INSTALL BUILDING SERVICES

UNIT CODE: CON/OS/BUT/CR/05/4/A

UNIT DESCRIPTION

This Unit describes the competencies required to install building services. It involves installing water supply systems, Sanitary appliances, drainage systems and electrical conduit building and fittings.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make up workplace function	These are assessable statements which specify the required level of performance for each of the elements. <i>Bold and italicized terms are elaborated in the Range</i>
1. Install water supply systems	1.1 Water supply systems drawings are sketched as per architectural and structural drawings 1.2 Water supply systems materials are identified according to plumbing service drawings 1.3 Plumbing tools and equipment are identified as per materials and job requirements 1.4 Water supply systems are fixed according to standard operating procedures
2. Install sanitary appliances	2.1 <i>Sanitary appliances</i> are identified according to plumbing service drawings 2.2 Plumbing tools and equipment are identified as per materials and job requirements 2.3 Sanitary appliances are installed according to manufacturer's specifications
3. Install drainage systems	3.1 Drainage systems drawings are sketched as per architectural and structural drawings 3.2 Drainage systems materials are identified according to plumbing service drawings 3.3 Plumbing tools and equipment are identified as per materials and job requirements 3.4 Drainage systems are fixed according to standard operating procedures

4. Install electrical conduit, tubing and fittings	4.1 Determine <i>installation requirements</i> and select conduit, tubing and fittings 4.2 Determine routing of conduit and tubing 4.3 Measure, cut, thread and bend conduit and tubing 4.4 Assemble, position, mount and support conduit, tubing and fittings 4.5 Determine requirements for removal of existing conduit, tubing and fittings if applicable when performing an upgrade 4.6 Remove conduit, tubing and fittings when replacing and update documentation
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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. Sanitary appliances may include but is not limited to:	<ul style="list-style-type: none"> • Basins • Showers • Water heaters • Water closets
2. Installation requirements may include but is not limited to:	<ul style="list-style-type: none"> • Purpose of the conduit, tubing and fitting • Equipment required for installation, • Installation environment in locations such as hazardous, wet, underground, or outdoor

REQUIRED KNOWLEDGE AND SKILLS

Knowledge

- Measurement
- Survey
- Basic arithmetic
- Plan interpretation
- Occupational safety and health
- Codes of practice
- Environment Act
- Plumbing connections

Skills

- Threading, cutting and fixing
- Pipe bending
- Measurement
- Basic mathematic
- Interpretation
- Communication
- Problem solving
- Critical thinking
- Construction tools handling

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 Sketched simple plumbing services layout 1.2 Installed simple plumbing services 1.3 Tested simple plumbing services 1.4 Installed electrical conduit and tubing
2. Resource Implications	The following resources should be provided: 2.1 Training/assessment workshops 2.2 Construction tools and equipment 2.3 Occupational Safety and health manuals 2.4 Qualified trainers 2.5 Codes of practice
3. Methods of Assessment	Competency may be assessed through: 3.1 Written assignments 3.2 Written Exams 3.3 Practical projects 3.4 Practical exams 3.5 Oral questioning 3.6 Observation of work procedures
4. Context of Assessment	Competency may be assessed 4.1 On job 4.2 Off job 4.3 During Industrial Attachment.
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

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