TRAINING REGULATIONS

MASONRY NC III

CIVIL WORKS
(CONSTRUCTION SECTOR)

TECHNICAL EDUCATION AND SKILLS DEVELOPMENT AUTHORITY
East Service Road, South Superhighway, Taguig City, Metro Manila

TABLE OF CONTENTS

CONSTRUCTION SECTOR

MASONRY NC III

TRAINING REGULATIONS FOR MASONRY NC III

SECTION 1 MASONRY NC III QUALIFICATION

The Masonry NC III Qualification consists of competencies that a person must achieve and that will enable him / her to lay bricks / blocks for structure, plaster concrete masonry / concrete surface, install pre-cast baluster and handrail, apply special cement finishes to concrete and masonry surfaces and repair defective concrete and masonry surfaces.

This Qualification is packaged from the competency map of Construction – Civil Works sub-sector as shown in Annex A.

The Units of Competency comprising this Qualification include the following:

CODE NO.	BASIC COMPETENCIES
	Units of Competency
500311109	Lead workplace communication
500311110	Lead small teams
500311111	Develop and practice negotiation skills
500311112	Solve problems related to work activities
500311113	Use Mathematical concepts and techniques
500311114	Use relevant technologies

CODE NO.	COMMON COMPETENCIES
	Units of Competency
CON931201	Prepare construction materials and tools
CON311201	Observe procedures, specifications and manuals of instruction
CON311202	Interpret technical drawings and plans
CON311203	Perform mensurations and calculations
CON311204	Maintain tools and equipment

CODE NO.	CORE COMPETENCIES
	Units of Competency
CON712301	Prepare masonry materials
CON712302	Perform basic masonry work
CON712303	Lay bricks / blocks for structure
CON712304	Plaster concrete / masonry surface
CON712305	Install pre-cast baluster and handrail
CON712306	Apply special cement finishes to concrete and masonry surface
CON712307	Repair defective concrete and masonry surface

A person who has achieved this Qualification is competent to be a:

- Mason III

SECTION 2 COMPETENCY STANDARDS

This section gives the details of the contents of the core units of competency required for **MASONRY NC III**.

BASIC COMPETENCIES

UNIT OF COMPETENCY : LEAD WORKPLACE COMMUNICATION
UNIT CODE : 500311109

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to lead in the dissemination and discussion of ideas, information and issues in the workplace.

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables
1. Communicate information about workplace processes	1.1 Appropriate ***communication method*** is selected 1.2 Multiple operations involving several topics areas are communicated accordingly 1.3 Questions are used to gain extra information 1.4 Correct sources of information are identified 1.5 Information is selected and organized correctly 1.6 Verbal and written reporting is undertaken when required 1.7 Communication skills are maintained in all situations
2. Lead workplace discussions	2.1 Response to workplace issues are sought 2.2 Response to workplace issues are provided immediately 2.3 Constructive contributions are made to workplace discussions on such issues as production, quality and safety 2.4 Goals/objectives and action plan undertaken in the workplace are communicated
3. Identify and communicate issues arising in the workplace	3.1 Issues and problems are identified as they arise 3.2 Information regarding problems and issues are organized coherently to ensure clear and effective communication 3.3 Dialogue is initiated with appropriate personnel 3.4 Communication problems and issues are raised as they arise

RANGE OF VARIABLES

VARIABLE	RANGE
1. Methods of communication	1.1 Non-verbal gestures 1.2 Verbal 1.3 Face to face 1.4 Two-way radio 1.5 Speaking to groups 1.6 Using telephone 1.7 Written 1.8 Internet

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Dealt with a range of communication/information at one time 1.2 Made constructive contributions in workplace issues 1.3 Sought workplace issues effectively 1.4 Responded to workplace issues promptly 1.5 Presented information clearly and effectively written form 1.6 Used appropriate sources of information 1.7 Asked appropriate questions 1.8 Provided accurate information
2. Underpinning knowledge	2.1 Organization requirements for written and electronic communication methods 2.2 Effective verbal communication methods
3. Underpinning Skills	3.1 Organize information 3.2 Understand and convey intended meaning 3.3 Participate in variety of workplace discussions 3.4 Comply with organization requirements for the use of written and electronic communication methods
4. Resource Implications	The following resources MUST be provided: 4.1 Variety of Information 4.2 Communication tools 4.3 Simulated workplace
5. Methods of Assessment	Competency may be assessed through: 5.1 Competency in this unit must be assessed through 5.2 Direct Observation 5.3 Interview
6. Context for Assessment	6.1 Competency may be assessed in the workplace or in simulated workplace environment

UNIT OF COMPETENCY : LEAD SMALL TEAMS
UNIT CODE : 500311110

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes to lead small teams including setting and maintaining team and individual performance standards.

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables
1. Provide team leadership	1.1 ***Work requirements*** are identified and presented to team members 1.2 Reasons for instructions and requirements are communicated to team members 1.3 ***Team members' queries and concerns*** are recognized, discussed and dealt with
2. Assign responsibilities	2.1 Duties, and responsibilities are allocated having regard to the skills, knowledge and aptitude required to properly undertake the assigned task and according to company policy 2.2 Duties are allocated having regard to individual preference, domestic and personal considerations, whenever possible
3. Set performance expectations for team members	3.1 Performance expectations are established based on client needs and according to assignment requirements 3.2 Performance expectations are based on individual team members duties and area of responsibility 3.3 Performance expectations are discussed and disseminated to individual team members

4. Supervise team performance	4.1 ***Monitoring of performance*** takes place against defined performance criteria and/or assignment instructions and corrective action taken if required 4.2 Team members are provided with *feedback*, positive support and advice on strategies to overcome any deficiencies 4.3 ***Performance issues*** which cannot be rectified or addressed within the team are referenced to appropriate personnel according to employer policy 4.4 Team members are kept informed of any changes in the priority allocated to assignments or tasks which might impact on client/customer needs and satisfaction 4.5 Team operations are monitored to ensure that employer/client needs and requirements are met 4.6 Follow-up communication is provided on all issues affecting the team 4.7 All relevant documentation is completed in accordance with company procedures

RANGE OF VARIABLES

VARIABLE	RANGE
1. Work requirements	1.1 Client Profile 1.2 Assignment instructions
2. Team member's concerns	2.1 Roster/shift details
3. Monitor performance	3.1 Formal process 3.2 Informal process
4. Feedback	4.1 Formal process 4.2 Informal process
5. Performance issues	5.1 Work output 5.2 Work quality 5.3 Team participation 5.4 Compliance with workplace protocols 5.5 Safety 5.6 Customer service

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Maintained or improved individuals and/or team performance given a variety of possible scenario 1.2 Assessed and monitored team and individual performance against set criteria 1.3 Represented concerns of a team and individual to next level of management or appropriate specialist and to negotiate on their behalf 1.4 Allocated duties and responsibilities, having regard to individual's knowledge, skills and aptitude and the needs of the tasks to be performed 1.5 Set and communicated performance expectations for a range of tasks and duties within the team and provided feedback to team members
2. Underpinning Knowledge	2.1 Company policies and procedures 2.2 Relevant legal requirements 2.3 How performance expectations are set 2.4 Methods of Monitoring Performance 2.5 Client expectations 2.6 Team member's duties and responsibilities
3. Underpinning Skills	3.1 Communication skills required for leading teams 3.2 Informal performance counseling skills 3.3 Team building skills 3.4 Negotiating skills
4. Resource Implications	The following resources MUST be provided: 4.1 Access to relevant workplace or appropriately simulated environment where assessment can take place 4.2 Materials relevant to the proposed activity or task
5. Methods of Assessment	Competency may be assessed through: 5.1 Direct observations of work activities of the individual member in relation to the work activities of the group 5.2 Observation of simulation and/or role play involving the participation of individual member to the attainment of organizational goal 5.3 Case studies and scenarios as a basis for discussion of issues and strategies in teamwork
6. Context of Assessment	6.1 Competency assessment may occur in workplace or any appropriately simulated environment 6.2 Assessment shall be observed while task are being undertaken whether individually or in-group

UNIT OF COMPETENCY : DEVELOP AND PRACTICE NEGOTIATION SKILLS
UNIT CODE : 500311111

UNIT DESCRIPTOR : This unit covers the skills, knowledge and attitudes required to collect information in order to negotiate to a desired outcome and participate in the negotiation.

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables
1. Plan negotiations	1.1 Information on ***preparing for negotiation*** is identified and included in the plan 1.2 Information on creating ***non verbal environments*** for positive negotiating is identified and included in the plan 1.3 Information on ***active listening*** is identified and included in the plan 1.4 Information on different ***questioning techniques*** is identified and included in the plan 1.5 Information is checked to ensure it is correct and up-to- date
2. Participate in negotiation	2.1 Criteria for successful outcomes are agreed upon by all parties 2.2 Desired outcome of all parties are considered 2.3 Appropriate language is used throughout the negotiation 2.4 A variety of questioning techniques are used 2.5 The issues and processes are documented and agreed upon by all parties 2.6 Possible solutions are discussed and their viability assessed 2.7 Areas for agreement are confirmed and recorded 2.8 Follow-up action is agreed upon by all parties

RANGE OF VARIABLES

VARIABLE	RANGE
1. Preparing for negotiation	1.1 Background information on other parties to the negotiation 1.2 Good understanding of topic to be negotiated 1.3 Clear understanding of desired outcome/s 1.4 Personal attributes 1.4.1self awareness 1.4.2 self esteem 1.4.3 objectivity 1.4.4 empathy 1.4.5 respect for others 1.4.6 Interpersonal skills 1.4.7 listening/reflecting 1.4.8 non verbal communication 1.4.9 assertiveness 1.4.10 behavior labeling 1.4.11 testing understanding 1.4.12 seeking information 1.4.13 self disclosing 1.5 Analytic skills 1.5.1 observing differences between content and process 1.5.2 identifying bargaining information 1.5.3 applying strategies to manage process 1.5.4 applying steps in negotiating process 1.5.5 strategies to manage conflict 1.5.6 steps in negotiating process 1.5.7 options within organization and externally for resolving conflict
2. Non-verbal environments	2.1 Friendly reception 2.2 Warm and welcoming room 2.3 Refreshments offered 2.4 Lead in conversation before negotiation begins
3. Active listening	3.1 Attentive 3.2 Don't interrupt 3.3 Good posture 3.4 Maintain eye contact 3.5 Reflective listening

4. Questioning techniques	4.1 Direct 4.2 Indirect 4.3 Open-ended

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Demonstrated sufficient knowledge of the factors influencing negotiation to achieve agreed outcome 1.2 Participated in negotiation with at least one person to achieve an agreed outcome
2. Underpinning Knowledge and Attitude	2.1 Codes of practice and guidelines for the organization 2.2 Organizations policy and procedures for negotiations 2.3 Decision making and conflict resolution strategies procedures 2.4 Problem solving strategies on how to deal with unexpected questions and attitudes during negotiation 2.5 Flexibility 2.6 Empathy
3. Underpinning Skills	3.1 Interpersonal skills to develop rapport with other parties 3.2 Communication skills (verbal and listening) 3.3 Observation skills 3.4 Negotiation skills
4. Resource Implications	The following resources MUST be provided: 4.1 Room with facilities necessary for the negotiation process 4.2 Human resources (negotiators)
5. Methods of Assessment	Competency may be assessed through: 5.1 Observation/demonstration and questioning 5.2 Portfolio assessment 5.3 Oral and written questioning 5.4 Third party report
6. Context for Assessment	6.1 Competency to be assessed in real work environment or in a simulated workplace setting.

UNIT OF COMPETENCY : SOLVE PROBLEMS RELATED TO WORK ACTIVITIES
UNIT CODE : 500311112

UNIT DESCRIPTOR : This unit of covers the knowledge, skills and attitudes required to solve problems in the workplace including the application of problem solving techniques and to determine and resolve the root cause of problems.

ELEMENT	**PERFORMANCE CRITERIA** *Italicized* terms are elaborated in the Range of Variables
1. Identify the problem	1.1 Variances are identified from normal operating parameters; and product quality 1.2 Extent, cause and nature are of the problem are defined through observation, investigation and ***analytical techniques*** 1.3 ***Problems*** are clearly stated and specified
2. Determine fundamental causes of the problem	2.1 Possible causes are identified based on experience and the use of problem solving tools **/** analytical techniques. 2.2 Possible cause statements are developed based on findings 2.3 Fundamental causes are identified per results of investigation conducted
3. Determine corrective action	3.1 All possible options are considered for resolution of the problem 3.2 Strengths and weaknesses of possible options are considered 3.3 Corrective actions are determined to resolve the problem and possible future causes 3.4 **Action *plans*** are developed identifying measurable objectives, resource needs and timelines in accordance with safety and operating procedures
4. Provide recommendation / s to manager	4.1 Report on recommendations are prepared 4.2 Recommendations are presented to appropriate personnel 4.3 Recommendations are followed-up, if required

RANGE OF VARIABLES

VARIABLE	RANGE
1. Analytical techniques	1.1 Brainstorming 1.2 Intuitions/Logic 1.3 Cause and effect diagrams 1.4 Pareto analysis 1.5 SWOT analysis 1.6 Gant chart, Pert CPM and graphs 1.7 Scattergrams
2. Problem	2.1 Non – routine process and quality problems 2.2 Equipment selection, availability and failure 2.3 Teamwork and work allocation problem 2.4 Safety and emergency situations and incidents
3. Action plans	3.1 Priority requirements 3.2 Measurable objectives 3.3 Resource requirements 3.4 Timelines 3.5 Co-ordination and feedback requirements 3.6 Safety requirements 3.7 Risk assessment 3.8 Environmental requirements

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Identified the problem 1.2 Determined the fundamental causes of the problem 1.3 Determined the correct / preventive action 1.4 Provided recommendation to manager These aspects may be best assessed using a range of scenarios / case studies / what ifs as a stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new, unusual and improbable situations that may have happened.
2. Underpinning Knowledge	2.1 Competence includes a thorough knowledge and understanding of the process, normal operating parameters, and product quality to recognize non-standard situations 2.2 Competence to include the ability to apply and explain, sufficient for the identification of fundamental cause, determining the corrective action and provision of recommendations 2.3 Relevant equipment and operational processes 2.4 Enterprise goals, targets and measures 2.5 Enterprise quality, OHS and environmental requirement 2.6 Principles of decision making strategies and techniques 2.7 Enterprise information systems and data collation 2.8 Industry codes and standards
3. Underpinning Skills	3.1 Using range of formal problem solving techniques 3.2 Identifying and clarifying the nature of the problem 3.3 Devising the best solution 3.4 Evaluating the solution 3.5 Implementation of a developed plan to rectify the problem

4. Resource Implications	Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios / case studies / what ifs will be required as well as bank of questions which will be used to probe the reason behind the observable action.
5. Methods of Assessment	Competency may be assessed through: 5.1 Case studies on solving problems in the workplace 5.2 Observation The unit will be assessed in a holistic manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations, which will include disruptions to normal, smooth operation. 5.3 Simulation may be required to allow for timely assessment of parts of this unit of competency. Simulation should be based on the actual workplace and will include walk through of the relevant competency components.
6. Context of Assessment	6.1 In all workplace, it may be appropriate to assess this unit concurrently with relevant teamwork or operation units.

UNIT OF COMPETENCY : USE MATHEMATICAL CONCEPTS AND TECHNIQUES

UNIT CODE : 500311113

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required in the application of mathematical concepts and techniques.

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables
1. Identify mathematical tools and techniques to solve problem	1.1 Problem areas are identified based on given condition 1.2 ***Mathematical techniques*** are selected based on the given problem
2. Apply mathematical procedure/solution	2.1 Mathematical techniques are applied based on the problem identified 2.2 Mathematical computations are performed to the level of accuracy required for the problem 2.3 Results of mathematical computation is determined and verified based on job requirements
3. Analyze results	3.1 Result of application is reviewed based on expected and required specifications and outcome 3.2 ***Appropriate action*** is applied in case of error

RANGE OF VARIABLES

VARIABLE	RANGE
1. Mathematical techniques	May include but are not limited to: 1.1 Four fundamental operations 1.2 Measurements 1.3 Use/Conversion of units of measurements 1.4 Use of standard formulas
2. Appropriate action	2.1 Review in the use of mathematical techniques (e.g. recalculation, re-modeling) 2.2 Report error to immediate superior for proper action

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Identified, applied and reviewed the use of mathematical concepts and techniques to workplace problems
2. Underpinning Knowledge	2.1 Fundamental operation (addition, subtraction, division, multiplication) 2.2 Measurement system 2.3 Precision and accuracy 2.4 Basic measuring tools/devices
3. Underpinning Skills	3.1 Applying mathematical computations 3.2 Using calculator 3.3 Using different measuring tools
4. Resource Implications	The following resources **MUST** be provided: 4.1 Calculator 4.2 Basic measuring tools 4.3 Case Problems
5. Methods of Assessment	Competency may be assessed through: 5.1 Authenticated portfolio 5.2 Written Test 5.3 Interview/Oral Questioning 5.4 Demonstration
6. Context of Assessment	6.1 Competency may be assessed in the work place or in a simulated work place setting

UNIT OF COMPETENCY : USE RELEVANT TECHNOLOGIES
UNIT CODE : 500311114

UNIT DESCRIPTOR : This unit of competency covers the knowledge, skills, and attitude required in selecting, sourcing and applying appropriate and affordable technologies in the workplace.

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables
1. Study/select appropriate technology	1.1 Usage of different ***technologies*** is determined based on job requirements 1.2 Appropriate technology is selected as per work specification
2. Apply relevant technology	2.1 Relevant technology is effectively used in carrying out function 2.2 Applicable software and hardware are used as per task requirement 2.3 ***Management concepts*** are observed and practiced as per established industry practices
3. Maintain/enhance relevant technology	3.1 Maintenance of technology is applied in accordance with the ***industry standard operating procedure***, ***manufacturer's operating guidelines*** and ***occupational health and safety procedure*** to ensure its operative ability 3.2 Updating of technology is maintained through continuing education or training in accordance with job requirement 3.3 Technology failure/ defect is immediately reported to the concern/responsible person or section for ***appropriate action***

RANGE OF VARIABLES

VARIABLE	RANGE
1. Technology	May include but are not limited to: 1.1 Office technology 1.2 Industrial technology 1.3 System technology 1.4 Information technology 1.5 Training technology
2. Management concepts	May include but not limited to: 2.1 Real Time Management 2.2 KAIZEN or continuous improvement 2.3 5s 2.4 Total Quality Management 2.5 Other management/productivity tools
3. Industry standard operating procedure	3.1 Written guidelines relative to the usage of office technology/equipment 3.2 Verbal advise/instruction from the co-worker
4. Manufacturer's operating guidelines/ instructions	4.1 Written instruction/manuals of specific technology/ equipment 4.2 General instruction manual 4.3 Verbal advise from manufacturer relative to the operation of equipment
5. Occupational health and safety procedure	5.1 Relevant statutes on OHS 5.2 Company guidelines in using technology/equipment
6. Appropriate action	6.1 Implementing preventive maintenance schedule 6.2 Coordinating with manufacturer's technician

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Studied and selected appropriate technology consistent with work requirements 1.2 Applied relevant technology 1.3 Maintained and enhanced operative ability of relevant technology
2. Underpinning Knowledge	2.1 Awareness on technology and its function 2.2 Repair and maintenance procedure 2.3 Operating instructions 2.4 Applicable software 2.5 Communication techniques 2.6 Health and safety procedure 2.7 Company policy in relation to relevant technology 2.8 Different management concepts 2.9 Technology adaptability
3. Underpinning Skills	3.1 Relevant technology application/implementation 3.2 Basic communication skills 3.3 Software applications skills 3.4 Basic troubleshooting skills
4. Resource Implications	The following resources MUST be provided: 4.1 Relevant technology 4.2 Interview and demonstration questionnaires 4.3 Assessment packages
5. Methods of Assessment	Competency must be assessed through: 5.1 Interview 5.2 Actual demonstration 5.3 Authenticated portfolio (related certificates of training/seminar)
6. Context of Assessment	6.1 Competency may be assessed in actual workplace or simulated environment

COMMON COMPETENCIES

UNIT OF COMPETENCY: PREPARE CONSTRUCTION MATERIALS AND TOOLS
UNIT CODE : CON931201

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes on identifying, requesting and receiving construction materials and tools based on the required performance standards.

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variable
1. Identify materials	1.1 ***Materials*** are listed as per job requirements 1.2 Quantity and ***description of materials*** conform with the job requirements 1.3 Tools and accessories are identified according to job requirements
2. Requisition materials	2.1 Materials and tools needed are requested according to the list prepared 2.2 Request is done as per ***company standard operating procedures (SOP)*** 2.3 Substitute materials and tools are provided without sacrificing cost and quality of work
3. Receive and inspect materials	3.1 Materials and tools issued are inspected as per quantity and specification 3.2 Tools, accessories and materials are checked for damages according to enterprise procedures 3.3 Materials and tools are set aside to appropriate location nearest to the workplace

RANGE OF VARIABLES

VARIABLE	RANGE
1. Materials and Tools	1.1 Electrical supplies 1.2 Structural 1.3 Plumbing 1.4 Welding/pipefitting 1.5 Carpentry 1.6 Masonry
2. Description of Materials and Tools	2.1 Brand name 2.2 Size 2.3 Capacity 2.4 Kind of application
3. Company standard procedures	3.1 Job order 3.2 Requisition slip 3.3 Borrower slip

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Listed materials and tools according to quantity and job requirements 1.2 Requested materials and tools according to the list prepared and as per company SOP 1.3 Inspected issued materials and tools as per quantity and job specifications 1.4 Tools provided with appropriate safety devices
2. Underpinning knowledge	2.1 Types and uses of construction materials and tools 2.2 Different forms 2.3 Requisition procedures
3. Underpinning skills	3.1 Preparing materials and tools 3.2 Proper handling of tools and equipment 3.3 Following instructions
4. Resource implications	The following resources should be provided: 4.1 Workplace location 4.2 Materials relevant to the unit of competency 4.3 Technical plans, drawings and specifications relevant to the activities
5. Methods of assessment	Competency in this unit must be assessed through: 5.1 Direct observation and oral questioning
6. Context of assessment	6.1 Competency may be assessed in the workplace or in a simulated workplace 6.1 Competency assessment must be undertaken in accordance with the endorsed TESDA assessment guidelines

UNIT OF COMPETENCY: **OBSERVE PROCEDURES, SPECIFICATIONS AND MANUALS OF INSTRUCTIONS**

UNIT CODE : **CON311201**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes on identifying, interpreting, applying services to specifications and manuals and storing manuals.

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables
1. Identify and access specification/manuals	1.1 Appropriate manuals are identified and accessed as per job requirements 1.2 Version and date of manual are checked to ensure that correct specification and procedures are identified
2. Interpret manuals	2.1 Relevant sections, chapters of specifications/ manuals are located in relation to the work to be conducted 2.2 Information and procedure in the manual are interpreted in accordance with industry practices
3. Apply information in manual	3.1 ***Manual*** is interpreted according to job requirements 3.2 Work steps are correctly identified in accordance with manufacturer's specification 3.3 Manual data are applied according to the given task 3.4 All correct sequencing and adjustments are interpreted in accordance with information contained on the manual or specifications
4. Store manuals	4.1 Manual or specification is stored appropriately to prevent damage, ready access and updating of information when required in accordance with company requirements

RANGE OF VARIABLES

VARIABLE	RANGE
1. Procedures, Specifications and Manuals of Instructions	Kinds of Manuals: 1.1 Manufacturer's Specification Manual 1.2 Repair Manual 1.3 Maintenance Procedure Manual 1.4 Periodic Maintenance Manual

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires that the candidate: 1.1 Identified and accessed specification/manuals as per job requirements 1.2 Interpreted manuals in accordance with industry practices 1.3 Applied information in manuals according to the given task 1.4 Stored manuals in accordance with company requirements
2. Underpinning knowledge	2.1 Types of manuals used in construction sector 2.2 Identification of symbols used in the manuals 2.3 Identification of units of measurements 2.4 Unit conversion
3. Underpinning skills	3.1 Reading and comprehension skills required to identify and interpret construction manuals and specifications 3.2 Accessing information and data
4. Resource implications	The following resources should be provided: 4.1 All manuals/catalogues relative to construction sector
5. Methods of assessment	Competency should be assessed through: 5.1 Direct observation 5.2 Questions/interview Assessment of underpinning knowledge and practical skills may be combined
6. Context of assessment	6.1 Competency assessment must be undertaken in accordance with the endorsed TESDA assessment guidelines 6.2 Assessment may be conducted in the workplace or a simulated environment

UNIT OF COMPETENCY: INTERPRET TECHNICAL DRAWINGS AND PLANS
UNIT CODE : CON311202

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes in analyzing and interpreting symbols, data and work plan based on the required performance standards.

ELEMENTS	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables
1. Analyze signs, symbols and data	1.1 ***Technical plans*** are obtained according to job requirements 1.2 Signs, symbols and data are identified according to job specifications 1.3 Signs symbols and data are determined according to ***classification*** or as appropriate in ***drawing***
2. Interpret technical drawings and plans	2.1 Necessary ***tools, materials*** and equipment are identified according to the ***plan*** 2.2 Supplies and materials are listed according to specifications 2.3 Components, assemblies or objects are recognized as required 2.4 Dimensions are identified as appropriate to the plan 2.5 Specification details are matched with existing/available resources and in line with job requirements 2.6 Work plan is drawn following the specifications
3. Apply freehand sketching	3.1 Where applicable, correct freehand sketching is produced in accordance with the job requirements

RANGE OF VARIABLES

VARIABLES	RANGE
1. Technical Plans	Including but not limited to: 1.1 Electrical plans 1.2 Structural plans 1.3 Architectural plans 1.4 Plumbing plans 1.5 Welding Procedures Specifications (WPS)
2. Work plan	2.1 Job requirements 2.2 Installation instructions 2.3 Components instruction
3. Classification	Including but not limited to: 3.1 Electrical 3.2 Mechanical 3.3 Plumbing
4. Drawing	4.1 Drawing symbols 4.2 Alphabet of lines 4.3 Orthographic views 4.4 Front view 4.5 Right side view/left side view 4.6 Top view 4.7 Pictorial 4.8 Schematic diagram 4.9 Electrical drawings 4.10 Structural drawings 4.11 Plumbing drawings 4.12 Water 4.13 Sewerage/Drainage 4.14 Ventilation 4.15 Welding symbols
5. Tools and materials	Including but not limited to: 5.1 Compass 5.2 Divider 5.3 Rulers 5.4 Triangles 5.5 Drawing tables 5.6 Computer

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires that the candidate: 1.1 Identified and determined signs, symbols and data according to work plan, job requirements and classifications 1.2 Identified tools and equipment in accordance with job requirements 1.3 Listed supplies and materials according to blueprint specifications 1.4 Drawn work plan following specifications 1.5 Demonstrated ability to determine job specifications based on working / technical drawing
2. Underpinning Knowledge	2.1 TRADE MATHEMATICS 2.1.1 Linear measurement 2.1.2 Dimension 2.1.3 Unit conversion 2.2 BLUEPRINT READING AND PLAN SPECIFICATION 2.2.1 Electrical, mechanical plan, symbols and abbreviations 2.2.2 Drawing standard symbols 2.3 TRADE THEORY 2.3.1 Basic technical drawing 2.3.2 Types technical plans 2.3.3 Various types of drawings 2.3.4 Notes and specifications
3. Underpinning Skills	3.1 Interpreting drawing/orthographic drawing 3.2 Interpreting technical plans 3.3 Matching specification details with existing resources 3.4 Following instructions 3.5 Handling of drawing instruments
4. Resource Implications	The following resources should be provided: 4.1 Workplace 4.2 Drawings and specification relevant to task 4.3 Materials and instrument relevant to proposed activity

5. Methods of Assessment	Competency should be assessed through: 5.1 Direct Observation 5.2 Questions/Interview 5.3 Written test related to underpinning knowledge
6. Context of Assessment	6.1 Competency assessment may occur in the workplace or in any appropriate simulated environment 6.2 Assessment shall be observed while task are being undertaken whether individually or in group 6.3 Competency assessment must be undertaken in accordance with the endorsed TESDA assessment guidelines

UNIT OF COMPETENCY: PERFORM MENSURATIONS AND CALCULATIONS
UNIT CODE : CON311203

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes on identifying and measuring objects based on the required performance standards.

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** *terms* are elaborated in the Range of Variable
1. Select measuring instruments	1.1 Object or component to be measured is identified, classified and interpreted according to the appropriate regular ***geometric shape*** 1.2 Measuring tools are selected/identified as per object to be measured or job requirements 1.3 Correct specifications are obtained from relevant sources 1.4 Appropriate measuring instruments are selected according to job requirements 1.1 Alternative measuring tools are used without sacrificing cost and quality of work
2. Carry out measurements and calculations	2.1 Accurate ***measurements*** are obtained according to job requirements 2.2 Alternative measuring tools are used without sacrificing cost and quality of work 2.3 ***Calculation*** needed to complete work tasks are performed using the four basic process of addition (+), subtraction (-), multiplication (x) and division (/) including but not limited to: trigonometric functions, algebraic computations 2.4 Calculations involving fractions, percentages and mixed numbers are used to complete workplace tasks 2.5 Numerical computation is self-checked and corrected for accuracy 2.6 Instruments are read to the limit of accuracy of the tool 2.7 Systems of measurement identified and converted according to job requirements/ISO 2.8 Workpieces are measured according to job requirements

RANGE OF VARIABLES

VARIABLE	RANGE
1. Geometric shape	Including but is not limited to: 1.1 Round 1.2 Square 1.3 Rectangular 1.4 Triangle 1.5 Sphere 1.6 Conical
2. Measuring instruments	Including but not limited to: 2.1 Micrometer (In-out, depth) 2.2 Vernier caliper (out, inside) 2.3 Dial gauge with mag, std. 2.4 Straight edge 2.5 Thickness gauge 2.6 Torque gauge 2.7 Small hole gauge 2.8 Telescopic gauge 2.9 Try-square 2.10 Protractor 2.11 Combination gauge 2.12 Steel rule 2.13 Voltmeter 2.14 Ammeter 2.15 Mega-ohmeter 2.16 Kilowatt hour meter 2.17 Gauges 2.18 Thermometers
3. Measurements and calculations	3.1 Linear 3.2 Volume 3.3 Area 3.4 Wattage 3.5 Voltage 3.6 Resistance 3.7 Amperage 3.8 Frequency 3.9 Impedance

VARIABLE	RANGE
	3.10 Conductance 3.11 Capacitance 3.12 Displacement 3.16 Inside diameter 3.17 Circumference 3.18 Length 3.19 Thickness 3.20 Outside diameter 3.21 Taper 3.22 Out of roundness 3.23 Oil clearance 3.24 End play/Thrust clearance

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires that the candidate: 1.1 Selected and prepared appropriate measuring instruments in accordance with job requirements 1.2 Performed measurements and calculations according to job requirements/ ISO
2. Underpinning knowledge	TRADE MATHEMATICS / MENSURATION 2.1 Four fundamental operation 2.2 Linear measurement 2.3 Dimensions 2.4 Unit conversion 2.5 Ratio and proportion 2.6 Trigonometric functions 2.8 Algebraic equations
3. Underpinning skills	3.1 Performing calculation by addition, subtraction, multiplication and division; trigonometric functions and algebraic equations 3.2 Visualizing objects and shapes 3.3 Interpreting formulas for volume, areas, perimeters of plane and geometric figures 3.4 Proper handling of measuring instruments
4. Resource implications	The following resources should be provided: 4.1 Workplace location 4.2 Problems to solve 4.3 Measuring instrument appropriate to carry out tasks 4.4 Instructional materials relevant to the propose activity Assessment of underpinning knowledge and practical skills may be combined
5. Methods of assessment	Competency should be assessed through: 5.1 Actual demonstration 5.2 Direct observation 5.3 Written test/questioning related to underpinning knowledge
6. Context of assessment	6.1 Competency assessment may occur in workplace or any appropriate simulated environment 6.2 Assessment shall be observed while task are being undertaken whether individually or in group 6.3 Competency assessment must be undertaken in accordance with the TESDA assessment guidelines

UNIT OF COMPETENCY: MAINTAIN TOOLS AND EQUIPMENT
UNIT CODE : CON311204

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes on checking condition, performing preventive maintenance and storing of tools and equipment based on the required performance standards.

ELEMENTS	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables
1. Check condition of tools and equipment	1.1 ***Materials, tools and equipmen***t are identified according to classification and job requirements 1.2 Non-functional tools and equipment are segregated and labeled according to classification 1.3 Safety of tools and equipment are observed in accordance with manufacturer's instructions 1.4 Condition of ***PPE*** are checked in accordance with manufacturer's instructions
2. Perform basic preventive maintenance	2.1 Appropriate lubricants are identified according to types of equipment 2.2 Tools and equipment are lubricated according to preventive maintenance schedule or manufacturer's specifications 2.3 Measuring instruments are checked and calibrated in accordance with manufacturer's instructions 2.3 Tools are cleaned and lubricated according to standard procedures 2.5 Defective instruments, equipment and accessories are inspected and replaced according to manufacturer's specifications 2.6 Tools are inspected, repaired and replaced after use 2.7 Work place is cleaned and kept in safe state in line with OHSA regulations

3. Store tools and equipment	3.1 Inventory of tools, instruments and equipment are conducted and recorded as per company practices 3.2 Tools and equipment are stored safely in appropriate locations in accordance with manufacturer's specifications or company procedures

RANGE OF VARIABLES

VARIABLES	RANGE
1. Materials	Including but not limited to: 1.1 Lubricants 1.2 Cleaning materials 1.3 Rust remover 1.4 Rugs 1.5 Spare parts
2. Tools and equipment	Including but not limited to: 2.1 Tools Cutting tools - hacksaw, crosscut saw, rip saw Boring tools - auger, brace, grinlet, hand drill Holding tools - vise grip, C-clamp, bench vise Threading tools - die and stock, taps 2.2 Measuring instruments/equipment
3. PPE	Including but not limited to: 3.1 Goggles 3.2 Gloves 3.3 Safety shoes 3.4 Aprons/Coveralls
4. Forms	4.1 Maintenance schedule forms 4.2 Requisition slip 4.3 Inventory Form 4.4 Inspection Form 4.5 Procedures

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires that the candidate: 1.1 Selected and used appropriate processes, tools and equipment to carry out task 1.2 Identified functional and non-functional tools and equipment 1.3 Checked, lubricated and calibrated tools, equipment and instruments according to manufacturer's specifications 1.4 Replaced defective tools, equipment and their accessories 1.5 Observed and applied safe handling of tools and equipment and safety work practices 1.6 Prepared and submitted inventory report, where applicable 1.7 Maintained workplace in accordance with OHSA regulations 1.8 Stored tools and equipment safely in appropriate locations and in accordance with company practices
2. Underpinning knowledge	2.1 SAFETY PRACTICES 2.1.1 Use of PPE 2.1.2 Handling of tools and equipment 2.1.3 Good housekeeping 2.2 MATERIALS, TOOLS AND EQUIPMENT 2.2.1 Types and uses of lubricants 2.2.2 Types and uses of cleaning materials 2.2.3 Types and uses of measuring instruments and equipment 2.3 PREVENTIVE MAINTENANCE 2.3.1 Methods and techniques 2.3.2 Procedures
3. Underpinning skills	3.1 Preparing maintenance materials, tools and equipment 3.2 Proper handling of tools and equipment 3.3 Performing preventive maintenance 3.4 Following instructions
4. Resource implications	The following resources should be provided: 4.1 Workplace 4.2 Maintenance schedule 4.1 Maintenance materials, tools and equipment relevant to the proposed activity/task
5. Methods of assessment	Competency should be assessed through: 5.1 Direct observation 5.2 Written test/questioning relevant to Underpinning knowledge

6. Context of assessment	6.1 Competency assessment may occur in workplace or any appropriate simulated environment 6.2 Competency assessment must be undertaken in accordance with the endorsed TESDA assessment guidelines

CORE COMPETENCIES

UNIT OF COMPETENCY : PREPARE MASONRY MATERIALS
UNIT CODE : CON712301

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes in preparing mixtures used for masonry laying and surface plastering under supervision by a higher-level mason.

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables
1. Select materials to be hauled	1.1 Appropriate ***personal protective equipment (PPE)*** is selected and used according to job requirements. 1.2 Work instruction is secured from immediate superior. 1.3 Quantity of ***materials*** to be hauled is determined according to the instruction of immediate superior. 1.3 Correct quantity and type of materials to be used are secured.
2. Haul materials	2.1 Availability and serviceability of appropriate ***hauling equipment*** are checked as specified by the immediate superior. 2.2 Materials are hauled based on specified work schedule. 2.3 Required materials are stockpiled based on instructions.
3. Mix mortar / concrete	3.1 ***Mixing tools and equipment*** to be used are checked according to job requirements. 3.2 Concrete or mortar mix and quantity is determined according to the instructions. 3.3 Concrete or mortar is mixed according to the instructions. 3.4 Mixed concrete or mortar is supplied to the appropriate personnel based on the job requirements.

RANGE OF VARIABLES

VARIABLES	RANGE
1. Personal Protective Equipment	1.1 Helmet 1.2 Safety shoes 1.3 Proper uniform 1.4 Gloves 1.5 Dust mask
2. Materials	May include but not limited to: 2.1 Concrete hollow blocks 2.2 Bricks 2.3 Cement 2.4 Sand 2.5 Water 2.6 Reinforcing bars / G.I. wire 2.7 Concrete / CW nails 2.8 Lumber 2.9 Baluster 2.10 Lime 2.11 Fly ash
3. Hauling equipment	May include but are not limited to: 2.1 Skid loader 2.2 Dumper 2.3 Material hoist 2.4 Pallet 2.5 Wheel borrow 2.6 Buggy
4. Mixing tools and equipment	3.1 One bagger mixer 3.2 Two-bagger mixer 3.3 Mixing board 3.4 Shovel 3.5 Pails 3.6 Screen wire (2-3 mm mesh) 3.7 Mixing box 3.8 Mortar bucket

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Demonstrated ability to identify correct quantity and type of materials and tools / equipment used in hauling. 1.2 Demonstrated ability to proper hauling and timely delivery of correct quantity and type of materials. 1.3 Demonstrated ability to identify correct quantity and type of materials and tools / equipment used in mixing. 1.4 Demonstrated ability to select and use PPE.
2. Underpinning Knowledge	2.1 Knowledge of basic linear measurement and simple arithmetic 2.2 Interpret work instructions 2.3 Prevention of accidents 2.4 Safe handling of materials, tools and equipment 2.5 Housekeeping for safety 2.6 Safety signs and symbols 2.7 Types of concrete blocks, bricks, cement and aggregates 2.8 Uses and types of mortar 2.9 Types of masonry anchors, ties and reinforcements
3. Underpinning Skills	3.1 Working safely 3.2 Organizing materials to be used 3.3 Mixing mortar 3.4 Proper handling and use of tools and equipment 3.5 Communicating effectively 3.6 Using basic arithmetic
4. Resource Implications	Things necessary in order to conduct method of assessment: 4.1 Workplace location 4.2 Tools, and equipment appropriate to masonry jobs 4.3 Materials relevant to the masonry works
5. Methods of Assessment	Competency in this unit must be assessed through: 5.1 Direct Observation on actual workplace 5.2 Questions related to underpinning knowledge 5.3 Third party report 5.4 Demonstration on simulated situation 5.5 Oral interview
6. Context for Assessment	6.1 Competency may be assessed in the workplace or in a simulated workplace setting

UNIT OF COMPETENCY : PERFORM BASIC MASONRY WORK
UNIT CODE : CON712302

UNIT DESCRIPTOR : This unit deals with the outcomes required to perform basic masonry work under supervision by a higher-level mason. It covers the skills required to perform basic re-bar fabrication such as cutting and bending, erecting and dismantling scaffolds, (1.8 meters and below) perform form fabrication, and stripping; excavating, backfilling and compacting.

ELEMENTS	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables
1. Perform basic re-bar fabrication	1.1 Appropriate PPE is selected and used according to job requirements. 1.2 Steel bars are identified, measured, cut and bent as required. 1.3 Cut and bent steel bars are segregated according to ***steel type and size***. 1.4 Basic fabrication of steel bars into wall footing, stiffener columns and lintel beams is performed following the re-bar cutting and bending schedule.
2. Erect and dismantle scaffolding (limited height)	2.1 ***Components of scaffolding*** are checked and verified based on job requirements. 2.2 Scaffolding is erected in accordance with ***safety practices***. 2.3 Scaffolding is dismantled in accordance with safety practices. 2.4 Components are inventoried and returned to stockpile area based on company rules and procedures.
3. Fabricate and strip form works	3.1 ***Form works materials*** are identified, measured, cut and fabricated as required. 3.2 Cut materials are segregated according to size. 3.3 Basic fabrication of materials into forms for stiffener columns and lintel beams is performed following work instructions. 3.4 Form works are stripped following established procedures.

4. Perform excavation and back filling / compaction	4.1 Excavation work is performed based on ***job specifications.*** 4.2 Excavated portion is filled with gravel base coarse. 4.3 Back filling and compaction are performed after concreting of wall footing.
5. Perform concreting work	5.1 Concreting of wall footing, columns and lintel beam based on line and grade is performed. 5.2 Consolidation of concrete by vibration is performed (use of vibrator, optional).
6. Perform housekeeping	6.1 Materials such as excess re-bars, scaffolding and form panels are recovered and stockpiled according to company rules and procedures. 6.2 Protect flooring by covering it during concrete hollow blocks / bricks laying and plastering. 6.3 Protect flooring by using mixing board during manual mixing. 6.4 Workplace is cleaned and cleared of any obstructions and hazards before, during and after work. 6.5 Tools, equipment and other materials are cleaned after use.

RANGE OF VARIABLES

VARIABLES	RANGE
1. Steel type and size	1.1 Bar diameter (10, 12, 16 mm) 1.2 Grade of re-bar (40) 1.3 Type of bend
2. Components of scaffolding	May include but are not limited to: 2.1Steel 2.1.1 A/H frame 2.1.2 Cross brace 2.1.3 Joint pin 2.1.4 Base jack 2.1.5 Walking board 2.1.6 Toe board 2.1.7 Railing 2.1.8 Tubular) pipe 2.1.9 Arm lock 2.2 Wood 2.2.1 *2 x 4* rough lumber 2.2.2 *2 x 2* rough lumber 2.2.3 Wood planks 2.2.4 Nails
3. Safety practices	3.1 Standard PPE 3.2 Check the condition of the scaffold components 3.3 Provision of appropriate safety signs 3.4 Sufficient lighting for the workplace 3.5 Good housekeeping
4. Form work materials	4.1 Plywood 4.2 Rough lumber 4.3 Nails 4.4 Form oil 4.5 Tie rod / form tie
5. Job specifications	May include but are not limited to: 5.1 Established lay-out 5.2 Soil condition 5.3 Required depth and width

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Demonstrated ability to produce the required quantity and quality of fabricated re-bars 1.2 Demonstrated ability to produce the required quantity and quality of fabricated form panels through correct cutting of form work materials 1.3 Demonstrated ability to erect and dismantle the required scaffold based on standard safety practices 1.4 Demonstrated ability to excavate, backfill and compact according to the required width and depth 1.5 Demonstrated ability to mix concrete, mortar and grout that conforms with the quality requirement 1.6 Demonstrated knowledge on the importance of proper housekeeping by cleaning and clearing the workplace from any obstructions and safety hazards
2. Underpinning Knowledge	2.1 Basic linear measurement and simple arithmetic 2.2 Follow instructions properly 2.3 Prevention of accidents 2.4 Safe handling of materials, tools and equipment 2.5 Housekeeping for safety 2.6 Safety signs and symbols 2.7 Rules on safe erection, use and dismantling of scaffolds (1.8 m and below) 2.8 Types of masonry anchors, ties and reinforcements 2.9 Form works and platforms 2.10 Scaffoldings construction elements and materials 2.11 Fabrication of form works and re-bars 2.12 Concrete, mortar and grout mix 2.13 Excavation, back filling and compaction
3. Underpinning Skills	3.1 Working safely 3.2 Organizing materials to be used 3.3 Installing and dismantling scaffolds 3.4 Proper handling and use of tools and equipment 3.5 Communicating effectively 3.6 Using basic arithmetic 3.7 Using PPE 3.8 Basic concreting

4. Resource Implications	Things necessary in order to conduct method of assessment: 4.1 Workplace location 4.2 Tools, and equipment appropriate to scaffold, re-bars and form works 4.3 Materials relevant to scaffold, re-bars and form works
5. Methods of Assessment	Competency in this unit must be assessed through: 5.1 Direct Observation on actual workplace 5.2 Questions related to underpinning knowledge 5.3 Third party report 5.4 Demonstration on simulated situation 5.5 Interview
6. Context for Assessment	6.1 Competency may be assessed in the workplace or in a simulated workplace setting

UNIT OF COMPETENCY : LAY BRICKS / BLOCKS FOR STRUCTURE
UNIT CODE : CON712303

UNIT DESCRIPTOR : This unit covers the outcomes required to lay bricks / blocks for structure. It includes the skills in establishing brick / block structure location; performing brick / block laying and curing.

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables
1. Layout / establish block or brick structure location	1.1 Plans are read and interpreted as per job requirements. 1.2 Appropriate ***PPE*** is selected and used in line with job requirements. 1.3 ***Materials, tools and equipment*** are selected and prepared consistent with the job requirements. 1.4 Reference building lines are correctly identified / located as per job requirements. 1.5 Location of ***brick / block structure*** based on reference building lines is established using batterboard at ± 3mm tolerance for proper alignment, squareness and dimension. 1.6 Horizontal / vertical guide for brick / block is installed according to job specifications. 1.7 Lay-out of block / brick structure is correctly marked as per job requirements.
2. Perform laying brick / block for structure	2.1 Bricks and concrete block laid on the line at minimum allowance of 1/16 inch (2 mm) 2.2 Reinforcing bar / dowel is installed according to required job specifications. 2.3 Mortars are spread on the base / edge of brick / block mortar according to job specifications. 2.4 Bricks / blocks are positioned / laid according to design / specifications / locations. 2.5 Constant checking of plumbness is done during brick/block laying 2.6 Form works are installed in accordance with building plan, if necessary 2.7 Cast-in place concrete structures are constructed according to design and job specifications. 2.8 Work site is cleaned and kept in safe state in line with OHSA regulations.

3. Complete work / curing	3.1 ***Final checks*** are made to ensure that work conforms with instructions, curing and other requirements. 3.2 Completed work is reported to the Foreman for final checking. 3.3 Tools, equipment and any surplus resources and materials are checked and monitored in accordance with established procedures. 3.4 Work area is maintained as to its cleanliness and safety.

RANGE OF VARIABLES

VARIABLES	RANGE
1. Materials	1.1 String or nylon cord 1.2 Concrete / CW nails 1.3 Lumber 1.4 Water 1.5 Mortar
2. Tools and equipment	2.1 Pail 2.2 Mortar box 2.3 Pointed trowel 2.4 Wooden float 2.5 Nylon string 2.6 Steel tape / pull-push rule 2.7 Mason hammer (piketa) 2.8 Plumb bob 2.9 Scaffoldings 2.10 Pencil 2.11 Hand saw 2.12 Manual bender 2.13 Tie wire 2.14 Steel square 2.15 Hacksaw 2.16 Level hose 2.17 Spirit level 2.18 Mortar bucket 2.19 One bagger mixer 2.20 Chalk line
3. Brick / block structures	May include but not limited to: 3.1 Stiffener columns 3.2 Lintel beams 3.3 Wall footing 3.4 Walls (exterior, interior and parapet, etc.) 3.5 Fireplace 3.6 Chimneys 3.7 Septic vaults
4. PPE	4.1 Safety shoes 4.2 Safety gloves 4.3 Safety helmet 4.4 Body harness / safety belt as required 4.5 Proper clothes (long sleeves and long pants)

5. Final checks	5.1 Plumbness 5.2 Levelness 5.3 Squareness 5.4 Flatness / evenness of surface

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Correctly interpreted and identified plans and details 1.2 Prepared and selected materials, tools and equipment consistent with specifications and job requirements 1.3 Located brick / block structure based on reference building lines for proper alignment, squareness and dimension 1.4 Performed / laid-out brick / block for structure in accordance with the required plumbness, levelness and squareness. 1.5 Demonstrated compliance with safety regulations applicable to work site operations 1.6 Identified, minimized and eliminated safety hazards 1.7 Erected scaffold as per job requirement (max. height 1.8 m) 1.8 Unexpected situations are responded accordingly.
2. Underpinning Knowledge	2.1 safe work practices and first aid regulations 2.1.1 Prevention of accidents 2.1.2 First aid treatments and regulations 2.1.3 Safe handling of materials, tools and equipment 2.1.4 Housekeeping for safety 2.1.5 Safety signs and symbols 2.1.6 Rules on the safe use of scaffolds and ladders 2.2 Trade Mathematics and Mensuration 2.2.1 Linear measurements 2.2.2 Fundamental operations of Mathematics (4 basic operations) 2.2.3 System of measurement / Metric system of measurement 2.3 Blueprint and specifications reading 2.3.1 Interpret blueprints 2.3.2 Composition, properties, uses and size of clay and masonry 2.3.3 Materials 2.3.4 Basic structural bonds and joints 2.3.5 Classification of concrete masonry units 2.3.6 Properties of concrete block 2.3.7 Material uses and specifications 2.4 Materials 2.4.1 Types and uses of mortar 2.4.2 Masonry ties and reinforcements 2.4.3 Types of masonry anchors, ties and reinforcements 2.4.4 Wood products 2.4.5 Form works and platforms 2.4.6 Scaffoldings construction elements and materials

	2.5 Trade theory 2.5.1 Basic carpentry 2.6 Masonry tools and equipment 2.6.1 Types and uses of trowels 2.6.2 Chipping tools 2.6.3 Measuring and testing tools 2.6.4 Use of power cutter 2.6.5 Masonry saw 2.6.6 Proper use of hand tools 2.7 Masonry process 2.7.1 Knowledge of masonry processes 2.7.2 Good housekeeping 2.7.3 Economic use of material
3. Underpinning Skills	3.1 Following work practices and first aid regulations 3.2 Applying trade Math and mensuration 3.3 Interpreting blueprint and specifications 3.4 Using materials, tools and equipment 3.5 Applying trade theory 3.6 Performing laying of brick / block processes
4. Resource Implications	Things necessary in order to conduct method of assessment: 4.1 Workplace location 4.2 Tools, plant and equipment appropriate to construction processes 4.3 Scaffolding and form works required for activity 4.4 Drawings and specifications relevant to the task 4.5 Basic PPE
5. Methods of Assessment	Competency in this unit must be assessed through: 5.1 Direct Observation 5.2 Questions related to underpinning knowledge 5.3 Interview 5.4 Portfolio
6. Context for Assessment	6.1 Competency may be assessed in the workplace or in a simulated workplace setting

UNIT OF COMPETENCY : PLASTER CONCRETE / MASONRY SURFACE
UNIT CODE : CON712304

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes in plastering concrete / masonry surface. It includes skills required for preparing concrete / masonry surfaces for plastering; and performing plastering work.

ELEMENTS	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables
1. Prepare concrete / masonry surfaces for plastering	1.1 Appropriate ***PPE*** is selected and used according to job requirements. 1.2 Plans and details are interpreted as per job requirements 1.3 ***Materials, tools and equipment*** are selected and prepared in line with job requirements 1.4 Materials are properly staged / stockpiled at designated workplace and must be free from any foreign matters. 1.5 Wall surface preparation is performed according to establish plastering procedure
2. Perform plastering work	2.1 Limits of plastering are determined to establish required thickness, plumbness, squareness, levelness and alignment of structure 2.2 Plastering wall is performed according to job requirements 2.3 Distribution of mortar/coating is applied on the wall surface evenly 2.4 Work site is cleaned and kept in safe state in accordance with OHSA regulations
3. Complete plastering work and curing	3.1 ***Final Checks*** are made to ensure that work conforms with instructions, curing and other job requirements. 3.2 Inform immediate superior upon completion of work. 3.3 Tools, equipment and any surplus resources and materials are checked and monitored in accordance with established procedures. 3.4 Work area is maintained of its cleanliness and safety.

RANGE OF VARIABLES

VARIABLES	RANGE
1. Materials	May include but are not limited to : 1.1 Mortar 1.2 Plastering guide 1.3 String or nylon cord 1.4 Concrete and CW nails 1.5 Water
2. Tools and equipment	May include but are not limited to : 2.1 Mason's hammer 2.2 Scaffolding 2.3 Steel tape / push-pull rule 2.4 Plumb bob 2.5 Leveling tools (leveling hose, spirit level) 2.6 Pail 2.7 Mortar box 2.8 Pointed trowel 2.9 Wooden float 2.10 Steel float 2.11 Shovel 2.12 Foam / paper 2.13 Straight edge / screed (bara) 2.14 Mason’s brush 2.15 Claw hammer
3. PPE	3.1 Safety shoes 3.2 Safety belt / body harness 3.3 Safety helmet 3.4 Proper working clothes
4. Final checks	4.1 Plumbness 4.2 Levelness 4.3 Squareness 4.4 Evenness or flatness of surface

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Correctly interpreted and identified plans and details 1.2 Performed concrete / masonry surface preparation in accordance with established plastering procedure 1.3 Performed plastering works consistent with established plastering procedure 1.4 Demonstrated compliance with safety regulations applicable to work site operations 1.5 Demonstrated ability to produce quality of plastering works 1.6 Demonstrated ability to erect and dismantle scaffolds 1.7 Identified, minimized and eliminated safety hazards 1.8 Communicated interactively with others when applicable to ensure safe and effective work operations 1.9 Completed plastering concrete / masonry surface according to job specifications
2. Underpinning Knowledge	2.1 Safe work practices and first aid regulations 2.1.1 Prevention of accidents 2.1.2 Knows to do when accidents occur 2.1.3 First aid treatments and regulations 2.1.4 Safe handling of materials, tools and equipment 2.1.5 Housekeeping for safety 2.1.6 Safety signs and symbols 2.1.7 Rules on the safe use of scaffolds and ladders 2.2 Trade Mathematics and Mensuration 2.2.1 Linear measurements 2.2.2 Fundamental operations of Mathematics 2.2.3 System of measurement / Metric system of measurement 2.3 Blueprint and specifications reading 2.3.1 Interpret Blueprints / Plans and Drawings 2.3.2 Composition, properties / types , uses and sizes of plastering 2.4 Materials 2.4.1 Types / uses of Mortar 2.4.2 Scaffoldings construction elements and materials 2.5 Trade theory 2.5.1 Plastering proportion & procedures 2.6 Masonry tools and equipment 2.6.1 Types and Uses of Trowels 2.6.2 Measuring and Testing Tools 2.6.7 Types and uses of brick hammers 2.7 Masonry process 2.7.1 Methods of plastering works 2.7.2 Economic use of material

3. Underpinning Skills	3.1 Following safe work practices and first aid regulations 3.2 Applying trade math and mensuration 3.3 Interpreting blueprint and specifications 3.4 Using materials, tools and equipment 3.5 Applying trade theory 3.6 Performing plastering processes
4. Resource Implications	Things necessary in order to conduct method of assessment: 4.1 Workplace location/ simulated workplace setting 4.2 Tools and equipment appropriate to construction processes 4.3 Scaffolding/ form works / re-bars required for activity 4.4 Masonry materials relevant to the proposed activity 4.5 Drawings/plans and specifications relevant to the task
5. Methods of Assessment	Competency in this unit must be assessed through: 5.1 Direct Observation 5.2 Interview 5.3 Portfolio 5.4 Third Party Report 5.5 Demonstration
6. Context for Assessment	6.1 Competency may be assessed in the workplace or in a simulated workplace setting

UNIT OF COMPETENCY : INSTALL PRE-CAST BALUSTER AND HANDRAILS
UNIT CODE : CON712305

UNIT DESCRIPTOR : This unit describes the outcomes required to install pre-cast baluster and handrail. It covers the skills required to prepare and install pre-cast baluster and handrail and for preparing work completion report.

ELEMENTS	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables
1. Layout / establish pre-cast baluster and handrail location	1.1 Appropriate ***PPE*** is selected used according to job requirements 1.2 Plans and details are interpreted as per job requirements 1.3 ***Materials, tools and equipment*** are prepared and selected consistent with job requirements 1.4 Pre-cast baluster and handrail is marked in accordance with job requirements
2. Perform pre-cast baluster and handrail installation	2.1 Pre-cast baluster and handrail are laid-out, aligned and secured according to job requirements 2.2 Mortar is applied to pre-cast baluster and handrail according to job requirements 2.3 Worksite is cleaned and kept in safe state in line with OHSA regulations
3. Complete of pre-cast baluster and hand rail work and curing	3.1 ***Final Checks*** are made to ensure that work conforms with instructions, curing and other and job requirements 3.2 Inform immediate superior upon completion of work 3.3 Tools, equipment and any surplus resources and materials are checked and monitored in accordance with established procedures 3.4 Work area is maintained of its cleanliness and safety

RANGE OF VARIABLES

VARIABLES	RANGE
1. Materials	May include but are not limited to: 1.1 G.I. wire 1.2 Reinforcing bars 1.3 Form work materials 1.4 Water 1.5 Strings or nylon cord 1.6 Concrete and CW nails 1.7 Lumber
2. Tools and equipment	May include but are not limited to: 2.1 Push pull rule 2.2 Steel square 2.3 Leveling tools (levelling hose , spirit level) 2.4 Plumb bob 2.5 Mason's Hammer 2.6 Pencil 2.7 Pointed trowel 2.8 Shovel 2.9 Mortar box 2.10 Hacksaw / bar cutter 2.11 Finishing Trowel 2.12 Steel float 2.13 Chalk line
3. PPE	May include but are not limited to: 3.1 Safety shoes 3.2 Safety Gloves 3.3 Safety belt / body harness 3.4 Safety Helmet 3.5 Proper working clothes
4. Final checks	4.1 Plumbness 4.2 Levelness 4.3 Squareness 4.4 Alignment of balusters

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Interpreted plans and details 1.2 Prepared and selected materials consistent with the job requirements 1.3 Laid out and established location of pre-cast baluster and handrails in accordance with job requirements 1.4 Installed pre-cast baluster and handrails consistent with the job requirements 1.5 Demonstrated compliance with safety regulations applicable to work site operations 1.6 Demonstrated ability to produce quality installation works 1.7 Erected scaffoldings (if needed) in accordance with OHSA regulation
2. Underpinning Knowledge	2.1 Safe work practices and first aid regulations 2.1.1 Prevention of accidents 2.1.2 Appropriate actions to take when accidents occur 2.1.3 First aid treatments and regulations 2.1.4 Safe handling of materials, tools and equipment 2.1.5 Housekeeping for safety 2.1.6 Safety signs and symbols 2.1.7 Rules on the safe use of scaffolds and ladders 2.2 Trade Mathematics and Mensuration 2.2.1 Linear measurements 2.2.2 Fundamental operations of Mathematics 2.3 Blueprint and specifications reading 2.3.1 Interpret blueprints/Plans & Drawings 2.4 Materials 2.4.1 Types / Uses of pre-cast balusters and handrails 2.4.3 Form works and platforms 2.4.4 Scaffoldings construction elements and materials 2.5 Trade theory 2.5.1 Basic carpentry 2.5.1 Basic re-bar works 2.6 Masonry tools and equipment 2.6.1 Types and Uses of trowels 2.6.4 Measuring Tools 2.6.5 Proper use of hand tools 2.7 Masonry process 2.7.1 Methods of installation of pre-cast baluster and Handrail 2.7.2 Curing processes

3. Underpinning Skills	3.1 Following safe work practices and first aid regulations 3.2 Applying trade Math and mensuration 3.3 Interpreting blueprint and specifications 3.4 Using materials, tools and equipment 3.5 Applying trade theory 3.6 Following installation of pre-cast balusters and handrails procedures
4. Resource Implications	Things necessary in order to conduct method of assessment: 4.1 Workplace location / simulated workplace setting 4.2 Tools and equipment appropriate to construction processes 4.3 Scaffolding / form works / re-bars required for activity 4.4 Masonry materials relevant to the proposed activity 4.5 Drawings/plans and specifications relevant to the task
5. Methods of Assessment	Competency in this unit must be assessed through: 5.1 Direct Observation 5.2 Interview 5.3 Portfolio 5.4 Third Party Report 5.5 Demonstration
6. Context for Assessment	6.1 Competency may be assessed in the workplace or in a simulated workplace setting

UNIT OF COMPETENCY : **APPLY SPECIAL CEMENT FINISHES TO CONCRETE AND MASONRY SURFACES**

UNIT CODE : **CON712306**

UNIT DESCRIPTOR : This describes the outcomes required to apply special cement finishes to concrete and masonry surfaces. It deals with the skills required to perform surface preparation and application of special cement finishes.

ELEMENTS	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables
1. Select tools, equipment and stage mixed grout of special cement finishes for concrete and masonry surfaces	1.1 Plans and details are interpreted as per job requirements. 1.2 ***Materials, tools and equipment*** are prepared and selected consistent with job requirements. 1.3 Grout is proportioned and mixed in accordance with job requirements. 1.4 Materials are properly staged / stockpiled at designated workplace and freed from any **foreign matters**.
2. Prepare concrete and masonry surfaces for special cement finishes	2.1 Select and use ***PPE*** according to job requirements. 2.2 Identify surface area for special cement finishes to concrete and masonry surfaces in accordance with plans and details. 2.3 Perform preparation of concrete and masonry ***surfaces*** according to job requirement.
3. Apply special cement finishes to concrete and masonry surfaces	3.1 ***Special cement / mortar finishes*** are applied in line with job requirements and manufacturer's specifications. 3.2 Apply special cement / mortar finishes activities in line with job requirements. 3.3 Cure special cement / surface finishes within the required period. 3.4 Work site is cleaned and in safe state in line with OHSA regulations.

4. Check completed special cement finishes to concrete and masonry surfaces	4.1 ***Final checks*** are made to ensure that work conforms with instructions and job requirements 4.2 Prepare and submit report to immediate superior following company rules and regulations. 4.3 Tools, equipment and any surplus resources and materials are checked and monitored in accordance with established procedures 4.4 Work area is maintained as to its cleanliness and Safety.

RANGE OF VARIABLES

VARIABLES	RANGE
1. Materials	Including but not limited to: 1.1 Concrete nails 1.2 Specified mortar 1.3 Cement 1.4 Water 1.5 Sand (screened) 1.6 Grout
2. Tools and equipment	Including but not limited to: 2.1 Pointed trowel 2.2 Steel float 2.3 Wooden float 2.4 Finishing trowel 2.5 Leveling tools (level hose, spirit level) 2.6 Nylon string 2.7 Mason's brush 2.8 Aluminum straight edge 2.9 Scaffoldings 2.10 Measuring tools 2.11 Texturing tools 2.12 Mixing board 2.13 Sponge / Foam 2.14 Grinder 2.15 Mason's hammer 2.16 Mortar box
3. Surfaces	Including but not limited to: 3.1 Concrete floor 3.2 Masonry wall 3.3 Concrete wall 3.4 Column 3.5 Beam
Special cement / mortar finishes	Including but not limited to: 4.1 Colored cement finish 4.2 Wash out finish 4.3 Granolithic terrazzo finish 4.4 Anay cement finish 4.5 Stucco cement finish 4.6 Synthetic adobe finish 4.7 Refractory materials

VARIABLE	RANGE
5. PPE	5.1 Safety Gloves 5.2 Dust Mask 5.3 Safety belt / body harness 5.4 Safety shoes 5.5 Safety Helmet 5.6 Proper working clothes 5.7 Safety Glass / Goggles 5.8 Lifeline
6. Final checks	6.1 Plumbness 6.2 Levelness 6.3 Squareness 6.4 Concrete quality

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Correctly interpreted and identified plans and details 1.2 Performed surface preparation for special cement finishes to concrete and masonry surfaces in accordance with job requirement 1.3 Performed application of special cement finishes to concrete and masonry surfaces are consistent with established procedures 1.4 Demonstrated compliance with safety regulations applicable to work site operations 1.5 Demonstrated ability to produce quality special cement finishes to concrete and masonry surfaces 1.6 Identified, minimized and eliminated safety hazards 1.7 Communicated interactively with others when applicable to ensure safe and effective work operations 1.8 Completed application of special cement finishes to concrete and masonry surfaces according to job requirements
2. Underpinning knowledge	2.1 Safe work practices and first aid regulations 2.1.1 Prevention of accidents 2.1.2 Appropriate actions to take when accidents occur 2.1.3 First aid treatments and regulations 2.1.4 Safe handling of materials, tools and equipment 2.1.5 Housekeeping for safety 2.1.6 Safety signs and symbols 2.1.7 Rules on the safe use of scaffolds and ladders 2.2 Trade Mathematics and Mensuration 2.2.1 Linear measurements 2.2.2 Fundamental operations of Mathematics 2.3 Blueprint and specifications reading 2.3.1 Interpret blueprints / plans & drawings 2.4 Materials 2.4.1 Types / Uses of cement / Mortar finishes 2.4.2 Platforms / Scaffoldings construction elements and materials 2.4.3 Uses of grout 2.5 Trade Theory 2.5.1 Application process & proportion 2.6 Masonry tools and equipment 2.6.1 Types and uses of trowels 2.6.2 Types and uses of jointers 2.6.3 Chipping tools 2.6.4 Measuring tools 2.6.5 Proper use of hand tools

3. Underpinning Skills	3.1 Working safely 3.2 Reading and interpreting drawings 3.3 Preparing / organizing special cement finishes 3.4 Performing surface preparation for concrete and masonry surfaces 3.5 Applying special cement finishes to concrete and masonry surfaces 3.6 Proper handling of tools and equipment 3.7 Installing / dismantling of scaffolding 3.8 Using PPE properly 3.9 Performing good housekeeping 3.10 Demonstrating good working relation with co-workers 3.11 Communicating effectively
4. Resource Implications	Things necessary in order to conduct method of assessment: 4.1 Workplace location/ simulated workplace setting 4.2 Tools and equipment appropriate to construction processes 4.3 Scaffolding/ platforms required for activity 4.4 Special cement finishes and materials relevant to the proposed activity 4.5 Drawings / plans and specifications relevant to the task
5. Methods of Assessment	Competency in this unit must be assessed through: 5.1 Direct observation 5.2 Interview 5.3 Portfolio 5.4 Third Party Report 5.5 Demonstration
6. Context for Assessment	6.1 Competency may be assessed in the workplace or in a simulated workplace setting

UNIT OF COMPETENCY : **REPAIR DEFECTIVE CONCRETE AND MASONRY SURFACES**

UNIT CODE : **CON712307**

UNIT DESCRIPTOR : This unit describes the outcomes required to perform defective concrete surfaces. It deals with the skills required for identifying and rectifying defective concrete and masonry surface from completing repair work.

ELEMENTS	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables
1. Identify defective concrete and masonry surface	1.1 Defective concrete / masonry surface is identified and reported to the immediate supervisor. 1.2 Prepare and select ***materials, tools and equipment*** for repair work in line with job requirements 1.3 Select PPE in line with job requirements 1.4 Work site is cleaned in line with safety regulations
2. Repair defective concrete / masonry surfaces	2.1 Use ***PPE*** in line with job requirements. 2.2 Chip-off, and clean all defective concrete / masonry surfaces in accordance to rectification procedure. 2.3 Level concrete and masonry surfaces to be repaired / finishes according to job requirements. 2.4 Prepare and mix concrete and masonry materials in line with job requirements. 2.5 Grout all defective concrete and masonry surfaces before repairing. 2.6 Retouch defective concrete / masonry corners / surfaces following established / recommended procedures. 2.7 Perform good housekeeping.
3. Check repaired concrete and masonry surfaces	3.1 Make ***final checks*** to ensure that work conforms with instructions and job requirements 3.2 Inform immediate superior upon completion of work. 3.3 Tools, equipment and any surplus resources and materials are checked and monitored in accordance with established procedures. 3.4 Performs good housekeeping.

RANGE OF VARIABLES

VARIABLES	RANGE
1. Materials	May include but not limited to: 1.1 Special cement finishes 1.1.1 Colored cement 1.1.2 Shell 1.1.3 Pebbles 1.1.4 Granolithic terrazzo 1.1.5 Adobe stone 1.1.6 Refractory materials 1.2 Portland cement 1.3 Water 1.4 Sand (Screened) 1.5 Additives
2. Tools and equipment	May include but not limited to: 2.1 Mixing board 2.2 Pointed trowel 2.3 Foam / Sponge 2.4 Edger / Grinder 2.5 Scaffolding / ladder 2.6 Hammer 2.7 Wooden float 2.8 Shovel 2.9 Steel float 2.10 Pail 2.11 Cold chisel 2.12 Brush 2.13 Sandblasting equipment 2.14 Axe 2.15 Nylon string 2.16 Leveling hose / spirit level 2.17 Plumb bob
3. PPE	3.1 Safety Gloves 3.2 Dust Mask 3.3 Safety belt / body harness 3.4 Safety shoes 3.5 Safety Helmet 3.6 Proper working clothes 3.7 Safety glasses / goggles 3.8 Lifeline

4. Final checks	4.1 Plumbness 4.2 Levelness 4.3 Squareness 4.4 Concrete quality 4.5 Smoothness, if necessary 4.6 Color consistency / uniformity

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Identified correctly defective concrete / masonry surfaces for repair. 1.2 Leveled uniformly concrete / masonry surfaces consistent with existing finishes. 1.3 Complied with OHSA application at worksite. 1.4 Selected and used appropriate processes, tools and equipment to carry out tasks. 1.5 Identified, minimized and eliminated safety hazards 1.6 Erected scaffolds / mounted ladder in accordance with OHSA regulations (if necessary). 1.7 Communicated accurately with others, where applicable, to ensure safe and effective work operations. 1.8 Repaired of concrete and masonry surfaces according to job requirements. 1.9 Economized the use of materials.
2. Underpinning Knowledge	2.1 Safe work practices and first aid regulations 2.1.1 Prevention of accidents 2.1.2 Appropriate actions to take when accidents occur 2.1.3 First aid treatments and regulations 2.1.4 Safe handling of materials, tools and equipment 2.1.5 Housekeeping for safety 2.1.6 Safety signs and symbols 2.1.7 Rules on the safe use of scaffolds and ladders 2.2 Trade Mathematics and Mensuration 2.2.1 Linear measurements 2.2.2 Fundamental operations of Mathematics 2.3 Materials 2.4.1 Types / Uses of special cement / Mortar finishes 2.4.2 Scaffoldings / Ladder and construction materials 2.5 Methods and processes 2.5.1 Prepare and mix process of special concrete / masonry surfaces 2.5.2 Repair procedures 2.6 Masonry tools and equipment 2.6.1 Types and uses of trowels 2.6.2 Chipping tools 2.6.3 Measuring tools 2.6.4 Proper use of hand tools

3. Underpinning Skills	3.1 Working safely 3.2 Interpreting work instructions 3.3 Identifying defective concrete and masonry surfaces 3.3 Repairing defective concrete and masonry surfaces 3.5 Proper handling of tools and equipment 3.6 Installing / dismantling of scaffolding and / or mounting ladder 3.7 Using PPE properly 3.8 Performing good housekeeping 3.9 Demonstrating good working relation with co-workers 3.10 Communicating effectively
4. Resource Implications	Things necessary in order to conduct method of assessment: 4.1 Workplace location / simulated workplace setting 4.2 Tools and equipment appropriate to construction processes 4.3 Scaffolding / platforms / ladder required for activity 4.4 Special cement finishes and materials relevant to the proposed activity
5. Methods of Assessment	Competency in this unit must be assessed through: 5.1 Direct Observation 5.2 Interview 5.3 Portfolio 5.4 Third Party Report 5.5 Demonstration
6. Context for Assessment	6.1 Competency may be assessed in the workplace or in a simulated workplace setting

SECTION 3 TRAINING STANDARDS

These guidelines are set to provide the Technical and Vocational Education and Training (TVET) providers with information and other important requirements to consider when designing training programs for Masonry NC Level III.

3.1 CURRICULUM DESIGN

Course Title: **MASONRY** NC: **Level III**

Nominal Training Hours: **20 hours (Basic)**
24 hours (Common)
320 hours (Core)

Course Description:

This course is designed to enhance the knowledge, desirable attitudes and skills of mason in accordance with industry standards. It covers core competencies such as preparation of masonry materials, performance of basic masonry works, laying of bricks / blocks for structure, installation of pre-cast balusters and handrails, application of special cement finishes to concrete and masonry surfaces and repair of defective concrete and masonry surfaces. It also includes competencies in workplace communication, teamwork, safety, use of hand tools, and house keeping

BASIC COMPETENCIES

Unit of Competency	Learning Outcomes	Methodology	Assessment Approach
1. Lead workplace communication	1.1 Communicate information about workplace processes 1.2 Lead workplace discussions 1.3 Identify and communicate issues arising in the workplace	Lecture Demonstration Practical exercises	Observation and oral questioning Written test

2. Lead small team	2.1 Provide team leadership 2.2 Assign responsibilities 2.3 Set performance expectations for team members 2.4 Supervised team performance	Lecture Demonstration Practical exercises	Observation and oral questioning Written test
3. Solve workplace problems related to work activities	3.1 Identify the problem 3.2 Determine fundamental cause problem 3.3 Determine correct / preventive action 3.4 Provide recommendation to manager	Lecture Demonstration Practical exercises	Observation and oral questioning Written test
4. Develop and practice negotiation skills	4.1 Identify relevant information in planning negotiations 4.2 Participate in negotiations 4.2 Document areas for agreement	Direct observation Simulation / role playing Case studies	Written test Practical / performance test
5. Use mathematical concepts and techniques	5.1 Identify mathematical tools and techniques to solve problem 5.2 Apply mathematical procedures / solution 5.3 Analyze results	Direct observation Simulation / role playing Case studies	Written test Practical / performance test
6. Use relevant technologies	6.1 Identify appropriate technology 6.2 Apply relevant technology 6.3 Maintenance / enhance relevant technology	Direct observation Simulation / role playing Case studies	Written test Practical performance test

COMMON COMPETENCIES

Unit of Competency	Learning Outcomes	Methodology	Assessment Approach
1. Prepare construction materials and tools	1.1 Identify Materials 1.2 Requisition Materials 1.3 Receive and inspect materials	Audio Visual Simulation Discussion Practical Exercise Demonstration	Direct observation Questions or interview Portfolio (credentials) Written / Oral Test Demonstration
2. Observe procedures, Specifications and Manuals of Instructions	2.1 Identify and access specification/ manuals	Audio Visual Simulation Discussion Practical Lab Demonstration	Direct observation Oral questioning Written test or examination Third party report Demonstration (able to impart knowledge and skills)
3. Perform mensuration and calculation	3.1 Select measuring instruments 3.2 Carry out measurements and calculations	Audio Visual Simulation Discussion Practical Lab Demonstration	Direct observation Oral questioning Written test or examination Third party report Demonstration (able to impart knowledge and skills)

4. Maintain tools and equipment	4.1 Check condition of tools and equipment 4.2 Perform basic preventive maintenance 4.3 Sharpen edge and tooth cutting tools 4.4 Store tools and equipment	Audio Visual Simulation Discussion Practical Lab Demonstration	Direct observation of application of tasks Oral questioning Written test or examination Third party report Demonstration
5. Interpret technical drawings and plans	5.1 Read / Interpret blueprints and plans 5.2 Perform freehand sketching	Lecture Demonstration Practical exercises	Demonstration and oral questioning Written test

CORE COMPETENCIES

Unit of Competency	Learning Outcomes	Methodology	Assessment Approach
1. Prepare masonry materials	1.1 Select materials, tools and equipment needed in hauling and mixing 1.2 Haul materials 1.3 Mix mortar / concrete materials.	Lecture Demonstration On-the-Job Dual training Project-based instruction	Observation and oral questioning Demonstration and oral questioning Written test
2. Perform basic masonry works	2.1 Assist in re-bar fabrication and installation 2.2 Erect and dismantle scaffolding (1.8m and below) 2.3 Assist in fabrication, installation and stripping of formworks 2.4 Perform excavation and backfilling / compaction 2.5 Assist in concrete works 2.6 Perform housekeeping	Lecture Demonstration On-the-Job Dual training Project-based instruction	Observation and oral questioning Demonstration and oral questioning Written test

Unit of Competency	Learning Outcomes	Methodology	Assessment Approach
3. Lay brick / block for structure	3.1 Prepare for laying bricks/block for structure 3.2 Lay-out/established brick/block structure location 3.3 Perform laying brick/block for structure 3.4 Complete laying of brick/block for structure	Lecture Demonstration On-the-Job Dual training Project-based instruction	Observation and oral questioning Demonstration and oral questioning Written test
4. Plaster concrete/ masonry surface	4.1 Prepare concrete/masonry surfaces for plastering 4.2 Prepare for plastering concrete /masonry surfaces 4.3 Perform plastering work 4.4 Complete plastering	Lecture Demonstration On-the-Job Dual training Project-based instruction	Observation and oral questioning Demonstration and oral questioning Written test
5. Install pre-cast baluster and handrails	5.1 Prepare for installing balusters and rails 5.2 Perform pre-cast balusters and handrails installation 5.3 Complete installation of pre-cast balusters and handrails	Lecture Demonstration On-the-Job Dual training Project-based instruction	Observation and oral questioning Demonstration and oral questioning Written test

Unit of Competency	Learning Outcomes	Methodology	Assessment Approach
6. Apply special cement finishes to concrete and masonry surfaces	6.1 Prepare for applying special cement finishes to concrete and masonry surfaces 6.2 Perform surface preparation for special cement finishes to concrete and masonry surfaces 6.3 Perform application of special cement finishes to concrete and masonry surfaces 6.4 Complete application of special cement finishes to concrete and masonry surfaces	Group discussion & demonstration Modular / self paced Project based instruction OJT / DTS	Observation Demonstration Oral / Written exam Interview Portfolio RPL
7. Repair defective Concrete and masonry surfaces	7.1 Identify and rectify defective plastered surfaces 7.2 Perform repairing defective concrete surfaces 7.3 Complete repair of defective concrete and masonry surfaces	Demonstration of practical skills Dualized training Modular research Project based Instruction	Observation and oral questioning Demonstration and oral questioning Written test

3.2 TRAINING DELIVERY

The delivery of training should adhere to the design of the curriculum. Delivery should be guided by the 10 basic principles of competency-based TVET.

- The training is based on curriculum developed from the competency standards;
- Learning is modular in its structure;
- Training delivery is individualized and self-paced;
- Training is based on work that must be performed;
- Training materials are directly related to the competency standards and the curriculum modules;
- Assessment is based in the collection of evidence of the performance of work to the industry required standard;
- Training is based both on and off-the-job components;
- Allows for recognition of prior learning (RPL) or current competencies;
- Training allows for multiple entry and exit; and
- Approved training programs are Nationally Accredited

The competency-based TVET system recognizes various types of delivery modes, both on and off-the-job as long as the learning is driven by the competency standards specified by the industry. The following training modalities may be adopted when designing training programs:

- The dualized mode of training delivery is preferred and recommended. Thus programs would contain both in-school and in-industry training or fieldwork components. Details can be referred to the Dual Training System (DTS) Implementing Rules and Regulations.
- Modular/self-paced learning is a competency-based training modality wherein the trainee is allowed to progress at his own pace. The trainer just facilitates the training delivery.
- Peer teaching/mentoring is a training modality wherein fast learners are given the opportunity to assist the slow learners.
- Supervised industry training or on-the-job training is an approach in training designed to enhance the knowledge and skills of the trainee through actual experience in the workplace to acquire specific competencies prescribed in the training regulations.
- Distance learning is a formal education process in which majority of the instruction occurs when the students and instructor are not in the same place. Distance learning may employ correspondence study, audio, video or computer technologies.

3.3 TRAINEE ENTRY REQUIREMENTS

This section specifies the qualifications of trainees and educational experience. Other requirements like health and physical requirements are also stated. Passing entry written examinations may also be indicated if necessary.

- can communicate both oral and written
- physically and mentally fit
- With good moral character
- can perform basic Mathematical computation

3.4 LIST OF TOOLS, EQUIPMENT AND MATERIALS FOR MASONRY NC III

Recommended list of tools, equipment and materials for the training of 25 trainees for Masonry NC III.

TOOLS		EQUIPMENT		MATERIAL	
Qty.	Description	Qty.	Description	Qty.	Description
10 pcs.	Bucket	1 unit	One bagger mixer	625 pcs.	Concrete Hallow blocks
1 pc	Mixing board	25 sets	PPE	4450 pcs.	Bricks
12 pcs	Shovel/spade	1 set	Automatic level (optional)	20 bags	Cement
25 pcs	Steel trowel	1 unit	Welding machine	6 m^3	Sand/Fine aggregates
25 pcs	Wooden float	2 units	Disk grinder	50 pcs.	Reinforcing bars (10 mm dia)
25 pcs	Steel tape	2 pcs.	Hammer drill		Water
6 pcs	Mason hammer	2 pcs.	Electric drill	20 kls.	GI wire
6 pcs	Plumb bob	1 unit	Concrete vibrator	10 kls.	Common wire Nails (assorted sizes)
1 set	Scaffolding	1 unit	Slump cone	100 pcs.	Lumber(2” x 2” x 10’)
6 pcs	Marking gauge	1 unit	Concrete cylinder mould	5 kls.	Concrete nails
6 pcs	Hand saw	1 unit	Beam mould	25 pcs.	Pencil
2 pcs	Bar cutter	1 unit	Pallet track	5 kls.	Nylon string
2 pcs	Bar bender	1 unit	Water sprayer	6 m^3	Gravel/Coarse aggregates
4 pcs	Steel square	1 unit	Air compressor	5 m	Sand Screen 100mm
25 pcs	Cold chisel	1 unit	Hollow block machine	2 gals.	Concrete neutralizer
12 pcs	Hacksaw	1 unit	Compactor	9 pcs	Plywood ½” X 4’ X 8’
6 pcs	Level hose			12 pcs.	Handrails 3”x4”x8”
25 pcs	Straight edge			1 set	Steel scaffolding
6 pcs	Spirit level			1 set	Grinding wheel
25 pcs	Claw hammer			6 pcs.	Diamond concrete cutter
25 pcs	Chalk line				
25 pcs	Steel float				
4 pcs	Measuring box				
2 dozen	Hack saw blade				

5 kls	Welding rod				
12 pcs	Tri-square				
25 pcs	Steel brush				
4 pcs	Wheel borrow				
25 pcs	4” Paint Brush				
25 pcs	2” Paint Brush				
12 pcs	Claw bar				
4 pcs	Sledge hammer				
20 meters	Rope 1“ dia.				
4 pcs	Pulley				
1 set	Drill bits				

NOTE: *Estimate of materials was based on an individual project of a 1m X 2m wall with 8” X 8” X 1m concrete post hence, the kind and quantity of materials will vary accordingly on the type of projects designed.*

3.5 TRAINING FACILITIES

Based on a class size of 25 students/trainees

TEACHING/LEARNING AREAS	SIZE IN METERS	AREA IN SQ. METERS	TOTAL AREA IN SQ. METERS
Open plain ground			625
Lecture Room (job site/school) including wash area			62.5
Total Workshop Area			**687.50**

3.6 TRAINER'S QUALIFICATION CONSTRUCTION SECTOR

MASONRY – NC III

Must have undergone training on Training Methodology II(TM II)
Must be a holder of National Certificate Level III
Good moral character
Must be physically and mentally fit
*Must have at least 5 years industry experience and/or teaching experience

*Optional. Only when required by the hiring institution

Reference: TESDA Board Resolution No. 2004-03

3.7 INSTITUTIONAL ASSESSMENT

Institutional assessment is undertaken by trainees to determine their achievement of units of competency. A certificate of achievement is issued for each unit of competency.

SECTION 4 NATIONAL ASSESSMENT AND CERTIFICATION ARRANGEMENTS

4.1. To attain the National Qualification of Masonry NC III, the candidate must demonstrate competence through project-type assessment covering all the units listed in Section 1. Successful candidates shall be awarded a National Certificate signed by the TESDA Director General.

4.2. The qualification of Masonry NC III maybe attained through:

4.2.1 Accumulation of Certificates of Competency (COCs) in the following areas:

4.2.1.1 Prepare masonry materials
4.2.1.2 Perform basic masonry work
4.2.1.3 Lay bricks / blocks for structure
4.2.1.4 Plaster concrete and masonry surface
4.2.1.5 Install pre-cast baluster and handrails
4.2.1.6 Apply special cement to concrete and masonry surface
4.2.1.7 Repair defective concrete and masonry surface

Successful candidates shall be awarded Certificates of Competency (COCs)

4.2.2 Demonstration of competence through project-type assessment covering all the required units of the qualification

4.3. Assessment shall focus on the core units of competency. The basic and common units shall be integrated or assessed concurrently with the core units.

4.4. The following are qualified to apply for assessment and certification:

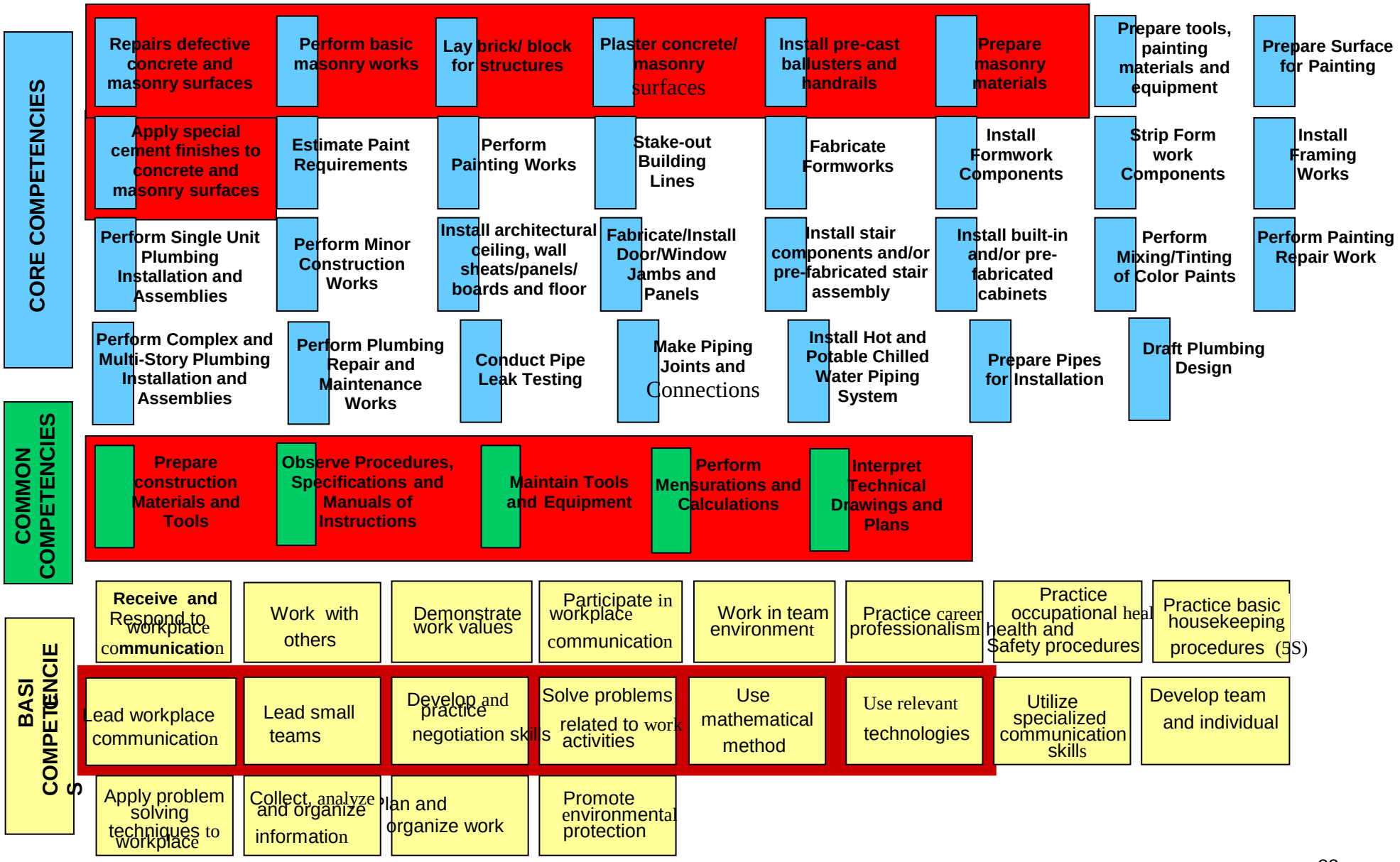
4.3.1 Graduates of formal, non-formal and informal including enterprise-based training programs

4.3.2. Experienced Workers (wage employed or self-employed)

4.5. The guidelines on assessment and certification are discussed in detail in the Procedures Manual on Assessment and Certification and guidelines on the Implementation of the Philippine TVET Qualification and Certification System (PTQCS).

COMPETENCY MAP
CONSTRUCTION - CIVIL WORKS SUB-SECTOR

MASONRY NC III



DEFINITION OF TERMS

1. Baluster	Refers to a post, which supports a handrail and encloses the open sections of a stairway.
2. Competency	Is the application of knowledge, skills and attitudes to perform work activities to the standard expected in the workplace.
3. Cement	Is a dry powder from silica, alumina, lime, iron oxide and magnesia which hardens when mix with water.
4. Certification	Refers to the process of verifying and validating competencies of a person through assessment.
5. Dowel	A headless, cylindrical pin which, is sunk into corresponding holes.
6. Element	Refers to the building blocks of a unit of competency. It describes in outcome terms the functions that a person who works in a particular area of work is able to perform.
7. Evidence Guide	It is a guide for assessment that provides information on critical aspects of competency, underpinning knowledge, underpinning skills, resource implications, context of assessment and assessment method.
8. Form works	Refer to the temporary wooden casing used to contain concrete during its placing and hardening.
9. General Masonry	Refers to the preparation and placement of concrete for structures; finishing masonry surfaces by plastering, chipping, grinding, jointing, sand blasting, terrazzo and other related processes; installation, laying, fitting and setting of masonry products, such as bricks, stones, marble tiles, mosaic panels and similar or associated materials.
10. Grout	Refers to a fluid mixture of cement and water, or a mixture of cement, sand and water.
11. Handrail	Refers to a narrow rail to be grasped by a person for support.
12. Level	Refers to the category following the level of difficulty and complexity of skills and knowledge required to do the job.
13. Lintel	Refers to the horizontal member over an opening such as door or window, usually carrying the load.

14.	Mortar	Refers to a mixture of cement lime and sand used for laying bricks or masonry.
15.	Philippine TVET Qualification Framework	Refers to a comprehensive, nationally consistent framework for qualifications in the TVET sector. It also provides the parameter for the integration of learning and assessment in the middle skills development.
16.	Qualification	Refers to the national certificate issued by the TESDA or its accredited industry organizations in recognition that a person has achieved competencies relevant to a trade or industry.
17.	Range of Variable	It describes the circumstances or context in which the work is to be performed.
18.	Reinforcing bar	Refers to the steel rods that are embedded in building materials such as concrete for reinforcement.
19.	Scaffold	Refers to a temporary or movable platform supported on the ground or suspended, used for working at considerable heights above the ground.
20.	Terrazo	Refers to a mosaic surface made by embedding marble or granite chips in mortar, allowing the mortar to harden, and the grinding and polishing the surface.
21.	Unit of Competency	Refers to a discrete aspect of work, which would normally be performed by only one person.

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