



FINISH MONDIAL
UGANDA



TRAINING MANUAL FOR SANITATION ARTISAN

Based on Assessment and Training Packages (ATP)
for Directorate of Industrial Training DIT
2nd Edition



Developed in Partnership with
FINISH Mondial Uganda, SHF, the Directorate of Industrial Training
and Government of Uganda

June 2024

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Abbreviations and Acronyms

ATP	Assessment & Training Packages
DIT	Directorate of Industrial Training
QS	Qualification Standards
LWA	Learning-working Assignment
PEX	Practical Exercise
PTI	Performance (Practical) Test Item
OP	Occupational profile
RPL	Recognition of Prior Learning
M1,M2,M3,M4,M5,M6,....	Module number
UVQ	Uganda Vocational Qualification
UVQF	Uganda Vocational Qualifications Framework

Word from Permanent Secretary

The Ministry of Education and Sports (MoES) in co-operation with the private sector and other stakeholders embarked on reforming Business, Technical and Vocational Education and Training (BTJET) in Uganda. The reform led to the establishment of a Uganda Vocational Qualifications Framework (UVQF) based on Competence-Based Education and Training (CBET) principles.

The advantages of CBET include improved access, equity and relevance of skills training, reduced unit costs of training, and recognition of Prior Learning (or on-the-job- training), among others.

As the Ministry executes its obligation of ensuring quality in training standards, the public- private partnership is being strengthened to improve occupational competence of the country's workforce without gender bias.

Further to efforts to link Education and Training to the real world of work, the Ministry through the BTJET department set up the Uganda Vocational Qualifications Framework (UVQF) Secretariat in 2004 which was main-streamed into DIT in 2008 as the Qualifications Standards Department.

To achieve the set-out targets in the reform process, the Directorate embarked on the anticipated UVQF design and development piloting its instruments and mechanisms in order to effectively enhance Competence-Based Education and Training (CBET) in Uganda.

In this regard, the Directorate of Industrial Training in collaboration with Sanitation and Hygiene Fund (SHF), FINISH MONDIAL UGANDA, Caritas Fort Portal-HEWASA and Amref Health Africa have developed a Training manual for Sanitation Artisans under the FINISH MONDIAL project.

This Training manual however can be used by any training provider and/or those who wish to present themselves for Occupational Assessment and Certification in the field of sanitation.

Finally, I thank all individuals and development partners; FINISH MONDIAL UGANDA, Caritas Fort Portal - HEWASA and Amref Health Africa who have contributed and/or participated in the development of this noble document.

KETTY LAMARO

PERMANENT SECRETARY

Executive Summary

This Training manual for Sanitation Artisans is a Competence-Based Education and Training (CBET) tool developed basing on Assessment & Training Packages (ATPs) of various occupations from DIT and consists of the following key areas;

1. Summary of the selected Training Modules
2. Details of the selected Modules and;
3. Assessment standards in form of sample test items

“Training Modules” are the guidelines for training Sanitation Artisans both on the job as well as in training centers (or combinations of both venues of learning). The Training Modules in this manual have been developed basing on the Occupational Profiles of different Occupations and hence are directly relevant for employment in the world of work.

The modular format of the curriculum contained in this manual allows learners to acquire job specific skills and knowledge (i.e. competencies) module by module. A single module can be accomplished within a relatively short time allowing flexibility for learners to move directly into the job market, go for further modules within the level and consequently advance to higher levels of training. Modular training allows improved accessibility to training as well as lifelong learning at training institutions and industry

In addition to improved access, equity and relevance of skills training, this training will enable people who have acquired competencies laid down in this Training manual through prior training and on-the-job experience to access assessment and certification directly; be it on the basis of a single module, a group of modules or all the modules contained in the manual. This achievement will facilitate Recognition of Prior Learning (RPL).

This Training manual for Sanitation Artisans may be periodically revised to match the dynamic trends in the occupations and hence issued in different versions.

Dr. Patrick Byakatonda

Director-DIT

1. 0 Introduction/Background

Uganda's pursuit of **Vision 2040** places significant importance on improving access to sanitation as part of its broader economic transformation agenda. With the decentralization of services, local governments are empowered to enforce sanitation laws, creating an urgent need for skilled labor to construct sanitation facilities that are both safe and durable.

The **Directorate of Industrial Training (DIT)**, under the Ministry of Education and Sports, plays a key role in ensuring quality vocational education. As part of the **Business Technical and Vocational Education and Training (BTJET)** framework, DIT has developed Assessment and Training Packages (ATPs) for various trades, including sanitation artisans.

Over the past years, the **Sanitation and Hygiene Fund (SHF)**, **FINISH Mondial Programme**, in partnership with DIT and other stakeholders, has been implementing initiatives aimed at increasing the capacity of artisans to construct sanitation systems. This training manual serves as a blueprint for standardizing artisan training, ensuring that artisans receive the necessary skills to construct safely managed sanitation systems in both urban and rural settings.

1.1. Justification and Purpose

The sanitation sector in Uganda faces critical challenges related to the construction of safe, hygienic, and easily maintainable sanitation systems. A shortage of skilled sanitation artisans has resulted in substandard facilities that do not meet public health requirements, leading to health risks and environmental degradation.

This manual is justified by the need for a standardized training program that equips artisans with the necessary skills to address these challenges. It provides a detailed syllabus and structured modules that guide artisans through the construction process, from foundational work to the application of finishes.

The purpose of this manual is to:

- **Enhance the skills** of sanitation artisans in Uganda, ensuring they can construct safe and hygienic sanitation systems.
- **Standardize the training** provided to artisans, reducing variations in quality and improving the durability of sanitation facilities.
- **Support national goals**, including Uganda's Vision 2040, by improving sanitation infrastructure and contributing to the health and well-being of communities.

Facilitate certification by the Directorate of Industrial Training (DIT), enabling artisans to gain recognized qualifications that will improve their employability.

2.0 THE TRAINING SYLLABUS

Table 1: The adopted Syllabus

Module	Module Unit	Module Topics	Recommended ATPS and modules from DIT
Basic Brick/ block laying	Construction planning & management	- Site assessment - Site organization (stocking materials in tools and equipment) - Site clearing and leveling - Setting out/ marking - Book keeping and basic administration	MASON (LEVEL 3) under module perform advanced entrepreneurship LWA (learning working assignment): Manage construction site
	Foundation construction Construct Substructure	- Excavation of trenches - Foundation concreting - Mixing mortar - Erecting foundation walls - Excavation of pits - Honey comb bricks construction	Builder (level 1) Module 1 construct substructure
	Wall construction	- Laying APCs and DPCs - Erecting corners - Erecting T-walls - Erecting stopped ends - Erecting attached and isolated piers - Erecting walls with tothing and racking back - Constructing parapet walls	Construct superstructure

		▪ Erecting gable ends ▪ Erecting boarding walls ▪ Erecting circular walls	
	Temporary structures	▪ Erecting scaffolds ▪ Construction of formwork and designing molds	
	Bridging openings	▪ Construction of lintels ▪ Placing lintels	
	Safety and precautions	▪ Objectives ▪ General safety precautions	
Finishing	Wall finishing	▪ Fixing frames ▪ Plastering and rendering ▪ Tyrolean application ▪ Stone cladding and pointing ▪ Finishing with copings	Mason (level 3) Module perform common finishes Even tiling and floor finishing are covered there
	Tiling	▪ Wall tiling ▪ Laying floor tiles ▪ Terrazzo	
	Floor finishing	▪ Laying screeds ▪ Fixing wood blocks	
	Pavement	Pavement	
Onsite sanitation	Onsite sanitation systems	▪ Onsite sanitation systems ▪ Interpretation of designs and drawings emphasis on measurements, measuring units and	Builder level 1,2 and level 3 (mason) for interpretation of designs and drawings And bills of quantities are captured in related knowledge.

		unit conversion technics ▪ Bills of quantities	
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Key activities for the sanitation artisan

- Site identification and assessment, based on construction, engineering environmental and public health standards.
- Pit excavation
- Interpretation of architectural designs
- Substructure construction (lined / non-lined)
- Oversight concrete and slabbing
- Construction of superstructure
- Ventilation and lighting
- Roofing
- Finishes (plastering, tiling terrazzo, rendering, painting)
- Construction/installation of openings
- Plumbing /drainage
- Construction of auxiliary sanitation facilities (urinals, incinerators, hand wash platforms, showers, ramps, rails)
- Marketing and entrepreneurship
- Training users on Operation and maintenance
- Landscaping
- Record keeping (progress reports, contacts, expenses, portfolios)

3.0 TRAINING MODULES

3.1 Summary of selected Modules for Training

Table 2: Summary of The Training Modules

Module Title	Average duration	
	Contact hours	Weeks
M1. Construct a sanitation facility substructure	280	7
M2. Construct a sanitation facility superstructure	280	7
M3. Carryout bridging works	120	3
M4. Carryout finishes	160	4
M5. Construct roofs	120	3
M6. Construct temporary structures	160	4
M7. Construct and install simple wooden door frames and doors	240	6
M8. Perform domestic plumbing	320	8
M9. Carry Out entrepreneurship skills	80	2
9 Training Modules	1760	44

Module title	M1: Construct a sanitation facility substructure
Module purpose	After completing this module, a trainee will be able to construct a substructure for a sanitation facility up to the top/interface slab level.
Learning-Working Assignments (LWAs)	LWA1/1: Select sanitation facility site LWA1/2: Excavate pit LWA1/3: Cast base concrete LWA1/4: Erect lining wall LWA1/5: Cast top slab concrete LWA1/6: Perform occupational health, safety, and environmental protection practices <u>Note:</u> 1. The learning exercises may be repeated till the Trainee acquires targeted competence; 2. The Trainer is advised to deliver relevant theoretical instruction with demonstrations as required to perform each learning working assignment.
Related Practical Exercises (PEXs)	LWA1/1: Select sanitation facility site PEX 1.1: Assess site topography PEX 1.2: Assess soil conditions PEX 1.3: Determine accessibility PEX 1.4: Determine sanitation facility orientation PEX 1.5: Demarcate site LWA1/2: Excavate pit PEX 2.1: Clear site PEX 2.2: Interpret drawings PEX 2.3: Set out pit PEX 2.4: Dig out pit LWA1/3: Cast base concrete PEX3.1: Lay hardcore PEX3.2: Apply sand blinding PEX3.3: Cast concrete

LWA1/4:	Erect lining wall
PEX4.1:	Mobilize tools, equipment, and materials
PEX4.2:	Mix mortar
PEX4.3:	Transport mortar
PEX4.4:	Build walls
LWA1/5:	Cast top slab concrete
PEX5.1:	Mobilize tools, equipment and materials
PEX5.2:	Place formwork
PEX5.3:	Fix reinforcements
PEX5.4:	Batch materials
PEX5.5:	Mix concrete
PEX5.6:	Transport concrete
PEX5.7:	Place concrete
PEX5.8:	Compact concrete
PEX5.9:	Cure concrete
LWA1/6:	Perform occupational health, safety, and environmental protection practices
PEX6.1:	Manage wastes
PEX6.2:	Hoard site
PEX6.3:	Display safety signs
PEX6.4:	Wear personal protective equipment
PEX6.5:	Practice works moral ethics
PEX6.6:	Conduct toolbox meeting
PEX6.7:	Administer first aid
PEX6.8:	Maintain personal hygiene
PEX6.9:	Carryout timbering to trenches
PEX6.10:	Plant trees and grass
PEX6.11:	Excavation protection

Related knowledge/ theory	For Occupational theory suggested for instruction/ demonstration, the Trainer is not limited to the outline below. In any case, related knowledge/ theory may be obtained from various recognized reference materials as appropriate: • Identification of tools and equipment • Define a datum peg and state its function and importance • Differentiation between a frontage line and a subsidiary line • Methods of setting right-angled corners as well as checking for diagonals • Profile boards and their purpose • Handling, care, and storage of materials, tools and equipment • Proportioning, practice in mixing until proficient • Compaction • Site identification and assessment • Methods of transporting concrete • Definition of concrete • Characteristics of concrete • Factors for selecting the type of concrete • Methods of curing concrete • Definition of a sub-structure • Methods of setting out • Definition of setting out • Features of a sub-structure • Procedure of casting over site concrete • Knowledge of occupational health, safety and hygiene, and environmental protection • Definition of formwork • Procedure for making formwork • Definition of plinth walls • Dimensioning of a plinth wall • Definition of stripped foundation
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	• Interpretation of drawings • Resource mobilization • Knowledge of different sanitation technologies • Quality of materials • Property ownership verification measures • Interpretation of user needs and expectations • Resource mobilization • Topography • Different soil conditions • Acquisition of construction/work permits
Average duration	• 280 hours (30days) • 5 days of occupational theory • 25 days of occupational practice
Suggestions on organization of learning	The acquisition of competencies (skills, knowledge, attitudes) described in this module may take place at a training center or its equivalent provided all equipment and materials required for training are in place.
Minimum required materials and consumables or equivalent	Nails, timber, pegs, dump-proof membrane, water, hardcore, cement, bricks, sand, aggregate
Minimum required tools and equipment	Straight edges, hammers (including sledge hammers and lump hammer), hand saws, marking equipment, spirit level, spade, hoe, wheel barrow, plumb bob, builder's square, steel square, trowel, water level, tape measure, building line, chisel, pick axe, hoe, panga Bucket, jerrycan, motor pans,

Module title	M2: Construct a sanitation facility superstructure
Module purpose	After completing this module, the trainee will be able to dump proof and build walls at right angles up to the wall plate.
Learning-Working Assignments (LWAs)	LWA2/1: Set out superstructure LWA2/2: Build solid walls LWA2/3: Cast ring beam LWA2/4: Build wall above ring beam LWA2/5: Perform occupational health, safety, and environmental protection practices <u>Note:</u> 1. The learning exercises may be repeated till the Trainee acquires targeted competence; 2. The Trainer is advised to deliver relevant theoretical instruction with demonstrations as required to perform each learning working assignment.
Related Practical Exercises (PEXs)	LWA2/1: Set out superstructure PEX1.1: Interpret working drawings PEX1.2: Take measurements PEX1.3: Mark wall positions LWA2/2: Build solid walls PEX2.1: Mobilize tools, equipment, and materials PEX2.2: Lay DPC PEX2.3: Mix mortar PEX2.4: Transport mortar PEX2.5: Build walls LWA2/3: Cast ring beam PEX3.1: Place formwork for beam PEX3.2: Fix reinforcement PEX3.3: Batch materials PEX3.4: Mix concrete PEX3.5: Transport concrete PEX3.6: Cast concrete in formwork PEX3.7: Compact concrete

	PEX3.8: Cure concrete
	LWA2/4: Build wall above ring beam PEX4.1: Prepare materials PEX4.2: Mix mortar PEX4.3: Prepare scaffold PEX4.4: Lay bricks and level
	LWA2/5: Perform occupational health, safety and environmental protection practices PEX5.1: Manage waste PEX5.2: Hoard site PEX5.3: Display safety signs PEX5.4: Wear personal protective gears PEX5.5: Practice work moral ethics PEX5.6: Conduct tool box meeting PEX5.7: Administer first aid PEX5.8: Maintain person hygiene

Occupational health and safety	Precautions, rules and regulations on occupational health, safety and environmental protection, included in the related knowledge listings as well as in the test items should be observed and demonstrated during LWAs and PEXs.
Related knowledge/ theory	For Occupational theory suggested for instruction/ demonstration, the Trainer is not limited to the outline below. In any case, related knowledge/ theory may be obtained from various recognized reference materials as appropriate: • Definition of form work and its purpose • Definition of damp proofing, purpose of using damp proofing and types of damp proof • Differentiation between blocks and bricks and application areas of blocks and bricks • Bonding, types of bonds (stretcher and header bonding) and advantages and disadvantages of the different types of bonds • Definition of scaffolding and purposes of scaffolding

	• Knowledge on occupational health and safety and environmental protection • Interpretation of working drawings • Workers 'compensation policy • Acquisition of construction/work permits • Knowledge on engineering, environmental and public health standards
Average duration	• 280 hours (30days) • 5 days of occupational theory • 25 days of occupational practice
Suggestions on organization of learning	The acquisition of competencies (skills, knowledge, attitudes) described in this module may take place at a training centre or its equivalent provided all equipment and materials required for training are in place.
Minimum required materials and consumables or equivalent	Nails, timber, dump proof course, water, cement, bricks, sand, aggregate,
Minimum required tools and equipment	Hammers (including sledge hammers and lump hammer), hand saws, marking equipment, spirit level, spade, hoe, wheel barrow, plumb bob, builder's square, trowel, water level, tape measure, construction line, chisel, hoe, trowel.

Module title	M3: Carryout bridging works
Module purpose	After completion of this module, a trainee will be able to prepare and install pre-cast and cast-in-situ lintels over a straight opening
Learning-Working Assignments (LWAs)	LWA3/1: Install a pre-cast reinforced concrete lintel LWA3/2: Install a cast-in-situ lintel LWA3/3: Install a wooden lintel LWA3/4: Perform occupational health, safety, and environmental protection practices Note: 1. The learning exercises may be repeated till the Trainee acquires targeted competence; 2. The Trainer is advised to deliver relevant theoretical instruction with demonstrations as required to perform each learning working assignment.
Related Practical Exercises (PEXs)	LWA3/1: Make a pre-cast reinforced concrete lintel PEX1.1: mobilize equipment, tools and materials PEX1.2: Prepare formwork for precast lintel PEX1.3: place reinforcement in formwork PEX1.4: Cast concrete PEX1.5: Install pre-cast lintel over opening LWA3/2: Make a cast-in-situ lintel PEX2.1: mobilize tools, equipment and materials PEX2.2: Prepare formwork over opening PEX2.3: Fix reinforcement into formwork PEX2.4: Cast and compact concrete in formwork PEX2.5: Cure concrete LWA3/3: Install a wooden lintel PEX3.1: Mobilize tools and materials PEX3.2: Measure and cut wood PEX3.3: Lay mortar PEX3.4: Fix wooden lintel

	LWA3/4: Perform occupational health, safety and environmental protection practices PEX4.1: Administer first aid PEX4.2: Wear personal protective gear PEX4.3: Maintain personal hygiene PEX4.4: Practice communicable and non-communicable disease prevention measures PEX4.5: Manage wastes PEX4.6: Clean tools and equipment PEX4.7: Clean surrounding environment PEX4.8: Provide support structures for working at heights
Average duration	• 120 Hours (15days) • 5 days of occupational theory • 10 days pf occupational practice
Suggestions on organization of learning	The acquisition of competencies (skills, knowledge, attitudes) described in this module may take place at a training centre or its equivalent provided all equipment and materials required for training are in place.
Occupational health and safety	Precautions, rules and regulations on occupational health, safety and environmental protection, included in the related knowledge listings as well as in the test items should be observed and demonstrated during LWAs and PEXs.
Related knowledge/ theory	For Occupational theory suggested for instruction/ demonstration, the Trainer is not limited to the outline below. In any case, related knowledge/ theory may be obtained from various recognized reference materials as appropriate: • Define lintels • State types of lintels • Discuss advantages and disadvantages of the different types of lintels • Differentiate the types of lintels • State area of application of different types of lintels

	• Formwork • Procedure of placing lintels • Process of preparing lintels • Procedure of curing concrete • Define curing • Health, safety and environmental knowledge
Minimum required tools/ equipment/ implements or equivalent	Measure tapes and rules, shovels, wheel barrow, chutes, edging tools, trowel machine, hand float, floats, stipple plumb rules, jointing tools, hammers, bolster, shovels, spirit levels, dumpy levels, mortar, boards, straight edges, profiles lines, pointing/ranking tools.
Minimum required materials and consumables or equivalent	Bar chairs, branching peg spacers, edge form/boards, fabric sheets, cement, sand, water.

Module title	M4: Carry out Finishes
Module purpose	After completion of this module, a trainee should be able to apply floor and wall finishes
Learning-Working Assignments (LWAs)	LWA4/1: Plaster/Render walls LWA4/2: Apply cement sand screed LWA4/3: Build splash apron LWA4/4: Apply terrazzo on horizontal and vertical surfaces LWA4/5: Apply tiles on horizontal and vertical surfaces LWA4/6: Lay slates on horizontal and vertical surfaces LWA4/7: Finish timber floors using woodblocks LWA4/8: Perform occupational health, safety and environmental protection practices Note: 1. The learning exercises may be repeated till the Trainee acquires targeted competence; 2. The Trainer is advised to deliver relevant theoretical instruction with demonstrations as required to perform each learning working assignment.
Related Practical Exercises (PEXs)	LWA4/1: Plaster/Render walls PEX1.1: Prepare surface PEX1.2: Batch materials PEX1.3: Mix materials PEX1.4: Set plaster/render gauge PEX1.5: Apply mortar on prepared surface PEX1.6: Level surface PEX1.7: Perform wood floating PEX1.8: Perform steel floating LWA4/2: Apply cement sand screed on floor PEX2.1: Prepare surface PEX2.2: Set floor gauge PEX2.3: Batch materials PEX2.4: Mix materials PEX2.5: Ram mortar PEX2.6: Place mixed mortar and trim off excess mortar PEX2.7: Perform wooden floating PEX2.8: Perform steel floating PEX2.9: Cure floor LWA4/3: Build splash apron PEX3.1: Setout splash apron PEX3.2: Demarcate trench PEX3.3: Excavate trench PEX3.4: Prepare concrete PEX3.5: Cast concrete layer PEX3.6: Build brick walls PEX3.7: Back fill and compact marmam PEX3.8: Cast concrete in splash open formwork PEX3.9: Render wall surface PEX3.10: Apply cement screed PEX3.11: Cure floor area

	LWA4/4: Apply terrazzo onto vertical and horizontal surfaces PEX4.1: Prepare surface to receive terrazzo. PEX4.2: Divide floor into bays according to chosen pattern PEX4.3: Prepare terrazzo PEX4.4: Pour and spread terrazzo into bays PEX4.5: Cure terrazzo PEX4.6: Grind and grout terrazzo PEX4.7: Polish terrazzo surface
	LWA4/5: Lay slates on horizontal and vertical surfaces PEX5.1: Mobilize tools, equipment and materials PEX5.2: Prepare external joints of the wall PEX5.3: Point external joints PEX5.4: Fix slate cladding onto walls
	LWA4/6: Apply tiles on horizontal/vertical surfaces PEX6.1: Mobilize tools and equipment PEX6.2: Prepare surfaces PEX6.3: Plan tile layout/pattern PEX6.4: Prepare materials PEX6.5: Spread thin set mortar on surfaces PEX6.6: Lay and level tiles PEX6.7: Apply grout PEX6.8: Clean tile surfaces PEX6.9: Caulk all 90° tile joints.
	LWA4/7: Lay pavers PEX7.1: Mobilize tools, equipment and materials PEX7.2: Determine gradient PEX7.3: Clear site PEX7.4: Compact ground PEX7.5: Spread sand PEX7.6: Lay paving blocks PEX7.7: Fill gaps PEX7.8: Clean up surface
	LWA4/8: Perform occupational health, safety and environmental protection practices PEX8.1: Administer first aid PEX8.2: Wear personal protective equipment PEX8.3: Manage personal hygiene PEX8.4: Display safety signage PEX8.5: Manage wastes PEX8.6: Clean tools and equipment PEX8.7: Clean environment PEX8.8: Manage fire outbreaks PEX8.9: Assess job related risks
Occupational health and safety	Precautions, rules and regulations on occupational health, safety and environmental protection, included in the related knowledge listings as well as in the test items should be observed and demonstrated during LWAs and PEXs.

Related knowledge/ theory	For Occupational theory suggested for instruction/ demonstration, the Trainer is not limited to the outline below. In any case, related knowledge/ theory may be obtained from various recognized reference materials as appropriate: • Plastering and Rendering as finishing techniques • Differentiate between plastering and rendering • Advantages and disadvantages of plastering and rendering as finishing techniques • Describe screed finish • Describe the process of crying out a screed finish • Curing • Define skirting as applied to building • Describe the process of constructing a splash apron • State the purpose of construction a splash apron and a screed. • State the defects observe on a skirting, splash apron and screed and recommended remedies. • Health, safety and environmental knowledge • Materials used for terrazzo mix, concrete and mortar • Determine proportions of materials for concrete 1:2:4 and terrazzo 1:2 • Determine the bays in the floor
Average duration	• 160 Hours (20days) • 5 day of occupational theory • 15 days of occupational practice
Suggestions on organization of learning	The acquisition of competencies (skills, knowledge, attitudes) described in this module may take place at a training centre or its equivalent provided all equipment and materials required for training are in place.
Minimum required materials and consumables or equivalent	Bricks, wire nails, aggregate, timber, cement, sand, water, woodblocks, slates, spacers, metal strip.

Module title	M5: Construct Roof
Module purpose	After completion of this module, trainee shall be able to erect timber trusses, fix purlins and apply roof coverings
LWAS	LWA5/1: Construct pitched roof LWA5/2: Construct flat roof LWA5/3: Perform occupational health, safety and environmental protection practices
Related practical exercises (PEXs)	LWA5/1: Construct pitched roof PEX1.1: Interpret architectural drawings PEX1.2: Mobilize tools, equipment and materials PEX1.3: Prepare timber PEX1.4: construct the trusses PEX1.5: Fix the trusses in position and level PEX1.6: Fix rafters, purlins/battens, fascia board, verge board and apply preservatives PEX1.7: Fix roof covering
	LWA5/2: Construct flat roof PEX2.1: Mobilize tools, materials and equipment PEX2.2: Prepare timber PEX2.3: construct trusses PEX2.4: Fix trusses in position and level PEX2.5: Fix rafters, purlins, Fascia board and apply preservatives PEX2.6: Fix roofing Iron sheets
	LWA5/3: Perform occupational health, safety and environmental protection practices PEX3.1: Manage waste PEX3.2: Hoard site PEX3.3: Display safety signs and notices PEX3.4: Wear personal protective equipment PEX3.5: (knowledge)Conduct tool box meeting PEX3.6: Administer first aid PEX3.7: Maintain personal hygiene

Occupational health and safety	Precautions, rules and regulations on occupational health, safety and environmental protection, included in the related knowledge listings as well as in the test items should be observed and demonstrated during LWAs and PEXs.
Related knowledge/ theory	For Occupational theory suggested for instruction/ demonstration, the Trainer is not limited to the outline below. In any case, related knowledge/ theory may be obtained from various recognized reference materials as appropriate: • Types of roofs for construction • Types of timber used for constructing roofs • Stating the appropriate pitch recommended when covering the iron sheets or tiles • Importance of battens on trusses • Determination of rise of a roof structure
Average duration of learning	• 120 Hours (15days) • 5 days of occupational theory • 10 days of occupational practice
Suggestions on organization of learning	The acquisition of competencies (skills, knowledge, attitudes) described in this module may take place at a training centre or its equivalent provided all equipment and materials required for training are in place.
Required tools/ equipment/ implements	Hammer, sliding bevel, try square, builder's square, spirit level, tape measure, handsaw, chisels, builder's string, claw bar
Required materials and consumables	Timber, wire nails, iron sheets, roofing nails, polythene paper, tiles, wood preservatives, wire mesh, paint.
Special notes	For any steel works and other use of specialised materials, outsourcing of specialist can be considered

Module title	M6: Construct Temporary Structures
Module purpose	At the end of this module, a trainee will be able to erect temporary structures like formwork, scaffolds, concrete columns, using different materials.
Learning working assignments	LWA6/1: Construct pre-cast/ cast in-situ formwork LWA6/2: Erect independent scaffolds LWA6/3: Perform safety, health and environmental protection practices
Related practical exercises (PEXs)	LWA6/1: Construct pre-cast/ cast in-situ formwork PEX1.1: Mobilize tools, equipment and materials PEX1.2: Take measurements PEX1.3: Prepare members PEX1.4: Assemble members PEX1.5: Plumb, check squareness and wedge PEX1.6: Apply release agents PEX1.7: Perform timbering
	LWA6/2: Erect independent scaffolds PEX2.1: Select tools, equipment and materials PEX2.2: Erect putlog scaffolding PEX2.3: Dismantle putlog scaffolding PEX2.4: Erect stands, fix the braces, and secure putlogs PEX2.5: Prepare platform and toe boards PEX2.6: Dismantle platform
	LWA6/3: Perform occupational safety, health and environmental protection practices PEX4.1: Manage waste PEX4.2: Display safety signs and notices PEX4.3: Wear personal protective Equipment PEX3.1: Administer first aid
	Precautions, rules and regulations on occupational health, safety and environmental protection, included in the related knowledge listings as well as in the test items should be observed and demonstrated during LWAs and PEXs.
Occupational health and safety	

Related knowledge/ theory	For Occupational theory suggested for instruction/ demonstration, the Trainer is not limited to the outline below. In any case, related knowledge/ theory may be obtained from various recognized reference materials as appropriate: • Putlog scaffolding and its functions • Methods used to lay putlog scaffolding • Tools required to construct putlog scaffolding • Process of erecting standards when erecting a putlog scaffolding and calculation of the number of standards required • Uses of standards • Sketching of finished putlog scaffolding
Average duration of learning	• 160 hours (20days) • 5 days of occupational theory • 15 days of occupational practice
Suggestions on organization of learning	The acquisition of competencies (skills, knowledge, attitudes) described in this module may take place at a training centre or its equivalent provided all equipment and materials required for training are in place.
Required materials and consumables	Timber (12*1), poles, nails, ropes, timber frame, nail bolts, ply wood
Required tools and equipment	Try square, bow saw, hand saw, claw hammer, crow bar, portable panning, drilling machine, spirit level

Module title	M7: Construct and install simple wooden Door frames and Doors
Module purpose	At the end of this module, a trainee will be able to construct and install simple wooden frames and doors
Learning working assignments	LWA7/1: Construct wooden door frame LWA7/2: Construct simple wooden door LWA7/3: Install frames and doors LWA7/4: Observe occupational health, safety and environmental precaution
Related practical exercises (PEXs)	LWA7/1: Construct wooden door frame PEX1.1: Mobilize tools, equipment and materials PEX1.2: Measure opening PEX1.3: Prepare materials PEX1.4: Mark and cut frame members PEX1.5: Join frame members PEX1.6: Mark and prepare hinge attachment points
	LWA7/2: Construct battened wooden doors PEX2.1: Mobilize tools, equipment and materials PEX2.2: Determine door size PEX2.3: Measure and cut battens, ledges and braces to size PEX2.4: Assemble parts PEX2.5: Mark hinge points PEX2.6: Perform door finishing
	LWA7/3: Install door frames and doors PEX3.1: Check squareness of door opening PEX3.2: Support and Fix door frame in opening PEX3.3: Cut off the excess shim PEX3.4: Apply prime coat PEX3.5: Check plumpness PEX3.6: Fill the gaps between wall and frame PEX3.7: Check and fix uniformity of door and frame

	PEX3.8: Fix hinges on door frame PEX3.9: Fix door into frame PEX3.10: Insert spacers PEX3.11: Check for and correct difficulty in opening and closing of door PEX3.12: Install lock
	LWA7/4: Observe occupational health, safety and environmental precautions PEX4.1: Manage waste PEX4.2: Display safety signs PEX4.3: Wear personal protective gears PEX4.4: Perform work moral ethics PEX4.5: Administer first aid PEX4.6: Maintain person hygiene and tools
Occupational health and safety	Precautions, rules and regulations on occupational health, safety and environmental protection, included in the related knowledge listings as well as in the test items should be observed and demonstrated during LWAs and PEXs.
Related knowledge /theory	For Occupational theory suggested for instruction/ demonstration, the Trainer is not limited to the outline below. In any case, related knowledge/ theory may be obtained from various recognized reference materials as appropriate: • Different types of doors and their applicability • Different techniques and procedures of door frame and door construction • Different materials for making doors • Measurement • Procedure of fitting doors into frames
Average duration of learning	• 240 hours (30days) • 5 days of occupational theory • 25 days of occupational practice
Suggestions on	The acquisition of competencies (skills, knowledge, attitudes) described in this module may take place at a training centre or its

organization of learning	equivalent provided all equipment and materials required for training are in place.
Required materials and consumables	Pencil, timber, nails, glue, varnish, sand, paper
Required tools and equipment	Tape measure, try square, tenon saw, claw hammer, mallet, chisel, hand brace, sash cramp, mortise gauge, sanding block, jack plane, rebate plane, route plane

Module title	M8: Perform domestic plumbing
Module purpose	At completion of this module, a trainee shall be able to install basic domestic drainage, sewage systems and harvest rain water.
Learning working Assignment (LWAs)	LWA8/1: Install domestic drainage and sewage system. LWA8/2: Install sanitary fittings LWA8/3: Install gutters and downpipes LWA8/4: Perform occupational health, safety and environmental practices
Related practical exercises (PEXs)	LWA 8/1: Install domestic drainage and sewage system. PEX1.1: Prepare tools, materials and equipment PEX1.2: Chase walls PEX1.3: Cut and thread the pipes (stock/dies) PEX1.4: Install pipes PEX1.5: Fix squatting/sitting pan LWA 8/2: Install sanitary fittings PEX2.1: Fix storage cistern PEX2.2: Fix hand wash basin PEX2.3: Fix distribution pipes PEX2.4: Install water closet suit LWA 8/3: Install gutters and downpipes PEX3.1: Layout lines PEX3.2: Attach fascia brackets PEX3.3: Saw gutters to length PEX3.4: Attach end caps PEX3.5: Cut downspout holes PEX3.6: Connect downspout to gutters PEX3.7: Apply sealant PEX3.8: Determine slope PEX3.9: Connect tank

	LWA 8/4: Perform occupational health, safety and environmental practices PEX 4.1: Manage waste PEX 4.2: Display safety signs PEX 4.3: Use protective gears PEX 4.4: Practice work moral ethics
	PEX 4.5: Administer first aid PEX 4.6: Maintain person hygiene
Occupational health and safety	Precautions, rules and regulations on occupational health, safety and environmental protection, included in the related knowledge listings as well as in the test items should be observed and demonstrated during LWAs and PEXs.

Related knowledge/ theory	For Occupational theory suggested for instruction/ demonstration, the Trainer is not limited to the outline below. In any case, related knowledge/ theory may be obtained from various recognized reference materials as appropriate: • Main types and sizes of pipes, fittings, traps. • Different supporting and fixing mechanisms. • Common appliances in Uganda, their use, standard positions. • Selection of materials based on their properties • Rules and regulation for discharge. • Sealing techniques for sewage systems • Effects of gradient on flow of liquids and solid systems • Properties of ventilation in single and two pipe systems • Work principle of flushing cistern • Explain Siphonic action and prevention of seal loss. • Functions of soil and waste appliances • Pipe size calculations • Sewage disposal and treatments • Different types of manholes, their design and their advantages and disadvantages • Trouble shooting with leaking taps and valves, linking symptoms and causes • Control valves and their positions in the systems • Relationship between pressure principles and water flow • Bio-action action in a septic tank, a reason for venting, manner of structure. • Harvesting water • Different Sanitary fittings
Average duration of learning	• 320 hours (40days) • 10 days of occupational theory • 30 days of occupational practice

Suggestions on organization of learning	The acquisition of competencies (skills, knowledge, attitudes) described in this module may take place at a training centre or its equivalent provided all equipment and materials required for training are in place.
Minimum required materials and consumables or equivalent	Hacksaw blades, drill bits, rope Yan, joining compounds, thread rape, boss white, threading oil.
Required tools and equipment	Tape measure, scribe, Vanier caliper, square, hacksaw, files, chisel, hand/power drill, pipe/bench/chain vices, wrenches, spanners, welding machine, grinding machine, store and die, tapping machine, gutters, clips ,drilling machine,
Special notes	

Module title	M9: Carry Out Entrepreneurship skills
Module purpose	After completion of this module, a trainee will be able to perform basic book keeping, marketing of services and costing of works
Learning-Working Assignments (LWAs)	LWA9/1: Manage construction site LWA9/2: Market builders' services and products LWA9/3: Carryout basic book keeping LWA9/4: Cost works LWA9/5: Generate records LWA9/6: Perform basic administrative tasks LWA9/7: Store tools, equipment and materials LWA9/8: Perform occupational health, safety and environmental protection practices <u>Note:</u> 1. The learning exercises may be repeated till the Trainee acquires targeted competence; 2. The Trainer is advised to deliver relevant theoretical instruction with demonstrations as required to perform each learning working assignment.
Related Practical Exercises (PEXs)	LWA9/1: Manage construction site PEX1.1: Manage human resource PEX1.2: Organize site LWA9/2: Market builders' services and products PEX2.1: Conduct market surveys PEX2.2: Advertise builders' services PEX2.3: Provide good customer care PEX2.4: Provide after service technical advice LWA9/3: Carryout basic book keeping PEX3.1: Record material in and out flows PEX3.2: Record work progress. PEX3.3: Record workers' attendance PEX3.4: Record incomes and expenditures

	LWA9/4: Cost works PEX4.1: Establish cost of materials PEX4.2: Establish cost of tools and equipment PEX4.3: Establish cost of labor PEX4.4: Establish basic taxes PEX4.5: Establish price services
	LWA9/5: Generate records PEX5.1: Develop income-expenditure records PEX5.2: Prepare budget PEX5.3: Prepare bills of qualities PEX5.4: Generate maintenance schedules and records PEX5.5: Prepare work schedules PEX5.6: Generate a simple business plan PEX5.7: Generate human resource record
	LWA9/6: Perform basic administrative tasks PEX6.1: Recruit workers PEX6.2: Rémunérâtes workers PEX6.3: Train workers PEX6.4: Supervise work
	LWA9/7: Manage tools, equipment and materials PEX7.1: Store tools PEX7.2: Store equipment PEX7.3: Store materials PEX7.4: Maintain tools and equipment PEX7.5: Keep inventory
	LWA9/8: Perform occupational health, safety and environmental protection practices PEX8.1: Manage waste PEX8.2: Build hoarding PEX8.3: Display safety signs PEX8.4: Wear personal protective gears

	PEX8.5: Practice works moral ethics PEX8.6: Conduct tool box meeting PEX8.7: Administer first aid PEX8.8: Maintain person hygiene
Occupational health and safety	Precautions, rules and regulations on occupational health, safety and environmental protection, included in the related knowledge listings as well as in the test items should be observed and demonstrated during LWAS and PEXS.
Related knowledge/ theory	For Occupational theory suggested for instruction/ demonstration, the Trainer is not limited to the outline below. In any case, related knowledge/ theory may be obtained from various recognized reference materials as appropriate: • Types of records used by builders • Definition of the different types of documents used by builder • Starting a builder business • Components of different types of documents used by builder • Methods of marketing builder products • Explain marketing • Definition of information, communication and technology • Types of communications and technologies • Benefits of communication and technology • Bills of quantities • Types and classes of taxes • Elements of a business plan • Causes of loss or profits, collapse or growth
Average duration of learning	• 90 hours (10days) • 3 days of occupational theory • 7 days of occupational practice

Suggestions on organization of learning	The acquisition of competencies (skills, knowledge, attitudes) described in this module may take place at a training centre or its equivalent provided all equipment and materials required for training are in place.
Minimum required materials and consumables or equivalent	Pens, pencil, paper, rubbers, rulers, reference text books.
Required tools and equipment	Calculator, telephone set/mobile phone, bakery, tools and equipment
Special notes	

4.0 TEST ITEMS

4.1 Summary of Test Samples

Summary of Test Item Samples Included

No	Type of test Items	Numbers included
1	Written (theory) - Short Answer	4
2.	Written (theory) - Multiple choice	5
3.	Written (Theory)- Matching with generic	1
4.	Written (Theory)- Matching Cause and effect	4
5.	Performance (Practical) Test items	3
Total		17

4.1.1 written test items (samples)

DIT/ QS	Test Item Database			
	Written (Theory) Test Item- No. 1			
Occupational Title:	Builder			
Competence level:	Level 1			
Code no.				
Test Item type:	Short answer	√		
	Multiple choice			
	Matching item	Generic	Cause-Effect	Work-sequence
Complexity level:	C2			
Date of OP:	September 2020			
Related modules:	M1.2			
Time allocation:	3 minutes			

Test Item	List any two methods of curing concrete
Answer spaces	i. ii.

Expected key (answers)	i Water spraying ii Matting or socking iii Sand laying iv Polyene sheet v Curing additives
------------------------	--

DIT/ QS	Test Item Database Written (Theory) Test Item- No. 2			
Occupational Title:	Builder			
Competence level:	Level 1			
Code no.				
Test Item type:	Short answer	√		
	Multiple choice			
	Matching item	Generic	Cause-Effect	Work-sequence
Complexity level:	C2			
Date of OP:	September 2020			
Related modules:	M1.1, M1.2			
Time allocation:	3 minutes			

Test Item	List any three (3) tools used by a builder to erect a wall
Answer spaces	i. ii. iii.

Expected key (answers)	i Trowel ii Plumb bob iii Spirit level iv Builder square v Lines and pins vi Tape measure vii Water level
-------------------------------	--

DIT/ QS	Test Item Database Written (Theory) Test Item- No. 3			
Occupational Title:	Builder			
Competence level:	Level 1			
Code no.				
Test Item type:	Short answer	√		
	Multiple choice			
	Matching item	Generic	Cause-Effect	Work-sequence
Complexity level:	C1			
Date of OP:	September 2020			
Related modules:	M1.1, M1.2, M1.3, M1.4			
Time allocation:	4 minutes			

Test Item	Name the three main parts of a building
Answer spaces	i. ii. iii.

Expected key (answers)	i Sub structure ii Super structure iii Roof structure
-------------------------------	--

DIT/ QS	Test Item Database Written (Theory) Test Item- No. 4			
Occupational Title:	Builder			
Competence level:	Level 1			
Code no.				
Test Item type:	Short answer	√		
	Multiple choice			
	Matching item	Generic	Cause-Effect	Work-sequence
Complexity level:	C2			
Date of OP:	September 2020			
Related modules:	M1.1, M1.2			
Time allocation:	5 minutes			

Test Item	Outline the five procedure of casting concrete in a foundation trench
------------------	--

Answer spaces	i. ii. iii. iv. v.
----------------------	---

Expected key (answers)	i Batch materials ii Mix materials iii Transport materials iv Place concrete v Compact concrete
-------------------------------	--

DIT/ QS	Test Item Database Written (Theory) Test Item- No. 5			
Occupational Title:	Mason			
Competence level:	Level 3			
Code no.				
Test Item type:	Short answer	√		
	Multiple choice			
	Matching item	Generic	Cause-Effect	Work-sequence
Complexity level:	C2			
Date of OP:	September 2004			
Related modules:				
Time allocation:	5 minutes			

Test Item	State three areas where masonry work applied
Answer spaces	I. II. III.

Expected key (answers)	I. Lintel II. Cornices III. Sills IV. Wall surfaces V. Pediments VI. Decorative features
-------------------------------	---

DIT/ QS	Test Item Database Written (Theory) Test Item- No. 6			
Occupational Title:	Carpenter and joiner			
Competence level:	Level 2			
Code no.				
Test Item type:	Short answer	√		
	Multiple choice			
	Matching item	Generic	Cause-Effect	Work-sequence
Complexity level:	C2			
Date of OP:	September 2004			
Related modules:				
Time allocation:	5 minutes			

Test Item	In carpentry and joinery, form work is a temporary support and are in distinct form namely;		
Answer spaces	I. II.		

Expected key (answers)	I. Pre-cast II. Cast in-situ		
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4.1.2: Multiple choice questions (samples)

DIT/ QS	Test Item Database Written (Theory) Test Item- No. 7			
Occupational Title:	Builder			
Competence level:	Level 1			
Code no.				
Test Item type:	Short answer			
	Multiple choice	√		
	Matching item	Generic	Cause-Effect	Work-sequence
Complexity level:	C1			
Date of OP:	September 2020			
Related modules:	M1.1			
Time allocation:	2 minutes			

Test Item	Which tool is best used for setting and testing walls at right angles?
------------------	---

Distracters and correct answer	A. Plumb bob B. Builders' square C. Spirit level D. Tape measure
---------------------------------------	---

Key (answer)	B
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DIT/ QS	Test Item Database Written (Theory) Test Item- No. 8			
Occupational Title:	Builder			
Competence level:	Level 1			
Code no.				
Test Item type:	Short answer			
	Multiple choice	√		
	Matching item	Generic	Cause-Effect	Work-sequence
Complexity level:	C1			
Date of OP:	September 2020			
Related modules:	M1.1			
Time allocation:	2 minutes			

Test Item	Why is it necessary to use DPC in walling?
Distracters and correct answer	A. To make the wall strong B. To beautify the wall C. To prevent moisture from rising up the wall D. To prevent cracks in the wall
Key (answer)	C

DIT/ QS	Test Item Database Written (Theory) Test Item- No. 9			
Occupational Title:	Builder			
Competence level:	Level 1			
Code no.				
Test Item type:	Short answer			
	Multiple choice	√		
	Matching item	Generic	Cause-Effect	Work-sequence
Complexity level:	C3			
Date of OP:	September 2020			
Related modules:	M1.1, M1.2			
Time allocation:	2 minutes			

Test Item	Concrete is a mixture of:
Distracters and correct answer	A. Cement, lime, coarse aggregate and water B. Cement, hardcore, coarse aggregate and water C. Cement, sand, hardcore and water D. Cement, fine aggregate and water.

Key (answer)	D
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DIT/ QS	Test Item Database Written (Theory) Test Item- No. 10			
Occupational Title:	Builder			
Competence level:	Level 1			
Code no.				
Test Item type:	Short answer			
	Multiple choice	√		
	Matching item	Generic	Cause-Effect	Work-sequence
Complexity level:	C2			
Date of OP:	September 2020			
Related modules:	M1.3			
Time allocation:	2 minutes			

Test Item	The wall above the door opening can be supported using the following except
Distracters and correct answer	A. Reinforced concrete. B. Plastic C. Timber D. metal

Key (answer)	B
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DIT/ QS	Test Item Database Written (Theory) Test Item- No. 11			
Occupational Title:	Builder			
Competence level:	Level 1			
Code no.				
Test Item type:	Short answer			
	Multiple choice	√		
	Matching item	Generic	Cause-Effect	Work-sequence
Complexity level:	C2			
Date of OP:	September 2020			
Related modules:	M1.1			
Time allocation:	2 minutes			

Test Item	A brick cut a long its length into two equal parts is called
Distracters and correct answer	A. Queen closure B. King closure C. Bat D. Matted closure

Key (answer)	A
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4.1.3 Matching- generic (samples)

Test Item	Match the following tools with sanitation facility operations at the site
------------------	--

Column A (Tools)	
1	Trowel
2	Hoe and spade
3	Plumb bob
4	Spirit level

Column B (Sanitation facility operations)	
A	Excavation
B	Sanitation facility wall
C	Vertical straightness
D	Transport mortar
E	Setting out
F	Same plane

Key (answer)	1: B, 2: A, 3: C, 4: F
---------------------	-------------------------------

DIT/QS	Test Item Database Written (Theory) Test Item- no. 13			
Occupational Title:	Plumber			
Competence level:	Level 1			
Code no.				
Test Item type:	Short answer			
	Multiple choice			
	Matching item	Generic	Cause-Effect	Work-sequence
		√		
Complexity level:	C1			
Date of OP:	September 2020			
Related Modules:				
Time allocation:	3 minutes			

Test Item	Match the types of cisterns with their characteristics
------------------	---

Column A (types of cisterns)	
1	Low level flushing cistern
2	Expansion cistern
3	Storage cistern
4	Automatic flushing cistern

Column B (characteristics)	
A	Used for urinal flushing
B	Stores water for primary circulation
C	Ball valve of large orifice is fitted
D	Has less than 5 litres capacity
E	Fitted with 38mm diameter output pipe
F	Stores hot water

Key (answer)	1: E, 2: B, 3: C, 4:1A
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DIT/QS	Test Item Database Written (Theory) Test Item- no. 14			
Occupational Title:	Manson			
Competence level:	Level 3			
Code no.				
Test Item type:	Short answer			
	Multiple choice			
	Matching item	Generic	Cause-Effect	Work-sequence
				√
Complexity level:	C2			
Date of OP:	September 2004			
Related Modules:				
Time allocation:	3 minutes			

Test Item	Arrange the following procedures of applying terrazzo finish on a concrete floor
-----------	--

Column A (chronology)	Column B (procedures) in the chronology order	
1 st	A	Divide the floor in bays of about 1m
2 rd	B	Clean the surface of the hardened concrete
3 rd	C	Clean concrete surface
4 th	D	Lay alternate bays up to the required thickness and cure
5 th	E	Mix concrete and marble chippings
6 th	F	Lay wet sand and cement screed and allow it to dry
7 th	G	Wet concrete surface
8 th	H	Clean and polish the floor
9 th	I	Grind the floor

Key (answer)	1:C, 2: G, 3: F, 4: B, 5:A, 6:E, 7:D, 8:I, 9:H
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4.1.4 Matching – Work Sequence (samples)

DIT/QS	Test Item Database			
	Written (Theory) Test Item- no. 15			
Occupational Title:	Builder			
Competence level:	Level 1			
Code no.				
Test Item type:	Short answer			
	Multiple choice			
	Matching item	Generic	Cause-Effect	Work-sequence
				✓
Complexity level:	C 2			
Date of OP:	September 2020			
Related Modules:	M1.1 M1.2			
Time allocation:	4 minutes			

Test Item	Rearrange the following procedures involved in casting a floor slab.
------------------	---

Column A (Chronology)	
1	
2	
3	
4	
5	
6	

Column B (work Steps) in wrong chronology order	
A	Cure concrete
B	Transport concrete
C	Batch materials
D	Mix materials
E	Compact materials
F	Place materials

Key (answer)	1: C, 2: D, 3: B, 4: F, 5: E, 6: A
---------------------	---

DIT/QS	Test Item Database Written (Theory) Test Item- no. 16			
Occupational Title:	Builder			
Competence level:	Level 2			
Code no.				
Test Item type:	Short answer			
	Multiple choice			
	Matching item	Generic	Cause-Effect	Work-sequence
				√
Complexity level:	C2			
Date of OP:	September 2004			
Related Modules:				
Time allocation:	3 minutes			

Test Item	Arrange the statements in a correct sequence of making a pre-cast lintel.
------------------	--

Column A (chronology)	Column B (procedures) in the chronology order	
1st	A	Concrete pour in box
2rd	B	Materials batched/mixed
3rd	C	Spacers placed
4th	D	Reinforcement's cage placed in box
5th	E	Timber box made
6th	F	Reinforcements cut in size
7th	G	Internal surface of box oiled
8th	H	Concrete cured

Key (answer)	1:E, 2: G, 3: F, 4: D, 5:C, 6:B, 7:A, 8:H,
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4.1.5 Performance Test Items (samples)

DIT/ QS	Test Item Database Performance Test Item- no. 17
Occupational Title:	Builder
Competence level:	Level 1
Code no.	
Test Item:	SET OUT A ONE ROOMED HOUSE 3000 MM x 3000 MM
Complexity level:	P 2
Date of OP:	September 2020
Related module:	M1.1
Related skills and knowledge:	Knowledge of interpret drawings and sketches, knowledge of safety precautions, levelling skills, taking measurements, elementary carpentry, setting squares.
Required tools, Materials and Equipment:	Steel tapes, spirit level, water level, plumb bob, building square, pencil, wooden pegs, profile boards, assorted nails, sledge hammer, claw bar, claw hammer, bow saw, hand saw, panga, strings
Time allocation:	4 hours
Preferred venue:	Site
Remarks for candidates	♦ Observe safety, health and environmental precautions
Remarks for assessors	♦ Provide tools and materials ♦ Prepare work area

#	Assessment criteria	Scoring guide	Max. Score	
			Process	Result
1	Preparations for a task	<u>Wore protective gear</u> Overall, helmet, safety shoes, gloves, face masks,		4
		<u>Cleaned work place</u> Identify/select and assemble tools	1	
		Prepared tools	2	
2	Selected tools and materials	Sawing-handling rules for saw	1	
		Length of profile pegs 100 mm x 75 mm x 1 m $\pm$ 5 mm		2
		Profile board 150 mm x 50 mm x 1.5 m,		1
		Nails -2", 2 1/2", 3"	1	
		Checked tools and instruments	3	
3	Levelled site	Reduced to a common surface +2m - all around structure	3	
		Levelled ground	2	
		Cleared excess cut soil 5m away	2	
5	Interpreted working drawings	Set out sanitation facility	3	
		Corrected orientation and size	3	
		Set out sanitation facility according to the working drawing observed		3
6	Establish datum or reference level	Location; safe distance from setting works 2m	3	
		Peg; measured off-set from edge of structure 2m $\pm$ 5mm.	2	
		Marked and excavated peg 300 $\pm$ 10mm	2	
7	Set building line	From existing buildings, provided by designer or local authority	4	
		Measured and marked off set	3	
8	Set front of building	Measured and marked centre of building along the ranging line		4

#	Assessment criteria	Scoring guide	Max. Score	
			Process	Result
		Measured overall length and marked with pegs $3\text{m} \pm 5\text{mm}$.	4	
9	Set corner	Placed square at one of the pegs and one line along the building line	4	
		Stretched a line from this corner peg and parallel to the second side of the square	3	
		Measured with $3\text{m} \pm 2\text{mm}$, marked third peg.	2	
10	Transferred the buildings square to third peg	Repeated operation in step 8	1	
		Measured and marked the length and width of third and fourth sides respectively.	2	
11	Measured diagonal	Stretched building lines around pegs	1	
		Measured diagonals to $\pm 10\text{mm}$.	2	
		Made correction or adjustment where necessary	2	
12	Set profile pegs	Measured and marked for profiles $2\text{m} \pm 15\text{mm}$ from lines	3	
		Profiles erected		2
		Plumbed, levelled and cut to 900mm height	2	
13	Set profile boards	Set with water level	3	
		Nailed on profile pegs		1
14	Transferred lines to profile boards	Stretched all lines beyond proof		4
		Transferred lines with plumb bob to profile boards	2	
		Marked and fixed nails on boards	2	
		Fixed and stretched string lines	1	
15	Measured wall thickness and foundation over laps	Measured from centre and marked for wall thickness $150 \pm 2\text{mm}$	3	
		Marked for foundation $600\text{mm} \pm 10\text{mm}$		3

#	Assessment criteria	Scoring guide	Max. Score	
			Process	Result
16	Transferred foundation lines to the ground	Marked by dropping lines with plumb bob		4
17	Erected barrier ground works	High light lines with sand, chalk line or paint		2
		Use warning tape	3	

DIT/ QS	Test Item Database Performance Test Item- no. 18
Occupational Title:	Carpenter
Competence level:	Level 1
Code no.	
Test Item:	Construct a simple wooden door
Complexity level:	P 2
Date of OP:	September 2021
Related module:	
Related skills and knowledge:	Knowledge of interpret drawings and sketches, knowledge of safety precautions, finishing techniques on wood, taking measurements, carpentry and joinery, setting squares.
Required tools, Materials and Equipment:	Hand saw, sanding material, wood glue, hammer, nails, hinges, hinge joints, screw drivers, varnish, paint, water, measuring tape and ruler, scrapers, hand drill
Time allocation:	6 hours
Preferred venue:	Site
Remarks for candidates	◆ Observe safety, health and environmental precautions
Remarks for assessors	◆ Provide tools and materials ◆ Prepare work area

#	Assessment criteria	Scoring guide	Max. Score	
			Process	Result
1.	Preparations for a task	<u>Wore protective gear</u> Overall, helmet, safety shoes, gloves, face masks,		4
		<u>Cleaned work place</u> Identified and assemble tools	1	
		Prepared tools	2	
2.	Door size determination	Identified entrance on wall	1	
		Took measurements of passage space	2	
3.	Preparation of door members	Selected material for door members	2	
		Marked cutting points on wood material blocks	4	
		Cut door members to size	3	
		Marked off door knob hole	2	
		Drilled door knob hole	2	
		Door knob hole observed in door member		2
		Mark joints points (mortise and tendon joints, dowels)	3	
		Chopped off mortice	2	
		Mortice observed		1
		Cut tendons	2	
		Tenon fitting into mortice observed		1
		Made dowel holes	3	
		Dowel holes observed		1
4.	Door member assembly	Applied wood glue to member	2	
		Joined door members together	4	
		Marked off hinge points	2	
		Drilled hinge points	3	
		Fitting mortices and tendons observed		2
		Joints observed		2
5.	Finished door	Sanded door	3	

#	Assessment criteria	Scoring guide	Max. Score	
			Process	Result
		Smooth door bearing observed		2
		Vanished door	3	
		Fixed hinges	3	
		Attached hinges observed		2
		Attached door knob	2	
		Fixed door knob observed		1

Panelist for review

#	Name	Organization	Contact
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2.	Kazooba Diana	Simavi	0704803546
3.	Okoth Raphael	Water for People	0704074102
4.	Achiro Brenda	Water for People	0783011222
5.	Martha Naigaga	Water for People	0704212586
6.	Resty Nyesigire	MWE/DWD	0782860256
7.	Christine Niwamanya	MWE/DWD	0752254292
8.	Sandra Atukunda	MWE/DWD	0751940312
9.	Teddy Gwoyazika	MWE/DWD	0784876664
10.	Timothy Kayondo	LIXIL – SATO	0752220245
11.	Christopher Kanyago	Water for People	0777859156
12.	Okwarampe Millicent	MWE/DWD	0701132711
13.	Kyarizi Lovance	DIT	0782773161
14.	Ahimbisibwe Judith	DIT	0775207187
15.	Benjamin Alex Kibira	DIT	0778708425

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