TECHNICAL & VOCATIONAL EDUCATION & TRAINING

National Competency Standard for Masonry Works
Qualification Code: CON08S09VI

PREFACE

The ADB Loan 2028 MLD, Employment Skills Training Project's (ESTP) objective is to increase the number of Maldivians, men and women, actively participating in the labor force, employed and self-employed. The Project will support the expansion of demand driven employment-oriented skills training in priority occupations and improve the capacity to develop and deliver Competency Based Skill Training (CBST). The Project aims to (i) provide youth with employment-oriented skills training; (ii) improve public perception of training and employment in locally available skills-oriented occupations; (iii) make available employment-related information to more Maldivians; and (iv) strengthen the capacity for labor administration and for labor market analysis.

The objective of the project is to deliver CBST programs to satisfy employer demand-driven needs. The National Competency Standards (NCS) provide the base for this training. Initially training will be focused on five key sectors: tourism, fisheries and agriculture, transport, construction and the social sectors. These sectors are included as priority sectors in the national development plan and play a vital role in the continued economic growth of the country.

The NCS are developed in consultation with Employment Sector Councils representing employers. They are designed using a consensus format endorsed by the Maldives Accreditation Board (MAB) to maintain uniformity of approach and the consistency of content amongst occupations. This single format also simplifies benchmarking the NCS against relevant regional and international standards.

NCS specify the standards of performance of a competent worker and the various contexts in which the work may take place. NCS also describes the knowledge, skills and attitudes required in a particular occupation. They provide explicit advice to assessors and employers regarding the knowledge, skills and attitudes to be demonstrated by the candidates seeking formal recognition for the competency acquired following training or through work experience. By sharing this information, all participants in the training process have the same understanding of the training required and the standard to be reached for certification. Certification also becomes portable and can be recognized by other employers and in other countries with similar standards.

NCS are the foundation for the implementation of the Technical and Vocational Education and Training (TVET) system in Maldives. They ensure that all skills, regardless of where or how they were developed can be assessed and recognized. They also form the foundation for certifying skills in the Maldives National Qualification Framework (MNQF).

NCS are developed by the TVET Section of Ministry of Higher Education, Employment and Social Security. The NCS are endorsed by the Employment Sector Councils of the respective sectors and validated by the Maldives Qualification Authority.

Technical Panel members		
Name	**Designation**	**Company**
Mr. Mohamed Ali Janaah	CEO	Alyson Service
Mr. Mohamed Hashim	principal	MIVET
Mr. Adnan Haleem	Managing Director	Alihavaasa Construction & Carpentry
Mr. Alau Ali	Director	Alia Construction
Mr. Saudhulla Hilmee	Managing Director	Swift Engineering
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Name	**Designation**	**Company**
TVET	-	MHRYS
Employment Sector Councils		
Name	**Designation**	**Company**
Mr. Abdulla Mohamed	Managing Director	Amin Construction
Mr. Suhail Ahmed	Project Coordinator	Hulhumale' Development Cooperation Ltd
Mr. Mohamed Ali	Deputy Director	Min. of Construction & Public Infrastructure
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Mr. Ahmed Shiyau	Manager Admin	FW Construction Company Pvt Ltd
Mr. Ahmed Shiyam	Operation Manager	Rainbow Construction Pvt Ltd

Mr. Mohamed Aswan	Operation Executive	AIMA Construction

National Competency Standard has been Endorsed by

Chairman, Construction Sector Council

Vice Chairman, Construction Sector Council

Contact for Comments

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Date of Endorsement:	Date of revision

KEY FOR CODING

Coding Competency Standards and Related Materials

DESCRIPTION	REPRESENTED BY
Industry Sector as per ESC (Three letters)	Construction Sector **(CON)** Fisheries and Agriculture Sector **(FNA)** Transport sector **(TRN)** Tourism Sector **(TOU)** Social Sector **(SOC)** Foundation **(FOU)**
Competency Standard	**S**
Occupation with in a industry Sector	**Two digits 01-99**
Unit	**U**
Common Competency	**1**
Core Competency	**2**
Optional/ Elective Competency	**3**
Assessment Resources Materials	**A**
Learning Resources Materials	**L**
Curricula	**C**
Qualification	**Q1, Q2 etc**
MNQF level of Qualification	**L1, L2 etc**
Version Number	**V1, V2 etc**
Year of endorsement of standard, qualification	**By two digits Example- 07**

1. Endorsement Application for Qualification 01	
2. NATIONAL CERTIFICATE III MASONRY WORKS	
3. Qualification code: CON08SQ1L309	**Total Number of Credits: 40**
4. Purpose of the qualification The holders of this qualification will be competent to work in the Construction Sector as Mason in Plastering. The level III qualification presented here will facilitate preparing students to the entry workplace tasks and the competency units are mapped in such a way to fulfill the knowledge and skills requirements of the "Mason" occupation within the local construction Industry.	
5. Regulations for the qualification	National Certificate III in the occupation of Mason (plaster) will be awarded to those who are competent in units below

6. Schedule of Units

Unit Title	Unit Title	Code
1	Carry out paving work	CON08S2U06VI
2	Plaster surfaces	CON08S2U07VI
3	Render floor surfaces	CON08S2U08VI
4	Carry out decorative plastering work	CON08S2U09VI

7. Accreditation requirements	The training provider should have a workshop or similar training facility to provide the trainees the hands-on experience related to this qualification
8. Recommended sequencing of units	As appearing under the section 06

1. Endorsement Application for Qualification 02	
2. NATIONAL ADVANCED CERTIFICATE IN MASONRY WORKS	
3. Qualification code: CON08SQ2L409	**Total Number of Credits: 83**
4. Purpose of the qualification The holders of this qualification will be competent to work in the Construction Sector as Mason. The level III qualification presented here will facilitate preparing students to the entry workplace tasks and the competency units are mapped in such a way to fulfill the knowledge and skills requirements of the "Mason" occupation within the local construction Industry.	
5. Regulations for the qualification	National Advanced Certificate in the occupation of Mason will be awarded to those who are competent in units below

6. Schedule of Units

Unit Title	Unit Title	Code
1	Set-out building / structures	CON08S2U01VI
2	carry out brick work	CON08S2U02VI
3	Carry out block work	CON08S2U03VI
4	Lay damp proof course	CON08S2U04VI
5	Carry out concreting work	CON08S2U05VI
6	Fix door and window frames	CON08S2U10VI
7	Lay drains	CON08S2U11VI
8	Erect scaffolds	CON08S2U12VI
9	Carry out tiling work	CON08S2U13VI
10	Carry out arch work, decorative brick work, rubble and kabook structure work	CON08S2U14VI

7. Accreditation requirements	The training provider should have a workshop or similar training facility to provide the trainees the hands-on experience related to this qualification
8. Recommended sequencing of units	As appearing under the section 06

UNITS DETAILS

no	Unit Title	Code	Level	No of credits
1.	Set-out building / structures	CON08S2U01VI	4	5
2.	carry out brick work	CON08S2U02VI	2	9
3.	Carry out block work	CON08S2U03VI	2	11
4.	Lay damp proof course	CON08S2U04VI	2	3
5.	Carry out concreting work	CON08S2U05VI	4	12
6.	Carry out paving work	CON08S2U06VI	3	12
7.	Plaster surfaces	CON08S2U07VI	3	14
8.	Render floor surfaces	CON08S2U08VI	3	10
9.	Carry out decorative plastering work	CON08S2U09VI	3	4
10.	Fix door and window frames	CON08S2U10VI	3	3
11.	Lay drains	CON08S2U11VI	4	10
12.	Erect scaffolds	CON08S2U12VI	3	10
13.	Carry out tiling work	CON08S2U13VI	4	10
14.	Carry out arch work, decorative brick work, rubble and kabook structure work	CON08S2U14VI	4	10

Packaging of National Qualifications:

National certificate III in Masonry Works will be awarded to those who are competent in No 6+7+8+9

Qualification Code: CON08SQ1L309

National advanced certificate in Masonry Works will be awarded to those who are competent in 1+2+3+4+5+10+11+12+13+14

Qualification Code: CON08SQ2L409

COMPETENCY STANDARDS FOR

MASONRY WORKS

Unit No	Unit Title
1.	Set-out building / structures
2.	carry out brick work
3.	Carry out block work
4.	Lay damp proof course
5.	Carry out concreting work
6.	Carry out paving work
7.	Plaster surfaces
8.	Render floor surfaces
9.	Carry out decorative plastering work
10.	Fix door and window frames
11.	Lay drains
12.	Erect scaffolds
13.	Carry out tiling work
14.	Carry out arch work, decorative brick work, rubble and kabook structure work

DESCRIPTION OF AN MASON

Mason will be working front line of the construction industry. Masons who are competent in this standard will be able to perform skilled masonry work, building, altering and repairing brick, stones tile or ceramic structure and surfaces

COMPETENCY STANDARD DEVELOPMENT PROCESS

The competencies were determined based on the analysis of the tasks expected to be performed by the bar bender in the Maldives. The task analysis was based on the existing job descriptions used in both private and public sector. Competency standards used for similar type of training in other countries were also examined.

UNIT TITLE	Set-out building / structures				
DESCRIPTOR	This unit covers the competencies required to set out building and other related structures. It includes operations, which require basic tools, equipment and techniques other than Theodolite and Engineers level ensuring safety to self, others and property.				
CODE	CON08S2U01VI	Level	4	Credit	5

ELEMENTS OF COMPETENCE	**PERFORMANCE CRITERIA**
1. Read and interpret drawings	1.1. Notations, abbreviations, symbols, dimensions and scales read, interpreted & drawings selected 1.2. Elevations, sectional elevations, detailed drawings & schedules interpreted & centre line dimensions calculated by adding or subtracting half of the width of the wall dimensions as shown in the drawing
2. Set out the building / structure layout	2.1. Layout oriented according to the site plan and baseline established 2.2. Layout located & positioned according to the site plan 2.3. Profile boards and centre pegs fixed, ensuring tops of all pegs to be in one horizontal plane, height of pegs decided according to the site profile & Damp Proof Courses (DPC)level 2.4. Reference points fixed as per the site plan 2.5. Other lines of the building established referring baseline & building drawings 2.6. Angles established to set out corners (90˚, 45˚, 30˚) 2.7. Levels set according to building plan and appropriate levels maintained to check, setting out accuracy 2.8. Existing building lines extended, to set out extensions of the building, as per the drawing 2.9. Diagonals, offsets, and angles checked for accuracy and any errors rectified according to the building plan

RANGE STATEMENT

Work may take place at sites such as, sloping, marshy, waterlogged, undulated and flat lands. Competency should confine to simple buildings and structures, to include two storied buildings, retaining walls, culverts, kerbs, and footpaths.

All work should comply with health, safety and environmental regulations.

The following tools, equipment and material may be used for this unit:

- Measuring tape (30m)
- Builders square
- Try square
- Claw hammer
- Profile boards
- Pocket tape (3m)
- Crow bar
- Centre pins
- Water tube
- Plumb bob with makily
- Spirit level
- Wooden pegs
- Safety kit

Materials may include;

- Nylon string
- Coir string
- Wire nails
- Paper pins

ASSESSMENT GUIDE

Forms of assessment

Continuous assessments is suitable for this unit

Assessment context

This unit may be assessed on or off the job demonstrated as a member of a team.

Critical aspects

- Lay out orientation to the site plan
- locating and positioning of layout
- Establishment of angles
- Establishment of baseline
- Level setting
- Longitudinal accuracy (within the tolerance of + or – 5mm according to given measurement)

Assessment condition

This unit must be assessed separately.
The candidate will have access to all tools, equipment, material and demonstrations required.
The candidate will be permitted to refer any relevant drawings.

The candidate will be required

- Orally or by other method of communication to answer questions asked by the assessor

Assessors must be satisfied that candidate can competently and consistently perform all elements of the unit as specified by criteria and that he/she possess the required underpinning knowledge.

Special notes

During assessment, the individual will:

- Demonstrate safe work practices at all times,
- Communicate information about process, events or tasks, being undertaken to ensure safe and efficient working environment,
- Take responsibility for quality of his/her own work,
- Plan tasks in all situations and review task requirements as appropriate,
- Perform tasks in all situations and review task requirements as appropriate,
- Perform all tasks in accordance with standard operating procedures,

- Perform all tasks to specifications

Resources required for assessment include;

Resources required include all the tools, equipment and related materials listed under this unit

UNDERPINNING KNOWLEDGE AND SKILLS

Underpinning Knowledge	Underpinning Skills
• Elementary knowledge of the building and building drawings • Basic arithmetic • Basic geometry to include angular measurements, corner measurements and longitudinal measurements • Safety precautions connected with building sites • Method taking offset measurements • Imperial & metric units of measurements and their conversion ratios • Knowledge of building and structures setting out	• Correct handling of all tools mentioned in the range statement • Read and interpret building / structural drawing • Marking and transferring Measurements and levels • Conversions of measurements from imperial to metric and metric to imperial • Ability to establish angles 90, 45, 30 degrees • Ability to follow safety procedures

UNIT TITLE	Carry out brick work				
DESCRIPTOR	This unit covers the competencies required to construct brick walls, foundations and columns as load bearing structures, partitions of the buildings and other structures ensuring safe working conditions and safe use of tools, equipment machinery material				
CODE	CON08S2U02VI	Level	2	Credit	9

Elements of Competence	**Performance Criteria**
1. Prepare for brick work	1.1. Plans, sketches and drawings pertaining to small-scale construction read and interpreted, information to set out the brick work gathered 1.2. Tools selected to match the requirements 1.3. Quantity of materials required for the job determined and available material checked for adequacy and action taken to order if there are any shortages 1.4. Cement, sand and bricks available checked for quality and suitability
2. Direct / assist preparation of cement mortar / prepare cement mortar	2.1. Cement, sand mortar prepared according to the specifications or instructions given by superiors by directing/assisting the team members 2.2. Quality of the sand mortar determined to ensure timely brick laying
3. Arrange materials and tools at site	3.1. Arrangements made to transport materials to site and stock at convenient positions to ease retrieval 3.2. Work planned, targets assigned for each team mate to carry out bricklaying smoothly 3.3. Scaffolding put up to stack bricks at heights 3.4. Tools and materials kept for easy working
4. Set out brick work	4.1. Centre lines of the brick work to be constructed marked as per the drawings 4.2. Levels marked using given reference points or superior officers assistance obtained to set out

	complicated levels 4.3. Different level of the building structure obtained by transferring levels from one point to the other using water level or sprit level 4.4. Linear and angular measurements marked in setting out as per the drawings and angles set out on the ground as per drawing 4.5. Off set measurements taken and checked according to drawing or instructions given 4.6. Lines established using threads to facilitate trenching without disturbing the set out markings
5. Carry out brick work according to the drawings provided	5.1. Bricks soaked in water before laying 5.2. Cement mortar spread uniformly according to the expected standards 5.3. Bricks laid and aligned along the set out lines following accepted bond pattern 5.4. Bricks cut to various standard shapes and sizes as required when laying 5.5. Grooves filled up with cement sand mortar for better adhesion and neatness 5.6. Brick courses aligned vertically 5.7. Thickness of the brick courses checked with the gauge staff and horizontally of the layers ensured 5.8. Grooves cleaned t get even spread of mortar 5.9. Brick work constructed to the specified height and spaces provided for door and window openings as per the drawings 5.10. Material used economically, safety precautions taken and accepted safety regulations followed to avoid unsafe acts and unsafe conditions and to safeguard self, others and property

RANGE STATEMENT

Under this unit, brickwork shall include the construction of foundations, columns or walls in stretcher/ English/ Flemish bond patterns. Columns can be of two ways, namely, attached piers or detached piers. Construction of wall should include the stopped end, right angle turn, tee junction or cross junction. The thickness of the wall shall vary from the sizes 4 ½ inch (112.5mm) x 9 inch(225mm) x 13 ½ inch (337mm), and 18 inch(450mm) respectively. The sizes of the wall have been defined with the size of the brick as 8 5/8 inch x 4 ¼ inch x 2 5/8 inches (215mm x 106.5mm x 65mm) and the thickness of the joint as 3/8 inch. If the size of the brick varies from this size, still the thickness of the wall should be maintained as specified.

Competence on "reading and interpreting plans, drawings and sketches" should be limited only to small-scale construction work, where a competent technical officer is not employed.

The mason will be supported by the team mates by providing the necessary assistance at work.

All work should comply with health, safety and other environmental regulations.

The following tools, equipment and material may be used for this unit:

- Pocket tape (3m)
- Measuring tape (30m)
- Masonry trowel
- Pointing trowel
- Try square
- Profile board
- Bolster chisel
- Gauge staff
- Club hammer
- Brick hammer
- Spirit level (oval shape)
- Spirit level (long)
- Plumb bob with mackily

- Builder Square
- Water tube
- Corner blocks
- Cold chisel
- Straight edge
- Center pegs
- Line pins
- Mammoty
- Spade
- Shovel
- Wheel barrow
- Pans
- Buckets
- Boards
- Wetting brush
- Safety kits
- Wooden float
- Scaffoldings steel, bamboo

Materials may include;

- Burnt clay bricks
- Portland cement
- Water
- Coir string
- Pegs
- Adhesives
- Wire cut bricks
- River sand
- Nylon string
- Nails
- Glass blocks

ASSESSMENT GUIDE

Forms of assessment

Continuous assessments is suitable for this unit.

Assessment requires evidence of building walls and columns in different bond patterns and in different sizes mentioned in the range statement

Assessment requires evidence of following process to be demonstrated

- The ability to determine the required quantity of materials for the predetermined quantity of brickwork
- The ability to select appropriate materials and tools
- The ability to handle tools in appropriate way for a particular use
- The ability to organise materials, tools and equipment to work at ease.
- The ability to construct walls and columns in different bond patterns and in different sizes to the specified standards
- The ability to work at heights

Assessment context

This unit may be assessed on the job or off the job in a simulated environment

Critical aspects

- Safety
- Material handling
- bond pattern
- Staggered joints
- Uniform thickness of grooves
- Communication at site
- Strict adherence to plans & specifications
- Vertical alignment of brickwork
- Thickness of layers

Assessment condition

This unit should be assessed alone

The candidate will have access to:

- All tools, equipments and material mentioned in the range statement

The candidate will be permitted to refer:

- Any drawings/ plans/ sketches/ letters relevant to the work

- Any superior or team mate relevant to the work

The candidate will be required to:

- Orally or by other methods of communication, answer questions put forward by the assessor

Assessor must be satisfied that candidate can competently and consistently perform all elements of the unit as specified by criteria and that he/she possesses the required underpinning knowledge.

Special notes

During assessment, the candidate will:

- Demonstrate safe work practices at all times
- Use materials in an economical way
- Take precautions to minimize damages which happen to humans and to physical objections in the environment
- Communicate information about process, events in tasks being undertaken to ensure a safe and efficient working environment
- Take responsibility for the safety of his own work
- Plan tasks in every situation and review task requirements as appropriate
- Performance all tasks in accordance with standard operating procedures
- Perform all tasks to plans/ sketches and specifications
- Use acceptance techniques, practices, processors and procedures
- Take precautions to protect the work

Resources required for assessment include;

Resources required include all the tools, equipment and related materials listed under this unit.

UNDERPINNING KNOWLEDGE AND SKILLS

Underpinning Knowledge	Underpinning Skills
• Reading and interpretation of plans, sketches and understanding the instructions • Methods of communication as practiced at construction sites • Quality of cement, sand, water and bricks • Tools, equipment used for brickwork • Volume batching • Stretcher, English and Flemish bonds • Find out required quantities of materials for the given quantity of brickwork • Working norms in bricklaying	• Interpretation of plans, sketches, specifications and instructions given by superiors • Selection of appropriate materials and tools • Preparation of materials and tools for the size of the work • Correct handling of tools in appropriate use • Laying of cement uniformly • Laying of bricks according to standard bonds • Fixing of levels • Transferring of levels • Establishing lines for laying of bricks • Aligning of bricks • Batching of sand and cement • Mixing of sand, cement and water • Filling up of grooves • Working on temporary platforms and at height • Cutting of bricks to the standard shapes

UNIT TITLE	Carry out block work				
DESCRIPTOR	This unit covers the competencies required to carry out block work in the construction of walls and columns ensuring safe work conditions and safe use of tools, equipment, machinery and material.				
CODE	CON08S2U03VI	Level	2	Credit	11

ELEMENTS OF COMPETENCE	**PERFORMANCE CRITERIA**
1. Prepare for block work	1.1. Plans, sketches and drawings pertaining to small scale construction read and interpreted information to set out the block work gathered 1.2. Tools selected to match the requirements 1.3. Quantity of materials required for the job determined and available material checked for adequacy and action taken to order if there are any shortages 1.4. Cement, sand and blocks available checked for quality and suitability
2. Direct / assist preparation of cement sand mortar / prepare cement mortat	2.1. Cement, sand mortar prepared according to the specifications or instructions given by superiors by directing/assisting the team members 2.2. Quality of cement sand mortar determined to ensure timely block laying
3. Arrange materials and tools at site	3.1. Arrangements made to transport materials to site and stock at convenient positions to ease retrieval 3.2. Work planned, targets assigned for each team mate to carry out block laying smoothly 3.3. Scaffolding put up to stack blocks at heights 3.4. Tools and materials kept for easy working
4. Set out block work	4.1. Centre lines of the block work to be constructed marked as per the drawings 4.2. Levels marked using given reference points or superior officers assistance obtained to set out complicated levels

	4.3. Different levels of the building structure obtained by transferring levels from one point to the other using water level or sprit level 4.4. Linear and angular measurements marked in setting out as per the drawings and angles set out on the ground as per drawing 4.5. Off set measurements taken and checked according to drawing or instructions given 4.6. Lines established using threads to facilitate trenching without disturbing the set out markings
5. Construct block work according to drawings and specifications	5.1. Quantity of predetermined number of blocks obtained and kept for easy retrieval 5.2. Spread cement mortat with trowel to form level bed to lay cement blocks 5.3. Blocks cut to different predetermined sizes and shapes using standard techniques and procedures 5.4. Vertical and horizontal alignment of Block work maintained and work carried out to construct straight walls, corners and junctions as per the given drawing 5.5. Grooves filled up with cement sand mortar for better adhesion and neatness 5.6. Block courses aligned vertically 5.7. Thickness of the brick courses checked with the gauge staff and horizontally of the layers ensured 5.8. Grooves cleaned to get even spread of mortar 5.9. Block work constructed to the specified height and spaces provided for door and window openings as per the drawings 5.10. Material used economically, safety precautions taken and accepted safety regulations followed to avoid unsafe acts and unsafe conditions and to safeguard self, others and property

RANGE STATEMENT

Work may take place at boundary walls, buildings, small water tanks, non-load bearing partitions, kerb walls, screen walls and link walls. The competence "read and interpret drawings" should be limited only for small scale construction work, where a competent technical officer is not employed. Constructions other than small scale are expected to be carried out with the guidance of a competent technical officer.

All work should comply with health, safety and other environmental regulations.

The following tools, equipment and material may be used for this unit:

- Measuring tape (30m)
- Profile board and pegs
- Plumb bob with mackily
- Corner blocks
- Cold chisel/ Bolster chisel
- Pocket tape (3mm)
- Club hammer
- Pan
- Wooden float / hand brush
- Scaffolding
- Hawk
- Try Square
- Masonry trowel
- Gauge staff
- Line pins and string
- Mortar board
- Builders square
- Water tube
- Wetting brush
- Safety kit
- Wheel barrow

Materials may include;

- Cement and other blocks

- River sand
- Nylon string
- Nails
- Glass blocks
- Portland cement
- Water
- Coir string
- Pegs
- Adhesives

ASSESSMENT GUIDE

Forms of assessment

A continuous assessment is suitable for this unit.

Assessment context

This unit may be assessed on or off the job, demonstrated by an individual working alone or as part of a team.

Critical aspects

- Safety
- Material handling
- Bond pattern
- Staggered joints
- Uniform thickness of grooves
- Communication at site
- Strict adherence to plans & specifications
- Vertical alignment of block work
- Thickness of layers

Assessment condition

This unit must be assessed separately

The candidate

- Will have access to all tools, equipment, material and documentation
- Will be permitted to refer any relevant drawings

- Will be required Orally or by other methods of communication to answer questions put forward by the assessor

Assessors must be satisfied that candidate can competently perform all elements of the unit as specified by criteria and that he/she possesses the required underpinning knowledge.

Special notes

During assessment, the candidate will;

- Demonstrate safe working practices all the time
- Communicate information about process events or tasks being undertaken to ensure a safe and efficient working environment
- Take responsibility for the quality of their own work
- Perform all tasks in accordance with standard operating procedures
- Plan tasks in all situations and review task requirements as appropriate
- Perform all tasks to specification

Resources required for assessment include;

All the tools, equipment, machinery and related material listed under the range statement for the unit

UNDERPINNING KNOWLEDGE AND SKILLS

Underpinning Knowledge	Underpinning Skills
• Elementary knowledge of building drawings • Basic Arithmetic • Conversion of imperial measurements to metric • Basic geometry to include angular measurements and longitudinal measurements • Method of taking offset measurements • Safety precautions to be taken	• Correct handling of all tools mentioned in the range statement and rectifying short comings • Skills in use of measuring tape and try square, plumb level and mason's trowel • Taking measurements • Checking the workability of cement mortar • Safe working skills on scaffolding • Interpretation of plans, sketches,

connected to the building site • Types of blocks and their applications • Quality of cement, sand and blocks • Volume batching • Reading and interpretation of plans, sketches and understanding the instructions • Methods of communication as practiced at construction sites • Quality of cement, sand, water and blocks • Tools, equipment used for block work • Stretcher, English and Flemish bonds • Find out required quantities of materials for the given quantity of block work • Working norms in block laying	specifications and instructions given by superiors • Selection of appropriate materials and tools • Preparation of materials and tools for the size of the work • Laying of cement uniformity • Laying of blocks according to standard bonds • Fixing of levels • Transferring of levels • Establishing lines for laying of blocks • Aligning of blocks • Batching of cement and sand • Mixing of cement, sand and water • Filling up of grooves • Working on temporary platforms and at height • Cutting of bricks to the standard shapes

UNIT TITLE	Lay damp proof course				
DESCRIPTOR	This unit covers the competencies required to lay dump proof course (DPC) on foundations ensuring safe working conditions and safe use of tools equipment, machinery and material.				
CODE	CON08S2U04VI	Level	2	Credit	3

ELEMENTS OF COMPETENCE	**PERFORMANCE CRITERIA**
1. Prepare foundations for laying DPC	1.1. Time, material required and number of hours required to estimated lay the DPC as specified (asphalt, readymade coats) 1.2. Available materials checked for suitability as against the specifications and action taken to rectify short comings if any 1.3. Tools and personal safety gears selected as per the safe working practices
2. Lay DPC	2.1. Top surface of the foundation checked and cleaned to remove foreign matter if any, and level points fixed on the foundation as specified 2.2. Team mates directed / assisted and cement sand mortar mixed according to specified standards 2.3. Cement sand screed placed on foundation up to the marked level and allowed to get dried 2.4. Asphalt (bitumen) material mixed according to product manufactures specifications 2.5. Asphalts motor applied over the cement screed, sand sprinkled over the asphalt layer to finish the work 2.6. Appropriate actions taken to protect the finished DPC unit it get dried

RANGE STATEMENT

Work may take place over the substructure of brick and rubble foundations. All work should comply W.H health safety and environment regulations

The following tools, equipment and material may be used for this unit:

- Pocket tape(3m)
- Pointing trowel
- Shovel
- Buckets
- Watering can
- Wooden floats
- Water tube
- Masonry trowel
- Spirit level
- Pans
- Mortar boards
- Paint brush (used)
- Safety kit (gloves, boots)

Materials may include;

- Cement
- Water
- Sand
- Bituminous material

ASSESSMENT GUIDE

Forms of assessment

A continuous assessment is suitable for this unit.

Assessment context

This unit may be assessed on the job or off the job in a simulated setting, demonstrated individually

Critical aspects

- Evenness of the applied DPC layer
- Thickness of the DPC layer (20mm)
- Application of DPC layer to cover entire surface area
- Uniformity of sprinkled sand layer to cover the bitumen layer

Assessment condition

The candidate will have access to:

- All tools, equipment and material mentioned in the range statement

The candidate will be permitted to refer;

- Any drawings / plans/ sketches/ letters relevant to the work
- Any superior or team mate relevant to the work

The candidate will be required to;

- Orally or by other methods of communication, answer questions put forward by the assessors
- Identify superiors/ clients who can be approached for proof of evidence pertaining to work

Assessors must be satisfied that candidate can competently and consistently perform all elements of the unit as specified by criteria and that he/she possesses the required underpinning knowledge.

Special notes

The candidate should show signs of methodical approach to the work. The candidate should organize the work in such a way to maintain health, safety and working conditions

During assessment, the candidate will;

- Demonstrate safe working practices all the time
- Communicate information about process events or tasks being undertaken to ensure a safe and efficient working environment

- Take responsibility for the quality of their own work
- Plan tasks in all situations and review task requirements as appropriate
- Perform tasks in accordance with standard operating procedures
- Perform all tasks to specification

Resources required for assessment include;

All the tools, equipment, machinery and related material listed under the range statement for the unit

UNDERPINNING KNOWLEDGE AND SKILLS

Underpinning Knowledge	Underpinning Skills
• Motor Mix ratios related to DPC • The importance and characteristics of DPC • Asphalt materials available at the market • Effects of sand coat • Interpretation of technical and safety information of chemicals/ materials which are used as covering in laying DPC	• Mixing of cement mortar • Ability to use material carefully • Levelling and marking • Spreading cement sand evenly • Spreading sand blinding coat • Use of technical and safety information of chemicals/ materials • Ability to apply bituminous materials evenly

UNIT TITLE	Carry out concreting work				
DESCRIPTOR	This unit covers the competencies required to cast concrete building components. It applies to laying of concrete in the field, the preparation of background for laying such concrete surfaces, ensuring safe working conditions and safe use of tools, equipment, machinery and material.				
CODE	CON08S2U05VI	Level	4	Credit	12

ELEMENTS OF COMPETENCE	**PERFORMANCE CRITERIA**
1. Prepare to carry out concreting work	1.1. Elevations, sections and detailed drawings interpreted and information gathered related to concreting work 1.2. Time materials, equipment and man hours required to complete the job in hand estimated 1.3. Cement, sand, metal and water available checked for suitability for concreting as per the specifications and remedial actions taken to rectify shortcoming if any 1.4. Samples for lab test prepared and sent to the lab for testing 1.5. Appropriate tests carried at site to find out the quality of available materials 1.6. Quantity of materials (cement, sand, metal, water) required for the job in hand determined
2. Arrange appropriate tools/ equipment/ machinery required for concreting	2.1. Tools/ equipment/ machinery selected to match the nature of work as outlined in the specifications 2.2. Number of tools, equipment, machines and labour requirements determined to match the job requirements and standby arrangements made to face unexpected failures 2.3. Clients/ stores personnel instructed to purchase right quantity of materials and deliver at the site at the right time 2.4. Other operatives on the site instructed to stock

	materials correctly, according to the set procedures
3. Erect formwork for small scale concreting work	3.1. Timber formwork to sides of columns and lintel made as per the specifications 3.2. Prefabricated shutters (made out of steel and timber) erected for columns as specified or instructed 3.3. Components of form work cleaned and stacked with the help of other operatives
4. Fabricate reinforcement works pertaining to small scale concrete work	4.1. Construction drawings, bar bending schedules referred, size and type of steel bars required selected, to match the given requirements 4.2. Steel bars cut according to the schedules 4.3. Steel bars bent to given shapes according to specified standards 4.4. Spaces / benches made to suit the conditions and requirements 4.5. Bent bars positioned and tied according to the given plans or superiors instructions
5. Instruct/ coordinate, batch, mix and transport concrete from mixing point to the placing point	5.1. Characteristics of the mixing place identified and suitable place located 5.2. Appropriate actions taken to rectify the effect of sand bulking 5.3. Required volume of water obtained according to given water cement ratios(WCR) 5.4. Sample of concrete taken, test cubes made and slump test performed under the supervision of superiors 5.5. Other operatives instructed to adapt standard method when transporting concrete with in the site 5.6. Accelerators and retarders used according to the manufacturers instructions

6. Place concrete	6.1. Shuttering checked for strength, leaks and attended to corrections if any 6.2. Setting time of cement identified as per the manufacturers specifications 6.3. Concrete placed in layers and vibrated to avoid air trapping 6.4. Concrete surface finished according to the requirements 6.5. Proper coordination maintained with superiors and other operatives such as bar benders electricians, carpenters during concreting process 6.6. Arrangements made to erect temporary accessories to suit laying of concreting and for the people working with wheel barrows over the slab
7. Cure concrete	7.1. Best method of concrete curing selected to suit the conditions and nature of the work 7.2. Other operatives instructed to carry out the selected curing method as specified

RANGE STATEMENT

Work connected to this unit shall include concreting of:

- Foundations
- Walls
- Columns
- Stairways
- Beams
- Retaining walls
- Lintels

With in-situ mixed concrete or ready mixed concrete.

The concrete can be either screed concrete or structural concrete. All work should comply with health, safety and other environmental regulations.

The competence on "reading and interpreting plans, drawings and sketches" should be limited only for small scale construction work, where a competent technical officer is not employed. Construction other than small scale are expected to be carried out with the guidance of a senior technical officer

Form work and reinforcement work should be limited to the columns and lintels of small-scale construction work, which can be described as the work of a single storeyed building

Using additives like accelerators, retarders and workability improvement agents should be completely in accordance with the manufacturer's specifications

Material connected with this unit may include;

- Ordinary Portland cements
- River sand
- Pre fabricated shutters for columns made out of plywood, timber or steel
- Anchor bolts & nuts
- Mould oil
- Special blended cement
- Class lll timber
- Steel bars
- Binding wires
- Metal of varying sizes from 12mm, 20mm, 40mm, and 50mm(1/2", ¾", 1 ½" and 2")

The following tools, equipment and material may be used for this unit:

- Measuring tape (30m)
- Concrete mixer
- Shovels
- Concrete pans
- Winch
- Masonry trowel
- Chisels
- Plumb bob with mackily
- Levels
- Hack saw frame

- Spanners(various sizes)
- Slump test apparatus
- Sieves (different standard sizes)
- Straight edge
- Vibrators (shutter type and immersion type)
- Mammoty
- Wheel barrows
- Buckets
- Hummer
- Hand saw
- Drill
- Bar benders pincers
- Guillotine cutter
- Measurement gauge box
- Test cube moulds and tampers
- Safety gear

Materials testing and making samples for lab test shall be performed in accordance with the respective British and Sri Lankan standards which have been developed, adopted and being presently practiced in Sri Lanka

ASSESSMENT GUIDE

Forms of assessment

A continuous assessment is suitable for this unit.

Assessment context

This unit shall be assessed on the job demonstrated by an individual working alone or part of a team. This unit should be assessed alone.

Critical aspects

- No leaks from the shuttering
- Uniformity of the concrete mix
- All concreted area should be vibrated
- No formation of cold joints

- Uniform finish of the concrete
- No formation of concrete heaps while laying
- Vibrators should not touch reinforcement cage/ bars when in use

Assessment condition

The candidate will have access to:

- All tools, equipment, material and machineries

The candidate will be permitted to refer

- Any drawings/ plan and sketches relevant to the work
- Relevant work place procedures
- Relevant material, procedure and product specification
- Any team operatives for instructions relevant to the work

The candidate will be required to:

- Orally or by other methods of communication, answer questions put by the assessors
- Identify superiors and clients who can be approached for evidence where appropriate
- Present evidence related to this unit

Assessors must be satisfied that candidate can competently and consistently perform all elements of the unit as specified by criteria and that he/she possesses the required underpinning knowledge

Special notes

During the assessment the candidate should

- Demonstrate safe-working practice at all times
- Communicate information about process, events or tasks being undertaken to ensure a Safe and efficient working environment
- Take responsibility for the quality of his/ her own work and that of the team
- Plan tasks in every situations and review task requirements as appropriate
- Perform all tasks to specification
- Perform all tasks in accordance with standards operating procedures
- Plan and use all resources economically and efficiently

Resources required for assessment include;

All the tools, equipment, machinery and related materials listed under the range statement for the unit

UNDERPINNING KNOWLEDGE AND SKILLS

Underpinning Knowledge	Underpinning Skills
• Reading and interpretation of plans and sketches pertaining to the small scale construction • Method of communication as practiced in construction sites • Quality of materials used for concreting • Different types of tools, equipment and machinery used of concreting work • Required quantities of materials for the given volumes of specified grades of concrete • Different types of materials used to form work • Preparation of bar bending schedules pertaining to small scale reinforcement designs • Different grades of concrete • Batching methods of concrete • Accepted concrete mixing methods • Methods of transporting concrete within the site • Placing of concrete in different situations • Methods of compacting • Expansion joints • Making expansion, contraction and construction joints	• Interpretation of plans and instructions given superiors • Communications with superiors and other operatives • Selection of appropriate materials as per schedules • Selection of appropriate tools and machinery related to the concreting • Use tools of machinery related to concreting • Determination of the required quantities of materials for the given volume of concrete • Fabrication of formwork for columns and lintels • Selection of bars pertaining to different types and sizes • Cutting steel bars • Bending steel bars • Tying of steel bars • Making different grades of concrete • Batching and mixing of concrete • Transporting of concrete with in the site • Placing and compacting of concrete • Carrying out simple tests with concrete at site • Preparations of samples of concrete for lab tests • Curing of concrete • Propping of concrete slabs & beams till

• Testing of concrete • Striking period of timber form work • Importance of curing and different methods of curing • Knowledge of kickers • Ready mix concrete • Safety precautions	it can take up load • Ability to adhere to safety precautions

UNIT TITLE	Carry out paving work				
DESCRIPTOR	This unit covers the competencies required to carry out paving work in construction field. It also applies to preparation of base for such paving work using basic tools working with cement, sand and other construction materials ensuring safe working condition sand safe use of tools, equipment, machinery and material.				
CODE	CON08S2U06VI	Level	3	Credit	12

ELEMENTS OF COMPETENCE	**PERFORMANCE CRITERIA**
1. Prepare for paving work	1.1. Drawings read and interpreted, details of laying determined as per the drawing 1.2. Time, materials, equipment and man hours required to perform the work as outlined specified estimated 1.3. Reference line of the plan established and profile boards and pegs fixed at reference points according to the drawings and site conditions 1.4. Base line and other lines of the laying established as per the drawing 1.5. Levels established maintaining specified gradients to ensure free flow towards catch pits / gullies 1.6. Angles (90,45,30 degrees) set out, to establish corners as necessary 1.7. Tools, bedding materials (such as cement metal, sand, quarry dust) components such as precast slabs, kerbs, (free of cracks) selected as per the requirements
2. Prepare the base / bedding for laying the paving components	2.1. Type of base / bedding selected according to the drawing or as instructed by superior officer. 2.2. Ground compacted, to get a stable base 2.3. Base prepared by mixing and placing screed

	concrete or laying levelling and compacting quarry dust / sand / Gravel, to specified thickness
3. Lay paving components	3.1. Paving components placed on the bedding according to the set out alignments 3.2. Paving components tamped and aligned to maintain the specified gradient 3.3. Grooves between laid components sealed with concrete / gravel / sand / quarry dust as specified 3.4. Joints cleaned and levelled as specified 3.5. Unused materials an debris removed as soon as the work completed 3.6. Paving work checked for defects and actions taken to rectify if any. 3.7. Gullies placed as required.

RANGE STATEMENT

This unit covers the competencies required to lay paving components. It covers working with cement sand and other construction material and pre cast units as well.

Work takes place at sites. The range may cover open areas, buildings, footways, footpaths and places where paving is required with pre-cast concrete slabs, decorative slabs with pebbles and pieces of tiles.

Bedding materials may include cement, metal, sand, quarry dust and gravel etc. All work should comply with health, safety and other environmental regulations.

The following tools and equipment may be included in this unit.

- Measuring tape (30m)
- Pocket tape (3m)
- Try Square
- Profile boards
- Claw hammer

- Crow bar
- Centre pins
- Water tube
- Plumb bob with mackily
- Wheel barrows
- Wooden pegs
- Safety kit
- Pickaxes
- Masonry trowel
- Shovel
- Concrete pans
- Buckets
- Hammer
- Mammoties
- Baby dumpers
- Plate compactors
- Pre-cast concrete compactors
- Tampers

The following material may be used

- Cement
- Metal
- Gully grating
- Nylon string
- Wire nails
- Pre-cast concrete components
- Sand
- Timber for shuttering
- Quarry dust/ gravel
- Coir string
- Paper pins
- Catch pits (pre cast)

ASSESSMENT GUIDE

Forms of assessment

Continuous assessment is suitable for this unit.

Assessment context

This unit may be assessed on the job or off the job in a simulated setting demonstrated individually or as part of a team.
This unit may also be assessed in conjunction with the unit prepared for "Lay drains".

Critical aspects

- Preparation of base
- Maintenance of specified gradients towords catch pits / gullies as specified

Assessment conditions

The candidate will have access to:

- All tools, equipment and material mentioned in the range statement

The candidate will be permitted to refer:

- Any drawings/ plans/ sketches/ letters relevant to the work
- Any superior or team mate relevant to the work

The candidate will be required to:

- Orally or by other methods of communication, answer questions put forward by the assessors
- Identify superiors/ clients who can be approached for proof of evidence pertaining to work

The candidate will be able to provide evidence of credit for any off the job training related to this unit.

Assessors must be satisfied that candidate can competently and consistently perform all elements of the unit as specified by criteria and that he/she possesses the required underpinning knowledge

Special notes

During assessment, the individuals will

- Demonstrate safe working practices at all times

- Communicate information about processes, events or tasks, being undertaken to ensure a safe and efficient working environment,
- Taking responsibility for quality of his /her own work,
- Plan tasks in all situations and review task requirements as appropriate,
- Perform tasks in all situations and review task requirements as appropriate,
- Perform all tasks in accordance with standard operating procedures,
- Perform all tasks to specifications

Resources required for assessment include:

All the tools, equipment, machinery and related material listed under the range statement for the unit

UNDERPINNING KNOWLEDGE AND SKILLS

Underpinning Knowledge	Underpinning Skills
• Masonry, rendering & plastering work, paving patterns, paving of slabs • Elementary knowledge in understanding drawings • Gullies & catch pits • Drainage connections authorized by the Local Authority • Types of bedding and their compactness • Safety precautions in working in trenches • Types and characteristics of manholes & pits • Internal manholes / pits • Conversion of measurements from imperial units to metric units • Gradient & tolerances associated with paving and laying of drains • Safety precautions	• Correct handling of all tools mentioned in the range statement • Transferring of measurements and levels • Placing inlets and outlets of catch pits • Placing the bedding • Placing and tampering of paving components • Aligning of paving components • Ability to adhere to safety precautions

UNIT TITLE	Plaster surfaces				
DESCRIPTOR	This unit covers the competencies required to prepare and plaster a surface of structure/s buildings made out of bricks, concrete, cement blocks and rubble. This applies to working with cement lime, sand and water as per specifications ensuring safe working conditions and safe use of tools, equipments machinery and material				
CODE	CON08S2U07VI	Level	3	Credit	14

ELEMENTS OF COMPETENCE	**PERFORMANCE CRITERIA**
1. Plan and organize the work to be carried out	1.1. Plastering work to be carried out identified, considering location, environment and other conditions 1.2. Quantity of materials required for the job estimated 1.3. Available materials checked for suitability and quantity and action taken to rectify short comings if any 1.4. Number of masons, helpers required to carry out the work as specified determined 1.5. Helpers instructed to carry out the supportive work to ensure smooth working conditions 1.6. Arrangements made to obtain and store materials at appropriate places 1.7. Tools required to carry out plastering selected considering the nature of work
2. Provide scaffolding/ platform/ trestles	2.1. Available scaffolding checked to ensure rigidity and suitability for work and actions taken to rectify short comings if any 2.2. Necessity of trestles or scaffolding determined considering the height and length of the area to be plastered 2.3. Trestle and platforms arranged to suit the job in hand 2.4. Type of scaffolding material (steel / bamboo) decided in consultation with superiors

	2.5. Scaffolding erected and platforms fixed to match the requirements
3. Prepare surface to receive plaster	3.1. Loose mortar (if any) removed from the walls to be plastered by suitable means without damaging the walls 3.2. Wedges, nails and solid items (fixed temporarily during construction of the wall) removed by suitable means without damaging walls 3.3. Wall checked for cracks and rectified if any 3.4. Cement motor applied to fix loose bricks / blocks or concrete as required 3.5. Scaffolding holes filled with cement mortar and bricks/ blocks 3.6. Water applied to the wall surface evenly to wet the surface
4. Fix plumb points to establish true verticality of a vertical surface	4.1. Most protruded or inclined spot/s or are of the vertical wall or column identified 4.2. Cement mortar plumb point fixed at the most protruded spots and the thickness made equal to the specified thickness of the plastering layer 4.3. Further plumb points fixed on the surface at distances within the reach of available straight edge, ensuring top surfaces of all plumb points to be in the same vertical plane
5. Plaster vertical surface	5.1. Plaster applied and spread in horizontal rows of width 5", to suit the plumb points already fixed 5.2. Plaster ironed out using straight edge and wooden float to get and even surface ensuring the surface to be in the same plane as that of the plumb points 5.3. Plastered surface smoothened using lime putty/ cement putty (slurry) with the help of trowel, all made removed or any finishing materials applied as specified 5.4. Tools cleaned to remove any cement or other

	material
6. Plaster soffit	6.1. Surface (soffit) roughed using suitable method to receive plaster 6.2. Plaster ironed out using straight edge and wooden float to get an even surface ensuring the surface to be in the same plane as that of the plumb points 6.3. Plaster surface smoothened using lime putty, cement putty (slurry) with the help of trowel, all made marks disappeared, or any finishing material applied as specified 6.4. Surface smoothened by applying lime slurry until all marks disappear

RANGE STATEMENT

Work shall be performed in accordance with established practices and specifications in worksites, buildings and other structures. All work should comply with health, safety and other environmental regulations. Plastering to include vertical, horizontal and inclined surfaces on bricks, blocks, rubble and concrete works

Required final finish may be;

- Rough surfaces
- Smooth surfaces
- Semi rough surfaces
- Decorative surfaces such as;
- Plaster grit finish
- Pebble dash finish
- Splashed finish
- Neat cement finish

Material and tools required;

- Cement
- Sand
- Mason's and plasterer's trowels

- Straight edge (Ruler)
- Lime
- Water
- Wooden floats
- Plumb bob with mackily
- Spirit level (vertical use)
- Wheel barrows
- Sieves pf different sizes
- Trestles
- Scaffolding
- Pans
- Shovels
- Personal safety gear such as gloves, helmet boots, overall etc.

ASSESSMENT GUIDE

Forms of assessment

A continuous assessment is suitable for this unit.

Assessment context

This unit should be assessed separately

This unit may be assessed on the job or off the job in a simulated environment

Critical aspects

- Fixing plumb points
- Ability to plaster standing on scaffolding
- Surface finish and level
- Ability to perform plastering on vertical, inclined, horizontal surfaces.

Assessment condition

The candidate will have access to:

- All tools, equipment, material and machineries

The candidate will be permitted refer

- Any drawings/ plan and sketches relevant to the work
- Relevant work place procedures

- Relevant material, procedure and product specification
- Any team operatives for instructions relevant to the work

The candidate will be required to:

- Orally or by other methods of communication, answer questions put by the assessors
- Identify superiors and clients who can be approached for evidence where appropriate
- Present evidence related to this unit

Assessors must be satisfied that candidate can competently and consistently perform all elements of the unit as specified by criteria and that he/she possess the required underpinning knowledge

Special notes

During the assessment the candidate should

- Demonstrate safe-working practice at all times
- Take responsibility for the quality of his/ her own work

Resources required for assessment include;

All the tools, equipment, machinery and related materials listed under the range statement for the unit

UNDERPINNING KNOWLEDGE AND SKILLS

Underpinning Knowledge	Underpinning Skills
• Reaction of cement and water lime and water • Sequence of adding material when preparing cement lime • Remedial measures to be taken when plaster does not stick on certain spots of the wall • Various types of scaffolding • Use of safety equipment • Transporting cement mortar to the work place • Plastering	• Splashing and plastering on various surface • Plastering of in the soffit • Trowelling until wall marks disappear • Fixing scaffolding and fixing different types of scaffolding • Working on scaffolds • Ability to adhere to safety precautions

UNIT TILE	Render floor surfaces				
DESCRIPTOR	This unit covers the competencies required to prepare and render floor surfaces. Paving may be out of bricks, or concrete. This applies to working with cement, sand and water and also pigments for colouring ensuring safe working conditions and safe use of tools, equipment, machinery and material.				
CODE	CON08S2U08VI	Level	3	Credit	10

ELEMENTS OF COMPETENCE	**PERFORMANCE CRITERIA**
1. Prepare for rendering work	1.1. Rendering work to be carried out identified, considering location, environment and other condition 1.2. Quantity of material required for the job estimated 1.3. Available materials checked for suitability and quantity and action taken to rectify short comings if any 1.4. Number of masons and helpers required, to carry out the work as specified, determined 1.5. Helpers instructed to carry out the supportive work to ensure smooth working conditions 1.6. Arrangements made to obtain and store materials at appropriate places 1.7. Tools required to carry out rendering selected considering the nature of the work
2. Prepare surface to receive cement sand rendering	2.1. Loose mortar (if any) removed from the rendering area by suitable means 2.2. Any wedges, spikes, or any other matter used temporarily during 2.3. construction removed from the paving rendering area 2.4. Levels of the floor surface checked against the specifications and remedial action taken to rectify shortcomings if any

	2.5. Surface checked for loose spots or minor cracks and action taken to rectify if any 2.6. Water applied evenly to the surface to wet the surface 2.7. Cement mortar plumb point fixed at the most protruded spot and the thickness made equal to the specified thickness of the plastering layer 2.8. Further plumb points fixed on the surface at distances with in the 2.9. reach of available straight edge, ensuring top surfaces of all plumb points to be in the same plane
3. Render floor surface	3.1. Cement mortar spread in rows (width about 5" / 125 mm) between fixed level points 3.2. Mortar ruled out using straight edge maintaining the specified levels about mortar levels using trowel 3.3. Expansion and contraction joints made, if the length of the rendering area is greater than 50 feet / 15 m 3.4. Cement slurry applied with trowel over the mortar surface and smoothened until all marks disappear
4. Perform skirting on the wall around the floor	4.1. Skirting level marked along the walls, surrounding the rendering area as specified 4.2. Cement lime plaster below skirting level removed, if any 4.3. Plumb points fixed within the reach of straight edges according to the specified thickness 4.4. Cement mortar applied in the skirting area and top edge cut and levelled though out 4.5. Cement slurry applied in the skirting area and smoothened until all marks disappear
5. Finish rendering work	5.1. Work finished off according to the plan / specifications / instructions received

	5.2. End line arranged to facilitate the restoring of the work if it is to be continued further 5.3. All cement mortar droppings removed and the area cleaned 5.4. Tools used, cleaned to remove adhered mortar if any 5.5. Work covered to protect from external matter / bad weather until it hardens

RANGE STATEMENT

Work has to be performed on a paved area. It may be perfectly level or sloping as specified. Rendering may be done on floors, curbs, steps, nosing, and semi-circular or flat drains. Skirting may be done along with the floor rendering, before the rendering or after the floor rendering. All work should comply with health, safety and environmental regulations.

Tools and equipment may include:

- Measuring tape
- Finishing trowel
- Straight edge (ruler)
- Mixer (mixing machine
- Mammoty
- Wheel barrows
- Safety gear
- Masons trowel
- Wetting brush
- Mortar board
- Builders square
- Shovel
- Concrete pans
- Sprit level

The material used may include;

- Ordinary Portland cement

- Sand
- Water
- Colour pigments
- Special decorative chips

ASSESSMENT GUIDE

Forms of assessment

Continuous assessment is suitable for this unit.

Assessment context

This unit may be assessed on the job demonstrated individually. This unit could be assessed individually or in conjunction with other related units.

Critical aspects

- Uniform height of the skirting
- Thickness of skirting
- Verticality of the skirting

Assessment condition

The candidate will have access to:

- All tools, equipment and material mentioned in the range statement

The candidate will be permitted to refer:

- Any drawings/ plans/ sketches/ letters relevant to the work
- Any superior or team mate relevant to the work

The candidate will be required to:

- Orally, or by other methods of communication, answer questions asked by the assessor.
- Identify superiors who can be approached for the collection of competency evidence where appropriate.

Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, and that he/she possess the required underpinning knowledge.

Special notes

The candidate should show signs of methodical approach to the work. Candidate should organise the work in such a way to avoid bad effects on health, environment and safety

Resources required for assessment include;

These include all the tools, equipment and related material listed under this unit

UNDERPINNING KNOWLEDGE AND SKILLS

Underpinning Knowledge	Underpinning Skills
• Cement sand mix ratios • Effect of water on cement • Hardening time of the mix • Preparation of slurry • Proper time to give the 'finish' with cement slurry • Decorative finishes • Curing of the floor • Constitution of mortar mix	• Mixing to attain the required plasticity and consistency • Usage of colouring powder to give a uniform colour • Smoothening until marks disappear and to a perfect level using the trowel • Getting a smooth joint between the skirting and the floor rendered • Getting a good finish at the top edge of the skirting • Rectification of cracks on floor rendering • Making a good joint with an existing rendering

UNIT TILE	Carry out decorative plastering work				
DESCRIPTOR	This unit covers the competencies required to carry out decorative work connected to plastering work and includes the operations which require special tools, material and techniques ensuring safe working conditions and safe use of tools, equipment and material.				
CODE	CON08S2U09VI	Level	3	Credit	4

ELEMENTS OF COMPETENCE	PERFORMANCE CRITERIA
1. Prepare for decorative plastering work	1.1. Drawing and specifications read and interpreted, information regarding the work to be done gathered 1.2. Time, material, equipment, tool and machinery required to perform the work as outlined, estimated 1.3. Availability and suitability of tools, equipment, materials checked and action taken to rectify short comings if any 1.4. Work set out according to the drawings by establishing base line / parallel lines and fixing strings and timber fillets / laths/ strips 1.5. Plastered surface chipped out/ scraped to prepare the base to receive plaster 1.6. Special tools / moulds turned out using wooden strips / regifoam / plaster of paris / fibre glass to match the shape required
2. Perform decorative plastering work	2.1. Quantity of plaster required for the job in hand determined 2.2. Plaster mix prepared as per the specifications considering the setting time and other properties of the plaster 2.3. Mouldings, cornices, coping built using plaster mix according to given drawings and specification 2.4. Ready made decorative fixtures fixed, excess

	plaster removed and touch up work done to finish decorative plaster

RANGE STATEMENT

Work may take place at wall surfaces and soffits at various heights in buildings. All work should comply with health, safety and other environmental regulations.

The following material, tools and equipment are included within this unit:

- Pointing trowel
- Try square
- Plumb bob with mackily
- Water tube
- Nails
- Mortar board
- Pan
- Wooden float/ Hawk
- Safety gear
- Measuring tape (30m)
- Sprit level
- Gauge staff
- Mason's trowel
- Nylon string
- Pocket tape (3m)
- Wetting brush
- Scaffolding
- Moulds according to the shape of the decorative work
- Special tools turned out according to the shapes of decorative work
- Sand
- Cement
- Lime
- water

ASSESSMENT GUIDE

Forms of assessment

Continuous assessment is suitable for this unit.

Assessment context

This unit shall be assessed on the job, or off the job in a simulated setting

Critical aspects

- Surface finish as per the specifications
- Neatness of the work

Assessment condition

This unit must be assessed separately. The candidate

- Will have access to all tools, equipment, material and documentations required
- Will be permitted to refer any relevant drawings
- Will be required
    - Orally, or by other methods of communication, answer questions asked by the assessor.
    - Identify superiors who can be approached for the collection of competency evidence where appropriate.

Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, and that he/she possess the required underpinning knowledge.

Special notes

During assessment, the individual will:

- Demonstrate safe-working practices at all times
- Communicate information about processes, events or tasks being undertaken to ensure a safe and efficient working environment
- Take responsibility for the quality of their own work
- Plan tasks in all situations and review task requirements as appropriate
- Perform all tasks in accordance with standard operating procedures
- Perform all tasks to specification

- Exhibit special skills in decorative work
- Protect finished surfaces surrounding the work area

Resources required for assessment include;

All tools, equipment, machinery and related material listed under the range statement for the unit

UNDERPINNING KNOWLEDGE AND SKILLS

Underpinning Knowledge	Underpinning Skills
• Elementary building drawings • Conversion of imperial measurements to metric • Basic arithmetic & calculations • Basic geometry to include angular and longitudinal measurements • Methods of taking offsets / measurements • Safety precautions to be taken when working in building sites • Availability & application of various readymade decorative fixtures • Awareness of traditional arts • Use and mixing of colours	• Handling of all tools mentioned in the range statement • Use of measuring, special tools and turned out moulds. • Taking measurements • Safe working skills on scaffoldings and at heights • Checking the workability of mortar • Decorative work practices • Making special tools & moulds out of suitable material as necessary

UNIT TILE	Fix door & window frames				
DESCRIPTOR	This unit covers the competencies required to set out and fix door and window frames and other related structures on the walls and floors of a building. It covers the operations, which require basic tools and techniques used in masonry, ensuring safe working condition and safe use of tools, equipment, machinery and material.				
CODE	CON08S2U10VI	Level	3	Credit	3

ELEMENTS OF COMPETENCE	**PERFORMANCE CRITERIA**
1. Prepare for fixing frames	1.1. Drawings and the given schedule of doors and windows read, frames interpreted and frames to be fitted identified with the position and orientation 1.2. Openings and spaces provided on the walls checked to ensure conformity to the plan 1.3. Horizontal and vertical positions of the frames marked and set out to erect the frame, as per the drawings 1.4. "Reveal" around the frame checked for conformity with the given specifications 1.5. Frames to be fixed, selected as per the drawing 1.6. Selected frames checked for dimensions, suitability of horns provided, accuracy of corners, rigidity and action taken to rectify short coming if any
2. Fix door and window frames	2.1. "Hold fasts" and "dowel bars" fixed to the frame as per the requirements 2.2. "Spur stones" fixed as per the requirements 2.3. Frame erected and made vertical in both vertical planes 2.4. Frame fixed rigidly to the wall with cement mortar and similar building material used for the construction of the wall 2.5. Arrangements made to protect the frame from

	movements until cement mortar get hardened 2.6. Frame, work place, and tools used cleaned to remove any adhered cement mortar

RANGE STATEMENT

Doors and window frames may be made out of timber, or pre-cast concrete. Frames have to be fixed on walls of any thickness and of any material, at any level. All work should comply with health, safety and environmental regulations.

Tools and equipment required may include:

- Plumb bob with mackily
- Spirit level
- Water tube
- Cutting chisel
- Small sledge hammer
- Mason's trowel
- Shovel
- Pan
- Ruler/ straight edge
- Measuring tapes 30m and 3m
- Drill
- Personal safety gear, overall, shoes, helmet etc

Material required may include:

- Door and window frames
- Holdfasts
- Spur stones
- Props
- Pegs
- Wire nails
- Dowel bars
- Screws
- Cement and mortar
- Clamps

- Coir string

ASSESSMENT GUIDE

Forms of assessment

Continuous assessments is suitable for this unit

Assessment context

This unit may be assessed on the job or off the job demonstrated individually as working in a team. This unit could be assessed individually or in conjunction with other related units.

Critical aspects

- Determine the positions of the frame properly and project corresponding positions to surrounding walls.
- Sequence of positioning along the length of the wall along the width of the wall and parallel to the wall, plumbing and making the frame truly vertical in both adjacent vertical planes

Assessment condition

The candidate will have access to:

- Drawings
- Select his own team
- Tools required
- Select the frame to be fixed

Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, and that he/she possess the required underpinning knowledge.

Special notes

During assessment the candidate should

- Demonstrate safe-working practices at all times
- Communicate information about processes, events or tasks being undertaken to ensure a safe and efficient working environment
- Take responsibility for the quality of their own work
- Plan tasks in every situations and review task requirements as appropriate

- Perform all tasks in accordance with standards operating procedures
- Perform all tasks o specifications
- Use accepted techniques, practices, processors and workplace procedures
- Plan and use all resources economically and efficiently

The candidate should also be able to demonstrate the related work patiently, and follow and adopt traditional practices, as necessary

Resources required for assessment include;

All the tools, equipment and machinery and related material listed under the range statement for the unit

UNDERPINNING KNOWLEDGE AND SKILLS

Underpinning Knowledge	Underpinning Skills
• Reading and interpretation of drawings and schedules • Checking the accuracy of a rectangle • Preservation of wood • Types of fixtures used for fixing frames • Method of frame fixing • Usage of spur stones and holdfasts • Safety precautions	• Taking measurements and checking the diagonal • Shifting and positioning the frame methodically • Checking of verticality of the frames • Setting out and marking the corresponding marks of a frame, on the surrounding wall • Holding tight the frame in the correct position • Filling the gap between the frame and the wall without leaving voids and loose filling • Firmly propping of the frames • Ability to adhere to safety precautions

UNIT TILE	Lay drains				
DESCRIPTOR	This unit covers the competencies required to lay drains and other structures connected with it. It covers working with cement, sand and other construction materials and pre cast units ensuring safe working conditions and safe use of related tools, equipment, machinery and material.				
CODE	CON08S2U11VI	Level	4	Credit	10

ELEMENTS OF COMPETENCE	**PERFORMANCE CRITERIA**
1. Read and interpret relevant drawings & sections and set out trench as per the plan	1.1. Reference line of the plan established and profile boards and pegs fixed according to the reference points 1.2. Positions of joints / manholes / pits located as per the drawings 1.3. Base line and other lines of the drainage laying established as per the drawings 1.4. Levels established maintaining specified. gradients 1.5. Angles (90°, 60°,45°,30°) established and connections set out as per the drawing 1.6. Structures set out, to include pits, manholes, drop structures, errors if any rectified 1.7. Accuracy of levels checked as per the drawings
2. Select tools and material required for the job	2.1. Appropriate tools selected to lay drains 2.2. Suitability and stability of natural bedding / other bedding material, sand, checked as per the specifications or as specified by the superiors 2.3. Pipes, pre cast components, checked for cracks / damage and for inferior quality and action taken to eliminate effects on strength and leakage 2.4. Cement, metal, sand and other material available checked for quality as specified and action taken to rectify short comings if any
3. Check the trench	3.1. Specifications of the trench checked as per the

	and bedding for Conformity according to drawings		drawings or as instructed by superiors
		3.2.	Compactness of the trench checked as per the specifications or instructed by superiors to minimize sagging
		3.3.	Water penetration checked and action taken to remove water from the trench if any collected, to facilitate laying of bedding
		3.4.	Bedding laid on the trench as per the specifications
4.	Lay pipe	4.1.	Pipes lowered into trench and aligned with the centre line
		4.2.	Pipes aligned to levels as specified in the drawings or as instructed by the superiors
		4.3.	Pipes laid according to the drawings or as instructed by superiors
5.	Construct joints / collars	5.1.	Mortar mix prepared as specified, by directing / assisting the team mates
		5.2.	Appropriate tools selected to suit the joints to be constructed
		5.3.	Consistency of motor checked, and corrective action taken if necessary, to improve workability of mortar
		5.4.	Form work erected around the joints, to connect the pipes as required
		5.5.	Saddle placed over the joints and pipes secured in position
		5.6.	Collars made or placed at joints (if pre cast collars specified) as per the drawings / specification or as instructed by superiors
		5.7.	Trench dewatered (if necessary) before sealing the joints, and joints sealed to ensure a leak proof joint
6.	Build catch pits / gullies / man holes	6.1.	Locations of catch pits/ gullies / manholes identified as per the drawings
		6.2.	Excavation checked for accuracy, soil condition

	and water penetration 6.3. Shoring and shuttering (if erected) checked for suitability 6.4. Cement / mortar / concrete mix prepared as per the requirements 6.5. Concrete placed and compacted to form the foundation as specified 6.6. Bench made or pre-cast bench unit placed at the bottom as per the drawing 6.7. Walls of the catch pit / manhole/ gullies concreted and compacted as specified 6.8. Concrete covers cast to suit the catch pits / gullies/ manholes with provision for lifting the cover 6.9. Pre cast covers placed over the catch pits / gullies/ manholes to seat the opening and seal completely

RANGE STATEMENT

This unit covers the competencies in laying pipes & drains for waste water, storm water, sewer and other discharging fluids. Work take place at sites. All work should comply with health, safety and environmental regulations. Carpentry & shuttering must be limited to simple pits and manholes.

The paving work is covered within the unit on "Carry out paving work".

The following tools and equipment may be used in this unit:

- Measuring tape (30m)
- Pocket tape (3m)
- Try square
- Builder's square
- Profile boards
- Claw hammer
- Crow bar

- Centre pins
- Water tube
- Plumb bob and mackily
- Spirit level
- Wooden pegs
- Safety kit
- Masonry trowel
- Baby tampers
- Chain blocks
- Pickaxes
- Shovel
- Plate compacters
- Dewatering pump

The following material may be required

- Cement
- Metal
- Collars
- Timber for shuttering
- Sand
- Pipes-Clay, PVC, GI, Concrete
- Pre cast components

Other materials may include

- Nylon stings
- Wire nails
- Coir strings
- Paper pins

ASSESSMENT GUIDE

Forms of assessment

Continuous assessment is suitable for this unit

Assessment context

- This unit shall be assessed on the job demonstrated as part of a team

- This unit may be assessed separately or with the unit on "carryout paving work"

Critical aspects

- Accuracy on aligning and levelling the drain as against the given specifications

Assessment conditions

This unit covers the competencies required to lay drains and other structures connected with laying of drains. It covers working with cement, sand and other construction materials and pre cast units as well

- The candidate will have access to all tools, equipment, material
- The candidate will be permitted to refer any relevant drawings
- The candidate will be required
    - Orally or by other methods of communication to answer questions put forward by the assessor
    - To identify superiors and clients who can be approached for competency evidence where appropriate

Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, and that he/she possess the required underpinning knowledge.

Special notes

During assessment, the individual will:

- Use appropriate techniques in constructions of man holes for connection to the central drainage system
- Demonstrate safe-working practices at all times
- Communicate information about processes, events or tasks being undertaken to ensure a safe and efficient working environment
- Take responsibility for the quality of their own work
- Plan tasks in all situations and review task requirements as appropriate
- Perform all tasks in accordance with standard operating procedures
- Perform all tasks to specifications

Resources required for assessment include;

All the tool, equipment, machinery and related material listed under the range statement for the unit

UNDERPINNING KNOWLEDGE AND SKILLS

Underpinning Knowledge	Underpinning Skills
• Elementary knowledge of building drawings • Sewers, manholes and building drainage • Paving & pipe laying • Drainage connections authorized by the Local Authority • Types of bedding and their compactness • Safety precautions in working in trenches • Types of manholes • Conversion of measurements from imperial units to metric units • Gradients and tolerances associated with laying and paving • Masonry, rendering & plastering work • Different kinds and types of pipes materials and their characteristics • Environmental factors connected with dispersing fluid & sewer • Testing of pipes and gradients symbols and signals used in hoisting and lowering of pipes	• Correct handling of all tools and equipment mentioned in range statement • Taking measurements & transferring of levels • Techniques of placing inlets and outlets • Hoisting, lowering, placing & laying of pipes & drains • Safety precautions in laying pipes • Team work to coordinate with other tradesmen in laying pipes & drains • Maintaining gradients as specified

UNIT TITLE	Erect scaffolds				
DESCRIPTOR	This unit covers the competencies required to erect and dismantle scaffolding for building and other structures. It covers working with steel and bamboo scaffolding ensuring safe working conditions and safe use of tools equipment machinery and material				
CODE	CON08S2U12VI	Level	3	Credit	10

ELEMENTS OF COMPETENCE	**PERFORMANCE CRITERIA**
1. Prepare to erect scaffolds	1.1. Tools, equipment, material selected to erect/ dismantle scaffolds, considering type of scaffold 1.2. Scaffolding material, equipments, fittings stacked at work site for easy retrieval 1.3. Time, equipment and machinery required to erect/ dismantle the scaffolding determined as outlined in the specifications 1.4. Transport of material, equipment to and form the sties coordinated 1.5. Ground condition of the workplace where scaffolding is to be erected inspected action taken to prepare the place for scaffolding
2. Interpret technical and safety information to erect and dismantle scaffolds	2.1. Organizational information outlining safety at site in relation to scaffolding work obtained read and interpreted 2.2. Superior's advice sought in critical issues pertaining to safety in scaffoldings 2.3. Safety signs to be used identified and placed according to accepted procedures 2.4. Relevant authorities informed about safety aspects 2.5. Technical instructions in dismantling scaffolding observed and scaffolding dismantled safely
3. Erect putlog scaffolds	3.1. Sole boards positioned as specified and base plates placed on sole boards

		3.2. Putlogs provided according to the necessity 3.3. Putlog ends, ledges, stands, fixed as per the specification and stands plumbed 3.4. Components connected with appropriate couplers 3.5. Braces fixed to stand using suitable couplers 3.6. Scaffolds made rigid by fixing ties as required 3.7. Scaffolding planks fixed and temporary working platforms made according to the work requirements 3.8. Access ways and hard rails provided to scaffolds as specified 3.9. Stability of scaffolding checked, adjustments made, actions taken to rectify shortcomings if any
4.	Erect independent type of scaffolds	4.1. Sole boards positioned as per the specifications to allow base plates / stands to be accommodated 4.2. Base plates set out on sole boards as specified 4.3. Ledges, transoms and stands erected as specified 4.4. Components joined to ledges and stands with appropriate couplers 4.5. Buttresses provided to support the scaffolds as required 4.6. Intermediate stands fixed to improved the rigidity of the scaffolds 4.7. Suitable scaffolding boards selected and provided as required and checked for stability 4.8. Access ways and handrail provided to the scaffolds as specified / required 4.9. Safety nets fixed and other safety measures taken to prevent accidents
5.	Erect frame scaffolds	5.1. Sole boards positioned and base plates placed on the ground as specified 5.2. Frames erected to required / specified height, following appropriate sequence 5.3. Frames connected with joint pins and sway

	braces foxed to scaffolds as specified 5.4. Boards fixed to scaffolds to construct working platform as per the instruction 5.5. Access way and hand rails proved to the scaffold according to the requirements or as specified 5.6. Ties fixed to scaffold at appropriate distance 5.7. Stability of scaffolding checked and necessary adjustments made to rectify shortcoming if any 5.8. Caster wheels fixed as specified where necessary
6. Dismantle members and store scaffolds	6.1. Scaffold dismantling sequence planned in the reserve order of assembly 6.2. Action taken to ensure safety dismantling scaffoldings 6.3. Scaffolding, members and fixing devices selected and stored according to their functioning

RANGE STATEMENT

Work takes place at construction sites. Competency should be confined to buildings and structures such as two storied buildings, retaining walls. At all other occasions, specialized scaffolders will perform the work included in this unit. All work should comply with health, safety and environmental regulations.

The following tools and equipment are included within this unit.

- Measuring tape (30m)
- Scaffolder's spanners
- Hack Saw
- Plumb bob with mackily
- Mammoty
- Safety helmets, belt, gloves, etc
- Wheel barrow
- Adjustable spanner and Wrench
- Hammer
- Shovel
- Crow bar

- Knife

The following materials may be required

- Galvanized Steel tubes 50mm & 75mm diameter
- Base plates
- Swivel couplers
- Toe board and clips
- Putlog end
- Joint pins
- Reveal pin
- Key clamps
- Coir strings
- Frame scaffolding components
- Castor wheels with lock
- Sole board
- Right angled couplers
- Parallel couplers
- Finial couplers pulley system
- Putlog couplers
- Universal couplers
- Fork head
- Ropes
- Sleeve couplers
- Ladders
- Bamboo

ASSESSMENT GUIDE

Forms of assessment

A continuous assessment is suitable for this unit.

Assessment context

This unit must be assessed separately

Critical aspects

Rigidity, vertically and squareness of the scaffold

Accuracy of measurements
Safety

Assessment condition

This unit covers the competencies required to erect different types of scaffolds made out of steel pipes, bamboo or frames.

- The candidate will have access to all tools, equipment, material and necessary assistance.
- The candidate will be required
    - Orally or by other methods of communications to answer question asked by assessor

Assessor must be satisfied that candidate can competently and consistently perform all elements of the unit as specified by criteria and that he/she possesses the required underpinning knowledge

Special notes

- During assessment, the individuals will demonstrate safe-working practices at all times
- Communicate information about processes, events or tasks being undertaken to ensure a safe and efficient working environment
- Plan tasks in all situations and review task requirements as appropriate
- Perform all tasks in accordance with standard operating procedures
- Perform all tasks to specifications

Resources required for assessment include

The tools, equipment and related material listed under this unit.

UNDERPINNING KNOWLEDGE AND SKILLS

Underpinning Knowledge	Underpinning Skills
• Drawings related to construction work • Tools & Equipments and materials needed to carryout necessary tasks in scaffolding • Dangers in working on scaffoldings and the need to protect surrounding areas • Methods of handling and lifting component pasts of scaffolding • Inspection, maintenance and storage of material used in scaffolding • Different types of scaffolding and their applications • Identification of different ground conditions for scaffolding • Sequence of operations necessary when loading and unloading scaffolding, materials, tools and equipment • Types of knots and hitches used • Different scaffolding components • Materials for different types of scaffold • Transport methods of scaffolds at different instances • Safety precautions	• Selection and use of all tools, materials and equipment in a correct manner for specified tasks mentioned in the unit • Selection of bases on various ground conditions to suit specific scaffold • Construction of temporary access runs over existing work • Lifting, carrying and raising into position scaffolding fittings and equipment, safety and in correct manner using various methods • Doing knots and hitches for specific components • Inspection and selection of badly damaged equipment tools and components, which include tubes, couplers, accessories, boards ladders ropes and coir string • Preparation of scaffold bases on different types of graunds for various types of scaffolds • Assisting in setting ladders in position and check for defects including spilt stiles, missing rungs broken and badly split rungs • Selection of basic types, sizes to suit purpose of all main scaffolding components by eye estimation • Erections and dismantling of putlog dependent and independent types and frame scaffolds • Safe working scaffolds

UNIT TITLE	Carry out tiling works				
DESCRIPTOR	This unit covers the competencies required to fix tiles. It applies to working with ceramic, mosaic, cement tiles, terra-cotta tiles and the preparation of background surfaces ensuring safe working conditions and safe use of related tools, equipment, machinery and materials.				
CODE	CON08S2U13VI	Level	4	Credit	10

ELEMENTS OF COMPETENCE	**PERFORMANCE CRITERIA**
1. Calculate material requirements	1.1. Measurement of the surface to be tiled taken and number of field tiles and accessory tiles required, calculated according to the layout / design 1.2. Quantity of adhesives/ tile grout required calculated in accordance with manufacture's specifications and standards / norms
2. Prepare back ground	2.1. Back ground surface to which the tiles to be fixed identified, and checked for levels and 'squareness' as against the given specifications and necessary actions taken to rectify short comings if any 2.2. Tools selected according to the work requirements 2.3. Sound base made by placing concrete as necessary 2.4. Background surface plastered or rendered and water proofed according to the given specifications or according to standard practices
3. Prepare adhesive / cement sand grout	3.1. Adhesive selected to suit the background surface and the type if tiles 3.2. Quantity of adhesive/ cement sand to be mixed at one time decided considering the expected rate of tile laying and manufacturer's specifications on adhesive / cement hardening 3.3. Standard procedures followed and adhesives / cement, sand mixed according to the

	manufacturer's specifications.
4. Fix tiles on surfaces	4.1. Adhesives selected to suit the background surface and the type of tiles 4.2. Layout set out, according to the given design or following standard practices 4.3. Sliding down of tiles prevented by fixing batten horizontally at the bottom of laying 4.4. Surface level of the tiles checked to ensure that all are in one place 4.5. Adhesives / cement sand grout applied to the required thickness 4.6. Tile fixed to the surface, even joint maintained vertically / horizontally as required
5. Finish tiling work according to customer's requirements	5.1. Tile grouts, selected to suit tiling work considering colour of tiles and the nature of use the tiled surface 5.2. Tools and equipment selected according to the work to be handled 5.3. Excess adhesive/ grout lumps, formed in grooves removed and joints cleaned without damaging edges of tiles 5.4. Tile grout mixed according to the manufacturer's specifications 5.5. Tile joints filled completely with grout according to the standard procedures, grout left to dry and harden as specified by manufactures 5.6. Joints finished to a concave shape, even and uniform finish obtained on the whole tiled area
6. Repair tiling work	6.1. Tools and material appropriate to the repair work selected 6.2. Unsuitable tile/s removed from the existing surface without damaging the good tiles 6.3. Back ground surface cleaned and prepared to accommodate new tiles 6.4. New tile/s fixed, maintaining the existing design

	and pattern 6.5. Grout applied to joints and finished to match the existing work 6.6. Joints finished with grouting to match the rest of the area 6.7. Work finished by removing excess grout by suitable means

RANGE STATEMENT

Work shall be performed in accordance with the established processes, practice and specifications. Work shall be performed to drawings, sketches and instructions as appropriate. Work shall be carried out to predetermined standards of quality and safety. All work should comply with health, safety and environmental regulations

The adhesive referred may include:

- Cement grout adhesives
- Rubber based adhesives
- Readymade adhesives

The following tools, equipment and material may be used for this unit:

- Masonry trowel
- Club hammer
- Hawk
- Pocket tape (3m)
- Tile cutter
- Mechanical cutter
- Rod saw
- Profile gauge
- Notched trowel (floor)
- Grout finisher
- Grout remover
- Pointing trowel
- Plastering trowel

- Marking tape
- Try square
- Scriber
- Wheel cutter
- Angle grinder
- Notched trowel (wall)
- Grout spreader
- Tile sponge
- Water tube
- Plumb bob and mackily
- Safety kit
- Spirit level (light weight)
- Rubber hammer

Materials may include

- Tile grout
- Tile adhesive
- Tiles spacers
- Wooden battens
- Nylon strings
- Sand
- Tiles including ceramic tiles, cement tiles, mosaic tiles, terracotta tiles and related accessories
- Concrete nails
- Cement
- Water

ASSESSMENT GUIDE

Forms of assessment

A continuous assessment is suitable for this unit.

Assessment context

This unit may be assessed on the job, demonstrated by an individual working alone or working in a team. This should be assessed alone;

Critical aspects

- No water retention
- Design and pattern of tile laying
- Tile bounding to background
- Surface level
- Finish of joints

Assessment condition

The candidate will have access to

- All tools, equipment, material and demonstrations required.
- The candidate will be permitted to refer any relevant drawings
- The candidate will be required
- to answer questions asked by assessor
- to identify superiors and clients who can be approached for collection of competency evidence where appropriate

Assessors must be satisfied that candidate can competently and consistently perform all elements of the units as specified by criteria and that he/she possess the required undermining knowledge.

Special notes

During assessment, the individuals will

- Demonstrate safe working practices at all times
- Communicate information about processes, events or tasks, being undertaken to Ensure a safe and efficient working environment
- Take responsibility of his/ her own work
- Plan tasks in all situations and review task requirements as appropriate
- Perform all tasks mentioned in the rage statement of this unit and review task Requirements as appropriate
- Perform all tasks in accordance with the standard operating procedures
- Perform all tasks to specifications

Resources required for assessment include;

All the tools, equipment, machinery and related material listed under the range statement for the unit

UNDERPINNING KNOWLEDGE AND SKILLS

Underpinning Knowledge	Underpinning Skills
• Knowledge in building drawing related to small construction • Basic arithmetic • Basic geometry including angular measurements, corner measurements and longitudinal measurements • Safety precautions connected with building sites and in using adhesives and handling tiles • Conversions of measurements from imperial units to metric unit • Laying out designs • Method of checking out of square position of background surface • Sizes of wall tiles, floor tiles and accessory tiles and their applications • Thickness of tile adhesive, backing • Waterproofing methods • Types of tile adhesives and their applications • Tile grout available in the market • Precautions to be taken to safeguard accessories and fixtures related to other service lines • Estimation, basic calculations and cost imperial and metric units.	• Handling of all tools mentioned in range statement • Checking out square, of the backgrounds • Plastering and rendering surfaces • Placing of concrete to base • Fixing tiles • Maintenance of the thickness of the joints • Grouting • Finishing of tile joints • Cleaning of the tiled surfaces • Removal of broken tiles from existing surfaces. • Marking various shapes on tiles • Cutting tiles to various shapes • Safety consciousness, safe working procedures • Selection of tile grout.

UNIT TITLE	Carry out arch work, decorative brick work, rubble and kabook structure work				
DESCRIPTOR	This unit covers the competencies required to construct arches and decorative brick rubble and kabook structures and includes the operations, which requires arch moulds basic tools, material and techniques ensuring safe working conditions and safe use of related tools, equipment, machinery and material.				
CODE	CON08S2U14VI	Level	4	Credit	10

ELEMENTS OF COMPETENCE	**PERFORMANCE CRITERIA**
1. Prepare for work	1.1. Drawings read and interpreted, type of arch or other decorative bonds to be constructed identified as per the drawings 1.2. Time, material, equipment and man hours required to carry out the work as outlined estimated 1.3. Type of bricks, rubble and kabook pointing to be done identified as per the drawings 1.4. Material selected to suit the construction 1.5. Tools and equipment selected to fix frame and lay arch and other decorative bonds as necessary 1.6. Special tools made to suit, the pointing work as required
2. Mould the frame for construction of the arch as given in the drawing and fix, align and level in position	2.1. Arch frame made as per the drawings, centred and located 2.2. Sleepers, wedges prepared to support the bearer and frame positioned, aligned, levelled and fixed as per the drawings 2.3. Point bricks, rubble or kabook, cut to various shapes and sizes as required 2.4. Crown of the arch marked on the frame to centre the key brick
3. Construct arches	3.1. Bricks prepared as per the arch design

and other structures	3.2. Pointing rubble or kabook prepared to specified shapes of arch and decorative bond 3.3. Mortar mixed according to the requirements of decorative structure 3.4. Bricks laid from each end of the arch/decorative structure simultaneously 3.5. Joints prepared according to the type of pointing required 3.6. Mortar mix prepared to suit the pointing work 3.7. Arch / decorative bonds cleaned, made tidy and work finished to specification

RANGE STATEMENT

Work may take place in buildings, boundary walls, partitions, kerb walls, screen walls, thick walls, and other places where such structures are required. All work should comply with health, safety and other environment regulations

The following tools and equipment are included within this unit.

- Nylon cord
- Measuring rule
- Pencil
- Scriber
- Carpenter's hammer
- Pointing trowel
- Plumb bob with mackily
- Frame saw
- Carpenters steel square
- Watering can
- Shovels
- Pans
- Safety gear
- Wetting brush
- Pocket tape (3m)
- Joint iron

- Brick hammer
- Brick trowel
- Bolster chisel
- Spirit level
- Hand saw
- Water tube
- Sponge
- Sieves
- Scaffolding/trestles

The bricks and rubble used for arches can include

- Wire cut bricks
- Shaped kabook
- Square rubble
- Normal bricks

ASSESSMENT GUIDE

Forms of assessment

Continuous assessment is suitable for this unit

Assessment context

This unit may be assessed on the job or off the job in a simulated setting demonstrated by an individual working alone.
This unit may be assessed separately or in conjunction with other related units

Critical aspects

- Shape of the arch/structure
- Finish of arch/structure/joints/pointing work

Assessment condition

- The candidate will have access to all tools, equipment, materials and demonstrations required
- The candidate will be permitted to refer any relevant drawings
- The candidate will be required

- orally or by other method of communication to answer questions put forward by the assessor
- to identify superiors who can be approached for collection of competency evidence where appropriate

Assessors must be satisfied that candidate can competently and consistently perform all elements of the unit as specified by criteria and that he/she possesses the required underpinning knowledge

Special notes

During assessment, the candidates will

- Demonstrate safe working practices at all times
- Communicate information about processes, events or tasks being undertaken to ensure a safe and efficient working environment
- Take responsibility for quality of his/her own work
- Plan tasks in all situations and review task requirements as appropriate
- Use appropriate techniques in construction of arches and other decorative work
- Perform tasks in all situations and review task requirements as appropriate
- Perform all tasks in accordance with standard operating procedures
- Perform all tasks to specifications

Resources required for assessment include;

All the tools, equipment, machinery and related material listed under this unit

UNDERPINNING KNOWLEDGE AND SKILLS

Underpinning Knowledge	Underpinning Skills
• Types of arches • Special types of bricks, pointing rubble and kabook • Decorative work in masonry structures • Areas where special materials are available • Basic geometry and arithmetic • Material prices	• Correct handling of all tools and equipment mentioned in the range statement • Interpretation of measurements according to the drawings • Construction of frame arch • Selection of necessary parts of arch frames and ability to saw them according to the required

• Methods of laying out the designs • Quality of materials • Constructions of arch to withstand load • Laying principles of bricks and pointing of rubble and kabook • Pointing of inner and outer joints • Safety precautions relevant to building sites	measurements • Assembly of the arch moulds • Fixing of the arch moulds by means of props, wedges and bearers • Aligning of arch frames • Form the bricks according to the required shapes in order to meet joints • Lay bricks with on the arch moulds and lock the key brick on the centre arch • Safe removal of the arch frame systematically after taking off bottom wedges • Prepare rubble, kabook and brick structures according to required shapes • Erect walls with bricks, rubble or kabook either with or without joints • Point the joints, to suit the pointing work • Construction of load bearing arches • Perform various types of pointing work • Safe practices in arch and decorative bond work