Republic of Rwanda
Ministry of Education

RTB | RWANDA TVET BOARD

OPENING FIXATION

BDCOF301

PERFORM OPENING FIXATION

Competence

RQF Level: 3

Learning Hours: 40

Credits: 4

Sector: Construction and Building Services

Trade: Building construction

Module Type: Specific

Curriculum: CBSBDC3001- TVET Certificate 3 in Building Construction

Issue Date: October ,2021

Purpose statement	This is a core module which describes the performance outcomes, skills, knowledge and attitudes required, where the learner will be able to use tools and equipment for opening fixation. The learner will be able to fix doors, windows, ventilators and fixtures reserved for Lighting ,access and security according to the standards					
Leaning assumed to be in place	Safety, Health and environment at workplace, Construction basic technical drawing, Building Set out, Fundamentals of building materials, Construct stones structures, Elect bricks & blocks masonry wall, Plastering of structure elements					
Delivery modality	**Training delivery**		**100%**	**Assessment**		**Total 100%**
	Theoretical content		30%	Formative assessment	30%	50%
	Practical work:		70%		70%	
	• Group project and presentation	20%				
	• Individual project /Work	50%				
				Summative Assessment		50%

Elements of Competency and Performance Criteria

Elements of competency	Performance criteria
1. **Select tools materials and equipment.**	1.1. Appropriate tools are selected according to the work to be performed
	1.2. Appropriate equipment is selected according to the work to be performed
	1.3. Adequate materials are selected according to the standard
2. **Prepare working area**	2.1. Appropriate safety equipment, signs and posts are positioned according to the standards.
	2.2. Technical drawing is checked careful for measurement specification according to the project specification
	2.3. Appropriate measurements of opening are checked for transporting doors or windows.
3. **Install door, window, ventilator and**	3.1. Continuous measurement of the opening is checked for drilled holes according to the marked area.

lighting into the opening	3.2.	Appropriate door or window are installed according to the direction and workability of the opening
	3.3.	Convenient jamb of the opening is finished in accordance with construction materials used. Surveying instruments are accurately used based on drawing dimensions.

Course content

Learning outcomes	**At the end of the module the learner will be able to:** 1. **Select tools, materials and equipment** 2. **Prepare working area** 3. **Install door, window, ventilator and lighting into the opening**
Learning outcome 1: Select tools, materials and equipment	**Learning hours: 5**
Indicative content	

- **Identification of tools used for opening fixation**
  - Hand tools
  - Calibrated measuring tools
  - Power tools
  - Cutting tools
  - Levelling tools
  - Miscellaneous tools
- **Identification of equipment for opening fixation**
  - Safety equipment
  - Site work equipment
  - PPE
- **Identification of materials used in for opening fixation**
  - Indication of materials used in for opening fixation
  - Use of materials for opening fixation
  - Quality and sizes of materials for opening fixation
  - Quantification of required materials

Resources required for the learning outcome	
Equipment	PPEs, cutting equipment, Wheelbarrow, Bucket, Concrete mixer, Vibrator machine, Ladder, Scaffolds, Ratchet tie down, RS 175: Wheelbarrow specifications ISO 18650-1 : Building construction machinery and equipment-concrete mixers-part1: commercial specifications, ISO 19711-1: Building construction machinery and Equipment-Truck mixers-part 1: terminologies and commercial specifications
Materials	Sand, Cement, Water, Additives, Gravels, Doors, Windows, Ventilators, Lighting RS 426-1 masonry cement –part 1: composition specification and conformity criteria
Tools	Square, Wood floater, Steel floater, Spirit level, Steel square, Hack saw, Hand saw, Chisel, Notes book, Internet, Hand drilling tools, RS EAS 1021: Steelhead hammer-specifications, RS EAS 1020: Shovels and spades specifications, RS EAS 1022: Hacksaw blades — Specification signs.
Facilitation techniques	• Group discussion • Trainer guided • Matching questions • Multiple choice • Sentence completion • Short questions • Open ended questions
Formative assessment methods	• Written assessment • Performance assessment

Learning outcome 2: **Prepare working area**	**Learning hours: 8**
Indicative content	

- **PPE used in Opening fixation:**
- **Types of sign post**
- **Technical drawing**
  - Floor plan
  - Sections
  - Scale
- **Identification of particular characteristics of windows and doors**
- **Various sizes of openings:**
  - Doors for residential building
  - Doors for public building

Resources required for the indicative content	
Equipment	PPEs, cutting equipment, Wheelbarrow, Bucket, Concrete mixer, Vibrator machine, Ladder, Scaffolds, Ratchet tie down, RS 175: Wheelbarrow specifications ISO 18650-1 : Building construction machinery and equipment-concrete mixers-part1: commercial specifications, ISO 19711-1: Building construction machinery and Equipment-Truck mixers-part 1: terminologies and commercial specifications
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Facilitation techniques	• Group discussion • Trainer guided • Matching questions • Multiple choice • Sentence completion • Short questions • Essay • Practical exercises • Open ended questions
Formative assessment methods	• Written assessment • Performance assessment • Product based assessment

Learning outcome 3:Install door, window, ventilators and lighting into the opening	**Learning hours: 27**
Indicative content	
• **Identification of position and dimension of holes** • **Methods of drilling process**: ➢ Percussion drilling ➢ Rotary drilling ➢ Circulation drilling	

- **Procedures of fixing door, window, ventilator and lighting.**
- **Identification of materials complying with Rwanda standard**
- **Fill the holes**

Resources required for the indicative content	
Equipment	PPEs, cutting equipment, Wheelbarrow, Bucket, Concrete mixer, Vibrator machine, Ladder, Scaffolds, Ratchet tie down, RS 175: Wheelbarrow specifications ISO 18650-1 : Building construction machinery and equipment-concrete mixers-part1: commercial specifications, ISO 19711-1: Building construction machinery and Equipment-Truck mixers-part 1: terminologies and commercial specifications
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Facilitation techniques	• Lectures • Demonstration and simulation • Individual and group work • Practical exercise • Individualized • Trainer guided • Group discussion • Practical exercises
Formative assessment methods	• Written assessment • Performance assessment • Product based assessment • Project based assessment

Integrated/Summative assessment (For specific module)

Integrated situation

Kigoma secondary school is located in Southern Province, Ruhango district, Bweramana Sector. After facing the problem of overcrowded classes which affect the quality of their education because the students are not comfortable in class, for that Ruhango district sponsored the project of constructing 2 classrooms for Kigoma secondary school. After the completion of the elevation and roof structure, Kigoma secondary school has launched an offer of fixing windows and doors where each classroom has four (4) windows and two (2) doors, and each door has

210cm×90cm×15cm, and each window has 150cm×120cm×15cm. SPECOS company ltd hired you to do this project. As a mason you are requested to fix those openings whereby each one shall last 2 hours as maximum. Windows, doors, accessories and other needed materials are available on the site.

Resources

Tools	Wood floater, Steel floater, Tape measure, Spirit level, Spades, Steel square, trowel, Steel ruler, Hammer, Scraper, Blade, Straight edge, Hand saw, Chisel ,Hand drill ,Single brace, Claw bars , Pincer, Pliers ,Nail princh, Screw driver, Wooden mallet, Hack saw, Sponge
Equipment	Wheelbarrow, Bucket, Concrete mixer, Vibrator machine, PPE (Helmet, Boot, Gloves, Overall), Radder, Scaffolds, Ratchet tie down
Materials/ Consumables	Nails, Sand, Cement, Water, Gravels

Assessable outcomes	Assessment criteria (Based on performance criteria)	Indicator	Observation		Marks allocation
			Yes	No	
Learning outcome 1: 1. **Select tools, materials and equipment (20%)**	1.1. Appropriate tools are selected according to the work to be performed	Tools are selected			5
	1.2. Appropriate equipment is selected according to the work to be performed	Equipment is selected			7
	1.3. Adequate materials are selected according to the standard	materials are selected			8
Learning outcome 2: **Prepare working area** **(30%)**	2.1. Appropriate safety equipment, signs and posts are positioned according to the standards	safety equipment, signs and posts are positioned			10
	2.2. Technical drawing is checked careful for measurement specification according to the project specification	Technical drawing is checked			10
	2.3. Appropriate measurements of opening are checked for transporting doors or windows	measurements of opening are checked			10
Learning outcome 3:	3.1. Continuous measurement of the opening is checked for drilled holes according to the marked area	measurement of the opening is checked for drilled holes			20

Install door, window, ventilator and lighting into the opening (50%)	3.2. Appropriate door or window are installed according to the direction and workability of the opening	door or window are installed			15
	3.3. Convenient jamb of the opening is finished in accordance with construction materials used	jamb of the opening is finished			15
Total marks					**100**
Percentage Weightage					**100%**
Minimum Passing line % (Aggregate): 70%					

References:

Jen Jones, The Ultimate Guide to Windows Doors Ceilings Stairs and Trims ebook, 2013, Nine Yards Consulting Limited.

2. Seock Jae Yim, Windows and Doors, 2010, Ewha Womans University Press.

3. N. Thomas Johnson-Me, dland, Windows and Doors, 2012, Wipf and Stock Publishers.

4. Centaur Media, Doors Windows Buyer s Guide, 2014, Centaur Media.

5. Editors of Fine Homebuilding, Windows and Doors, 2006, Taunton Press.