TRAINING REGULATIONS

CARPENTRY NC II

CIVIL WORKS
(CONSTRUCTION SECTOR)

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

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CONSTRUCTION SECTOR

CARPENTRY NC II

TRAINING REGULATIONS FOR CARPENTRY NC II

SECTION 1 CARPENTRY NC II QUALIFICATION

The CARPENTRY NC II Qualification consists of competencies that a person must achieve that will enable him/her to perform fabrication, installation and stripping of formworks, its components and supports.

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
500311105	Participate in workplace communication
500311106	Work in a team environment
500311107	Practice career professionalism
500311108	Practice occupational health and safety procedures

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

CODE NO.	CORE COMPETENCIES
	Units of Competency
CON712317	Prepare / Stake-out building lines
CON712318	Fabricate formworks
CON712319	Install formwork components
CON712320	Strip formwork components
CON712321	Install framing works

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

- Rough Carpenter

SECTION 2 COMPETENCY STANDARDS

This section gives the details of the contents of the core units of competency required in CARPENTRY NC II.

BASIC COMPETENCIES

UNIT OF COMPETENCY : PARTICIPATE IN WORKPLACE COMMUNICATION

UNIT CODE : 500311105

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to gather, interpret and convey information in response to workplace requirements.

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables
1. Obtain and convey workplace information	1.1 Specific and relevant information is accessed from ***appropriate sources*** 1.2 Effective questioning , active listening and speaking skills are used to gather and convey information 1.3 Appropriate ***medium*** is used to transfer information and ideas 1.4 Appropriate non- verbal communication is used 1.5 Appropriate lines of communication with supervisors and colleagues are identified and followed 1.6 Defined workplace procedures for the location and ***storage*** of information are used 1.7 Personal interaction is carried out clearly and concisely
2. Participate in workplace meetings and discussions	2.1 Team meetings are attended on time 2.2 Own opinions are clearly expressed and those of others are listened to without interruption 2.3 Meeting inputs are consistent with the meeting purpose and established ***protocols*** 2.4 ***Workplace interactions*** are conducted in a courteous manner 2.5 Questions about simple routine workplace procedures and maters concerning working conditions of employment are asked and responded to 2.6 Meetings outcomes are interpreted and implemented
3. Complete relevant work related documents	3.1 Range of ***forms*** relating to conditions of employment are completed accurately and legibly 3.2 Workplace data is recorded on standard workplace forms and documents 3.3 Basic mathematical processes are used for routine calculations 3.4 Errors in recording information on forms/ documents are identified and properly acted upon 3.5 Reporting requirements to supervisor are completed according to organizational guidelines

RANGE OF VARIABLES

VARIABLE	RANGE
1. Appropriate sources	1.1. Team members 1.2. Suppliers 1.3. Trade personnel 1.4. Local government 1.5. Industry bodies
2. Medium	2.1. Memorandum 2.2. Circular 2.3. Notice 2.4. Information discussion 2.5. Follow-up or verbal instructions 2.6. Face to face communication
3. Storage	3.1. Manual filing system 3.2. Computer-based filing system
4. Forms	4.1. Personnel forms, telephone message forms, safety reports
5. Workplace interactions	5.1. Face to face 5.2. Telephone 5.3. Electronic and two way radio 5.4. Written including electronic, memos, instruction and forms, non-verbal including gestures, signals, signs and diagrams
6. Protocols	6.1. Observing meeting 6.2. Compliance with meeting decisions 6.3. Obeying meeting instructions

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1. Prepared written communication following standard format of the organization 1.2. Accessed information using communication equipment 1.3. Made use of relevant terms as an aid to transfer information effectively 1.4. Conveyed information effectively adopting the formal or informal communication
2. Underpinning Knowledge and Attitudes	2.1. Effective communication 2.2. Different modes of communication 2.3. Written communication 2.4. Organizational policies 2.5. Communication procedures and systems 2.6. Technology relevant to the enterprise and the individual's work responsibilities
3. Underpinning Skills	3.1. Follow simple spoken language 3.2. Perform routine workplace duties following simple written notices 3.3. Participate in workplace meetings and discussions 3.4. Complete work related documents 3.5. Estimate, calculate and record routine workplace measures 3.6. Basic mathematical processes of addition, subtraction, division and multiplication 3.7. Ability to relate to people of social range in the workplace 3.8. Gather and provide information in response to workplace requirements
4. Resource Implications	4.1. Fax machine 4.2. Telephone 4.3. Writing materials 4.4. Internet
5. Methods of Assessment	5.1. Direct Observation 5.2. Oral interview and written test
6. Context of Assessment	6.1. Competency may be assessed individually in the actual workplace or through accredited institution

UNIT OF COMPETENCY: WORK IN TEAM ENVIRONMENT

UNIT CODE : 500311106

UNIT DESCRIPTOR : This unit covers the skills, knowledge and attitudes to identify role and responsibility as a member of a team.

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables
1. Describe team role and scope	1.1. The ***role and objective of the team*** is identified from available ***sources of information***
	1.2. Team parameters, reporting relationships and responsibilities are identified from team discussions and appropriate external sources
2. Identify own role and responsibility within team	2.1. Individual role and responsibilities within the team environment are identified
	2.2. Roles and responsibility of other team members are identified and recognized
	2.3. Reporting relationships within team and external to team are identified
3. Work as a team member	3.1. Effective and appropriate forms of communications used and interactions undertaken with team members who contribute to known team activities and objectives
	3.2. Effective and appropriate contributions made to complement team activities and objectives, based on individual skills and competencies and ***workplace context***
	3.3. Observed protocols in reporting using standard operating procedures
	3.4. Contribute to the development of team work plans based on an understanding of team's role and objectives and individual competencies of the members.

RANGE OF VARIABLES

VARIABLE	RANGE
1. Role and objective of team	1.1. Work activities in a team environment with enterprise or specific sector 1.2. Limited discretion, initiative and judgement maybe demonstrated on the job, either individually or in a team environment
2. Sources of information	2.1. Standard operating and/or other workplace procedures 2.2. Job procedures 2.3. Machine/equipment manufacturer's specifications and instructions 2.4. Organizational or external personnel 2.5. Client/supplier instructions 2.6. Quality standards 2.7. OHS and environmental standards
3. Workplace context	3.1. Work procedures and practices 3.2. Conditions of work environments 3.3. Legislation and industrial agreements 3.4. Standard work practice including the storage, safe handling and disposal of chemicals 3.5. Safety, environmental, housekeeping and quality guidelines

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1. Operated in a team to complete workplace activity 1.2. Worked effectively with others 1.3. Conveyed information in written or oral form 1.4. Selected and used appropriate workplace language 1.5. Followed designated work plan for the job 1.6. Reported outcomes
2. Underpinning Knowledge and Attitude	2.1. Communication process 2.2. Team structure 2.3. Team roles 2.4. Group planning and decision making
3. Underpinning Skills	3.1. Communicate appropriately, consistent with the culture of the workplace
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 tasks
5. Methods of Assessment	Competency may be assessed through: 5.1. Observation 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 for Assessment	6.1. Competency may be assessed in workplace or in a simulated workplace setting 6.2. Assessment shall be observed while task are being undertaken whether individually or in group

UNIT OF COMPETENCY: PRACTICE CAREER PROFESSIONALISM

UNIT CODE : 500311107

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes in promoting career growth and advancement.

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables
1. Integrate personal objectives with organizational goals	1.1 Personal growth and work plans are pursued towards improving the qualifications set for the profession 1.2 Intra- and interpersonal relationships ~~is~~ are maintained in the course of managing oneself based on performance ***evaluation*** 1.3 Commitment to the organization and its goal is demonstrated in the performance of duties
1. Set and meet work priorities	2.1 Competing demands are prioritized to achieve personal, team and organizational goals and objectives. 2.2 ***Resources*** are utilized efficiently and effectively to manage work priorities and commitments 2.3 Practices along economic use and maintenance of equipment and facilities are followed as per established procedures
2. Maintain professional growth and development	3.1 ***Trainings and career opportunities*** are identified and availed of based on job requirements 3.2 ***Recognitions*** are sought/received and demonstrated as proof of career advancement 3.3 ***Licenses and/or certifications*** relevant to job and career are obtained and renewed

RANGE OF VARIABLES

VARIABLE	RANGE
1. Evaluation	1.1 Performance Appraisal 1.2 Psychological Profile 1.3 Aptitude Tests
2. Resources	2.1 Human 2.2 Financial 2.3 Technology 2.3.1 Hardware 2.3.2 Software
3. Trainings and career opportunities	3.1 Participation in training programs 3.1.1 Technical 3.1.2 Supervisory 3.1.3 Managerial 3.1.4 Continuing Education 3.2 Serving as Resource Persons in conferences and workshops
4. Recognitions	4.1 Recommendations 4.2 Citations 4.3 Certificate of Appreciations 4.4 Commendations 4.5 Awards 4.6 Tangible and Intangible Rewards
5. Licenses and/or certifications	5.1 National Certificates 5.2 Certificate of Competency 5.3 Support Level Licenses 5.4 Professional Licenses

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Attained job targets within key result areas (KRAs) 1.2 Maintained intra - and interpersonal relationship in the course of managing oneself based on performance evaluation 1.3 Completed trainings and career opportunities which are based on the requirements of the industries 1.4 Acquired and maintained licenses and/or certifications according to the requirement of the qualification
2. Underpinning Knowledge	2.1 Work values and ethics (Code of Conduct, Code of Ethics, etc.) 2.2 Company policies 2.3 Company-operations, procedures and standards 2.4 Fundamental rights at work including gender sensitivity 2.5 Personal hygiene practices
3. Underpinning Skills	3.1 Appropriate practice of personal hygiene 3.2 Intra and Interpersonal skills 3.3 Communication skills
4. Resource Implications	The following resources **MUST** be provided: 4.1 Workplace or assessment location 4.2 Case studies/scenarios
5. Methods of Assessment	Competency may be assessed through: 5.1 Portfolio Assessment 5.2 Interview 5.3 Simulation/Role-plays 5.4 Observation 5.5 Third Party Reports 5.6 Exams and Tests
6. Context of Assessment	6.1 Competency may be assessed in the work place or in a simulated work place setting

UNIT OF COMPETENCY : **PRACTICE OCCUPATIONAL HEALTH AND SAFETY PROCEDURES**

UNIT CODE : **500311108**

UNIT DESCRIPTOR : This unit covers the outcomes required to comply with regulatory and organizational requirements for occupational health and safety.

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables
1. Identify hazards and risks	1.1 ***Safety regulations*** and workplace safety and hazard control practices and procedures are clarified and explained based on organization procedures 1.2 ***Hazards/risks*** in the workplace and their corresponding indicators are identified to minimize or eliminate risk to co-workers, workplace and environment in accordance with organization procedures 1.3 ***Contingency measures*** during workplace accidents, fire and other emergencies are recognized and established in accordance with organization procedures
2. Evaluate hazards and risks	2.1 Terms of maximum tolerable limits which when exceeded will result in harm or damage are identified based on threshold limit values (TLV) 2.2 Effects of the hazards are determined 2.3 OHS issues and/or concerns and identified safety hazards are reported to designated personnel in accordance with workplace requirements and relevant workplace OHS legislation

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables
3. Control hazards and risks	3.1 Occupational Health and Safety (OHS) procedures for controlling hazards/risks in workplace are consistently followed 3.2 Procedures for dealing with workplace accidents, fire and emergencies are followed in accordance with organization OHS policies 3.3 ***Personal protective equipment (PPE)*** is correctly used in accordance with organization OHS procedures and practices 3.4 Appropriate assistance is provided in the event of a workplace emergency in accordance with established organization protocol
4. Maintain OHS awareness	4.1 ***Emergency-related drills and trainings*** are participated in as per established organization guidelines and procedures 4.2 ***OHS personal records*** are completed and updated in accordance with workplace requirements

RANGE OF VARIABLES

VARIABLE	RANGE
1. Safety regulations	May include but are not limited to: 1.1 Clean Air Act 1.2 Building code 1.3 National Electrical and Fire Safety Codes 1.4 Waste management statutes and rules 1.5 Philippine Occupational Safety and Health Standards 1.6 DOLE regulations on safety legal requirements 1.7 ECC regulations
2. Hazards/Risks	May include but are not limited to: 2.1 Physical hazards – impact, illumination, pressure, noise, vibration, temperature, radiation 2.2 Biological hazards- bacteria, viruses, plants, parasites, mites, molds, fungi, insects 2.3 Chemical hazards – dusts, fibers, mists, fumes, smoke, gasses, vapors 2.4 Ergonomics • Psychological factors – over exertion/ excessive force, awkward/static positions, fatigue, direct pressure, varying metabolic cycles • Physiological factors – monotony, personal relationship, work out cycle
3. Contingency measures	May include but are not limited to: 3.1 Evacuation 3.2 Isolation 3.3 Decontamination 3.4 (Calling designed) emergency personnel
4. PPE	May include but are not limited to: 4.1 Mask 4.2 Gloves 4.3 Goggles 4.4 Hair Net/cap/bonnet 4.5 Face mask/shield 4.6 Ear muffs 4.7 Apron/Gown/coverall/jump suit 4.8 Anti-static suits

VARIABLE	RANGE
5. Emergency-related drills and training	5.1 Fire drill 5.2 Earthquake drill 5.3 Basic life support/CPR 5.4 First aid 5.5 Spillage control 5.6 Decontamination of chemical and toxic 5.7 Disaster preparedness/management
6. OHS personal records	6.1 Medical/Health records 6.2 Incident reports 6.3 Accident reports 6.4 OHS-related training completed

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Explained clearly established workplace safety and hazard control practices and procedures 1.2 Identified hazards/risks in the workplace and its corresponding indicators in accordance with company procedures 1.3 Recognized contingency measures during workplace accidents, fire and other emergencies 1.4 Identified terms of maximum tolerable limits based on threshold limit value- TLV. 1.5 Followed Occupational Health and Safety (OHS) procedures for controlling hazards/risks in workplace 1.6 Used Personal Protective Equipment (PPE) in accordance with company OHS procedures and practices 1.7 Completed and updated OHS personal records in accordance with workplace requirements
2. Underpinning Knowledge and Attitude	2.1 OHS procedures and practices and regulations 2.2 PPE types and uses 2.3 Personal hygiene practices 2.4 Hazards/risks identification and control 2.5 Threshold Limit Value -TLV 2.6 OHS indicators 2.7 Organization safety and health protocol 2.8 Safety consciousness 2.9 Health consciousness
3. Underpinning Skills	3.1 Practice of personal hygiene 1.2 Hazards/risks identification and control skills 1.3 Interpersonal skills 3.4 Communication skills
3. Resource Implications	The following resources must be provided: 4.1 Workplace or assessment location 4.2 OHS personal records 4.3 PPE 4.4 Health records
4. Methods of Assessment	Competency may be assessed through: 5.1 Portfolio Assessment 5.2 Interview 5.3 Case Study/Situation
5. Context for Assessment	6.1 Competency may be assessed in the work place or in a simulated work place setting

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 6.2 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: 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 1.5 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 2.3 Alternative measuring tools are used without sacrificing cost and quality of work 2.4 ***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 2.5 Calculations involving fractions, percentages and mixed numbers are used to complete workplace tasks 2.6 Numerical computation is self-checked and corrected for accuracy 2.7 Instruments are read to the limit of accuracy of the tool 2.8 Systems of measurement identified and converted according to job requirements/ISO 2.9 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
2. 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 3.13 Inside diameter 3.14 Circumference 3.15 Length 3.16 Thickness 3.17 Outside diameter 3.18 Taper 3.19 Out of roundness 3.20 Oil clearance 3.21 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	**2.1 TRADE MATHEMATICS / MENSURATION** • Four fundamental operation • Linear measurement • Dimensions • Unit conversion • Ratio and proportion • Trigonometric functions • 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 2.2 Measuring instruments are checked and calibrated in accordance with manufacturer's instructions 2.4 Tools are cleaned and lubricated according to standard procedures 2.2 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 3.3 Tools and equipment are stored safely in appropriate locations in accordance with manufacturer's specifications or company procedures

RANGE OF VARIABLES

VARIABLE	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** • Use of PPE • Handling of tools and equipment • Good housekeeping **2.2 MATERIALS, TOOLS AND EQUIPMENT** • Types and uses of lubricants • Types and uses of cleaning materials • Types and uses of measuring instruments and equipment **2.3 PREVENTIVE MAINTENANCE** • Methods and techniques • 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 4.3 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 / STAKE-OUT BUILDING LINES**
UNIT CODE	**CON712317**
UNIT DESCRIPTOR :	This unit covers the knowledge, skills, and attitude for preparing stake-out materials and fixing stake-out building lines.

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables
1. Prepare materials for stake-out building lines	1.1 Appropriate ***PPE*** is selected and used according to job requirements and OSHC standards. 1.2 Related ***plans and details*** are correctly interpreted according to job requirements. 1.3 ***Materials, hand tools and equipment*** is prepared consistent with job requirements. 1.4 Materials are properly staged and freed from defects. 1.5 ***Unexpected situations*** are responded to in line with company rules and regulations. 1.6 Housekeeping is performed according to safety regulations.
2. Set batterboards	2.1 Batterboards are set away from the building line excavation. 2.2 Batterboards are properly secured with tolerances for dimensions at $\pm$ 5 mm, and levelness of $\pm$ 3 mm. 2.3 Unexpected situations are responded to in line with company rules and regulations. 2.4 Housekeeping is performed according to safety regulations.
3. Fix stake-out building lines	3.1 Stake-out building lines are properly secured for reference in excavating building foundation. 3.2 Marking lines are squared and plumbed from the batterboard lines with tolerance of $\pm$ 3 mm on all measurement, plumbness, squareness and rigid. 3.3 Worksite is cleaned and kept in safe state according to OSHC regulations. 3.4 Daily work report is accomplished in accordance with company rules and regulations.

RANGE OF VARIABLES

VARIABLE	RANGE
1. PPE	May include but are not limited to: 1.1 Hard hat 1.2 Safety shoes 1.3 Gloves 1.4 Working clothes
2. Plans and details	2.1 Exact location 2.2 Dimensions 2.3 Symbols and abbreviations 2.4 Elevations 2.5 Quality and quantity of materials
3. Materials, hand tools and equipment	May include but are not limited to: 3.1 Lumber 3.2 Nails 3.3 G.I. Wires 3.4 Saw 3.5 Claw/Hammer 3.6 Chalk line 3.7 Pencil 3.8 Fishing line/nylon cord 3.9 Plumb bob 3.10 3-4-5 square/plywood/transit 3.11 Sledge hammer 3.12 Pull-push tape/zigzag rule 3.13 Crew bar 3.14 Pickmatch/pickmatok 3.15 Bolo 3.16 Framing square 3.17 Try-square 3.18 Level hose
4. Unexpected situations	May include but not limited to: 4.1 Injury to personnel 4.2 Damage to materials

EVIDENCE GUIDE

1. Critical aspects of competency	Competency assessment requires evidence that the candidate: 1.1 Interpreted related plans and details according to job requirements. 1.2 Selected and prepared materials, hand tools and equipment, and PPE according to specifications and job requirements. 1.3 Set and aligned dimension of work accurately according to job requirements. 1.4 Applied organizational quality procedures and processes in staking-out building lines 1.5 Complied with safety regulations for worksite operation. 1.6 Identified faults and problems and reported to immediate supervisor/foreman for necessary action.
2. Underpinning Knowledge	2.1 Types and uses of PPE 2.2 Mensuration 2.3 Related plans and details interpretation 2.4 Materials, hand tools and equipment uses and specifications 2.5 5-S 2.6 Knowledge of building layouts 2.7 Company rules and regulations
3. Underpinning Skills	3.1 Using PPE 3.2 Interpreting related plans and details 3.3 Preparing stake materials 3.4 Cutting/setting batter boards 3.5 Aligning stake-out of building lines and excavation 3.6 Metering tape reading 3.7 Communicating effectively 3.8 Following company rules and regulations
4. Resource implications	The following resources must be provided: 4.1 Work place location 4.2 Plans and details relevant to the task 4.3 Hand tools and equipment appropriate for preparing building lines 4.4 Materials relevant to the proposed activity 4.5 Appropriate PPE

5. Methods of Assessment	Competency must be assessed through: 5.1 Direct observation/practical demonstration of application to tasks 5.2 Questioning related to underpinning knowledge
6. Context for Assessment	6.1 Competency may be assessed in the work place or in a simulated work place setting 6.2 Assessment shall be done while tasks are undertaken individually under limited supervision

UNIT OF COMPETENCY:	**FABRICATE FORMWORKS**
UNIT CODE	**CON712318**
UNIT DESCRIPTOR :	This unit covers the knowledge, skills and attitudes in fabricating formworks. It includes preparing materials, lay-outing, fabricating and assembling formworks.

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables
1. Prepare materials for fabricating ***formworks***	1.1 Appropriate ***PPE*** is selected and used according to job requirements and OSHC specifications. 1.2 Related ***plans and details*** are interpreted according to job requirements. 1.3 ***Materials, hand and power tools and equipment*** are selected and prepared consistent with job requirements. 1.4 Materials are re-checked and properly staged according to job requirements otherwise defective materials or not in specifications are reported to immediate superior. 1.5 ***Unexpected situations*** are responded to in line with company rules and regulations. 1.6 Housekeeping is performed according to safety regulations.
2. Lay-out dimension of form sheating and stiffeners	2.1 Form sheating and stiffeners are measured and marked according to job specifications. 2.2 Form sheating and stiffeners are laid out and cut with tolerances of ±3 mm for all measurements and squareness. 2.3 Form sheating and stiffeners for column, beam, wall, slab and stairs are consistent with standard spacing for studs or nailer with tolerance of + 10 mm. O.C. 2.4 Unexpected situations are responded to in line with company rules and regulations. 2.5 Housekeeping is performed according to safety regulations.

3. Assemble form panels	3.1 Materials and/or fabricated form sheating and stiffeners are correctly positioned for assembly. 3.2 Assembled form panels are checked for squareness, levelness and alignment to specified tolerance 3.3 Temporary fixing and/or permanent assembly techniques are applied to hold form panels together as per job requirements. 3.4 Assembled form panels are checked for compliance with job requirements. 3.5Unexpected situations are responded to in line with company rules and regulations. 3.6 Clean up worksite according to safety regulations and OSHC specifications. 3.7 Daily work report is accomplished in accordance with company rules and regulations.

RANGE OF VARIABLES

VARIABLE	RANGE
1. Personal protective equipment (PPE)	May include but are not limited to: 1.1 Goggles 1.2 Dust mask 1.3 Gloves 1.4 Safety shoes 1.5 Working clothes 1.6 Hard hats
2. Plans and details	2.1 Exact location 2.2 Dimensions 2.3 Symbols and abbreviations 2.4 Elevations 2.5 Sections and details 2.6 Quality and quantity of materials
3. Materials	May include but not limited to: 3.1 Plywood 3.2 Lumber 3.3 Nails 3.4 Tie-rods 3.5 Tubular scaffolds 3.6 H-frame scaffold 3.7 Formwork braces

4. Power and hand tools and equipment	May include but are not limited to: 4.1 Power tool/equipment 4.1.1 Circular saw 4.1.2 Electric drill 4.1.3 Table saw 4.1.4 Hole saw 4.1.5 Jig saw 4.2 Hand tools 4.2.1 Hammer 4.2.2 Chalk lines 4.2.3 Pencil 4.2.4 Push-pull/zigzag rule 4.2.5 Chisel 4.2.6 Steel square 4.2.7 Hand saw 4.2.8 Plumb bob 4.2.9 Level hose 4.2.10 Spirit level 4.2.11 Adjustable wrench 4.2.12 Try square 4.2.13 Marking gauge 4.2.14 Crew bar
5. Unexpected situations	May include but not limited to: 5.1 Injury to personnel 5.2 Damage to materials
6. Formworks	May include but not limited to: 6.1 Plate 6.2 Pipe 6.3 Section 6.4 Sheet 6.5 By panel 6.6 Steel form

EVIDENCE GUIDE

1. Critical aspects of competency	Competency assessment requires evidence that the candidate: 1.1 Interpreted related plans and details 1.2 Selected and prepared materials, power and hand tools, equipment and PPE consistent with job requirements 1.3 Used safe and effective power and hand tools. 1.4 Laid out and cut form sheating and stiffeners according to specified tolerances 1.5 Assembled form panels are checked for compliance with the job requirements and specified tolerances 1.6 Applied organizational quality procedures and processes 1.7 Completed work without damage to materials or injury to personnel.
2. Underpinning knowledge	2.1 Types and uses of PPE 2.2 Mensuration 2.3 Related plans and details interpretation 2.4 Materials, power and hand tools and equipment uses and specifications 2.5 5-S 2.6 Knowledge of formworks fabrication procedures 2.7 Economic use of material 2.8 Safe and effective use of power and hand tools 2.9 Company rules and regulations
3. Underpinning skills	3.1 Using PPE 3.2 Applying mensuration 3.3 Interpreting related plans and details 3.4 Following fabrication procedures 3.5 Following safe and effective use of power and hand tools 3.6 Following 5-S 3.7 Using materials economically 3.8 Communicating effectively 3.9 Following company rules and regulations

4. Resource implications	The following resources must be provided: 4.1 Work place location 4.2 Materials, power and hand tools and equipment appropriate for formworks fabrication 4.3 Plans and details and specifications relevant to the task 4.4 Appropriate PPE
5. Methods of assessment	Competency must be assessed through: 5.1 Direct observation of application to tasks 5.2 Questions related to underpinning knowledge 5.3 Demonstration
6. Context for assessment	6.1 Competency may be assessed in the work place or in a simulated work place setting 6.2 Assessment shall be done while tasks are undertaken individually under limited supervision

UNIT OF COMPETENCY:	INSTALL FORMWORKS COMPONENTS
UNIT CODE	CON712319
UNIT DESCRIPTOR :	This unit covers the knowledge, skills and attitudes in installing/stripping formworks components for concrete work. It includes preparing materials, lay-outing/assembling scaffolds and braces and removing of shoring.

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables
1. Prepare materials, tools and equipment for installing formworks	1.1 Appropriate ***PPE*** is selected and used according to job requirements and OSHC specifications. 1.2 Related ***plans and details*** are correctly interpreted according to job requirements. 1.3 ***Formworks components/materials, power and hand tools and equipment*** are selected and prepared consistent with job requirements. 1.4 Materials are re-checked and properly staged according to job requirements otherwise damaged materials are reported to immediate superior. 1.6 ***Unexpected situations*** are responded to in line with company rules and regulations. 1.7 Housekeeping is performed according to safety regulations.
2. Lay-out/assemble scaffolds and braces	2.1 Appropriate PPE is selected and used according to job requirements and OSHC specifications. 2.2 Work area is cleared for safe lay-outing and assembling of scaffolds and braces. 2.3 Scaffolds and braces are laid-out and assembled with tolerance of ± 3mm for all measurements and squareness. 2.4 Connectors, braces, locks and screws are properly secured according to job requirements. 2.5 Unexpected situations are responded to in line with company rules and regulations. 2.6 Housekeeping is performed according to safety regulations.

3. Set/fix form panels of building components	3.1 Appropriate PPE is selected and used according to job requirements and OHSA specifications. 3.2 Formworks components are laid-out with tolerance of ± 3 mm for measurement, alignment, squareness, levelness, plumbness and with form oil. 3.3 Form panels are set/fixed for components with tolerance to reference structure of ± 3mm 3.4 Connectors, braces, locks and screws are properly secured according to job requirements. 3.5 Unexpected situations are responded to in line with company rules and regulations. 3.6 Daily report is accomplished according to company rules and regulations. 3.7 Housekeeping is performed according to safety regulations.

RANGE OF VARIABLES

VARIABLE	RANGE
1. Personal protective equipment (PPE)	May include but are not limited to: 1.1 Gloves 1.2 Safety shoes 1.3 Dust mask 1.4 Safety hat 1.5 Safety belt 1.6 Overalls/working clothes
2. Plans and details	2.1 Exact location 2.2 Dimensions 2.3 Symbols and abbreviations 2.4 Elevations 2.5 Sections and details 2.6 Quality and quantity of materials
3. Formwork components	3.1 Stiffener/frame 3.2 Steel 3.3 Composite construction 3.4 Polyvinyl/plastic
4. Materials	May include but are not limited to: 4.1 Form panels 4.2 Lumbers 4.3 Scaffolds 4.4 Shoring 4.5 Nails 4.6 Plywood 4.7 Steel channel

5. Power and hand tools and equipment	May include but are not limited to: 5.1 Saw 5.2 Hammer 5.3 Tool holster 5.4 Spanners 5.5 Measuring tool 5.6 Impact gun 5.7 Brooms 5.8 Chalk line 5.9 Pencil 5.10 Plumb bob 5.11 Level hose 5.12 Fishing line 5.13 Spirit level 5.14 Crow bar 5.15 Try-square
6. Unexpected situations	May include but not limited to: 6.1 Damage to materials 6.2 Injury to personnel

EVIDENCE GUIDE

1. Critical aspects of competency	Competency assessment requires evidence that the candidate: 1.1 Interpreted related plans and details according to job requirements. 1.2 Selected and prepared materials, power and hand tools, equipment and PPE are consistent with job requirements. 1.3 Laid-out/assembled scaffolds/braces and form components/panels according to job requirements and specified tolerances. 1.4 Complied with safety regulations for worksite operations 1.5 Followed safe and effective operational use of power and hand tools and equipment 1.6 Communicated interactively with others to ensure safe and effective workplace operations 1.7 Completed work without injury to personnel or damage to equipment.
2. Underpinning knowledge	2.1 Types and uses of PPE 2.2 Mensuration 2.3 Materials, power and hand tools and equipment uses and specifications 2.4 Interpretation of related plans and details 2.5 5-S 2.6 Safe and effective use of power and hand tools 2.7 Economic use of material 2.8 Knowledge of assembling and fixing procedures 2.9 Company rules and regulations
3. Underpinning skills	3.1 Using PPE 3.2 Applying mensuration 3.3 Interpreting plan and details 3.4 Preparing materials, power and hand tools and equipment 3.5 Following assembling and fixing procedures 3.6 Following 5-S 3.7 Following safe and effective use of power and hand tools 3.8 Using materials economically 3.9 Communicating effectively 3.10 Following company rules and regulations

4. Resource implications	The following resources must be provided: 4.1 Work place location 4.2 Hand and power tools and equipment appropriate for installation of formwork components 4.3 Materials relevant to the proposed activity 4.4 Plans and details relevant to the task 4.5 Appropriate PPE
5. Methods of assessment	Competency must be assessed through: 5.1 Direct observation of application to tasks 5.2 Questions related to underpinning knowledge 5.3 Demonstration
6. Context for assessment	6.1 Competency may be assessed in the work place or in a simulated work place setting. 6.2 Assessment shall be done while tasks are undertaken individually under limited supervision.

UNIT OF COMPETENCY:	**STRIP FORMWORKS COMPONENTS**
UNIT CODE	**CON712320**
UNIT DESCRIPTOR :	This unit covers the knowledge, skills and attitudes in stripping formworks components and accessories for concrete work. It includes preparing tools, equipment and staging of materials and shoring and re-shoring operations.

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables
1. Prepare staging area, tools and equipment	1.1 Work instruction is secured from immediate superior according to company rules and regulations. 1.2 Appropriate ***PPE*** is selected and used according to job requirements and OSHC specifications. 1.3 Formwork components and accessories staging area is identified and prepared based on job requirements. 1.4 Formwork components ***power, hand tools and equipment*** are selected and prepared consistent with job requirements. 1.5 ***Unexpected situations*** are responded to in line with company rules and regulations. 1.6 Housekeeping is performed according to safety regulations.
2. Strip formworks of building components	2.1 ***Formwork components and accessories*** are removed carefully, safely and sequentially. 2.2 Formwork components and accessories are sorted, arranged and properly staged according to company rules and regulations/manufacturer's recommendations. 2.3 Formwork components and accessories are cleaned, oiled and stored according to company rules and regulations/manufacturer's recommendations. 2.4 Formwork components and accessories, which are beyond repair, are discarded otherwise repaired in accordance with company rules and regulations. 2.5 Unexpected situations are responded to in line with company rules and regulations. 2.6 Housekeeping is performed according to safety regulations.

3. Shore or/and re-shore and removal	3.1 Appropriate PPE is selected and used according to job requirements and OHSA specifications. 3.2 Formworks components are shored and re-shored in accordance with stripping procedures. 3.3 Shores are removed in accordance with standard dismantling procedures. 3.4 Shores, tools and equipment are cleaned, maintained and stored properly according to company rules and regulations. 3.5 Unexpected situations are responded to in line with company rules and regulations. 3.6 Daily report is accomplished according to company rules and regulations. 3.7 Housekeeping is performed according to safety regulations.

RANGE OF VARIABLES

VARIABLE	RANGE
1. Personal protective equipment (PPE)	May include but are not limited to: 1.1 Gloves 1.2 Safety shoes 1.3 Dust mask 1.4 Safety hat 1.5 Safety belt 1.6 Overalls/working clothes
2. Power and hand tools and equipment	May include but are not limited to: 2.1 Hammer 2.2 Tool holster 2.3 Spanners 2.4 Brooms 2.5 Crow bar
3. Unexpected situations	May include but not limited to: 3.1 Damage to formwork components 3.2 Injury to personnel
4. Formwork components and accessories	4.1 Form panels 4.1.1 Beams 4.1.2 Columns 4.1.3 Slabs 4.1.4 Walls 4.1.5 Stairs 4.2 Scaffolds 4.2.1 Frame 4.2.2 Tubular

EVIDENCE GUIDE

1. Critical aspects of competency	Competency assessment requires evidence that the candidate: 1.1 Followed work instructions. 1.2 Selected and prepared power and hand tools, equipment and PPE are consistent with job requirements 1.3 Performed stripping, shoring and removal of shoring procedures 1.4 Complied with safety regulations for worksite operations. 1.5 Followed safe and effective operational use of power and hand tools and equipment. 1.6 Communicated interactively with others to ensure safe and effective workplace operations. 1.7 Completed work without injury to personnel or damage to materials.
2. Underpinning knowledge	2.1 Types and uses of PPE 2.2 Formwork components power and hand tools and equipment use and specification 2.3 Interpretation of instruction, 2.4 Safety rules and regulations 2.5 5-S 2.6 Safe and effective use of power and hand tools 2.7 Proper storing and maintenance of formwork components 2.8 Knowledge of stripping, shoring and removal of shoring procedures 2.9 Company rules and regulations
3. Underpinning skills	3.1 Using PPE 3.2 Interpreting instructions 3.3 Following safety rules and regulations 3.4 Preparing formwork components 3.5 Following stripping, shoring and removal of shoring procedures 3.6 Following 5-S 3.7 Following safe and effective use of power and hand tools 3.8 Following proper storing and maintenance of formwork components and accessories 3.9 Communicating effectively 3.10 Following company rules and regulations

4. Resource implications	The following resources must be provided: 4.1 Work place location 4.2 Hand and power tools and equipment appropriate for stripping of formwork components 4.3 Appropriate PPE
5. Methods of assessment	Competency must be assessed through: 5.1 Direct observation of application to tasks 5.2 Questions related to underpinning knowledge 5.3 Demonstration
6. Context for assessment	6.1 Competency may be assessed in the work place or in a simulated work place setting 6.2 Assessment shall be done while tasks are undertaken individually under limited supervision

UNIT OF COMPETENCY:	**INSTALL FRAMING WORKS**
UNIT CODE	**CON712321**
UNIT DESCRIPTOR :	This unit covers the knowledge, skills and attitudes in installing framing works. It includes preparing materials, lay-outing/erecting and assembling supports.

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables
1. Prepare materials for framing works	1.1 Appropriate ***PPE*** is selected and used according to job requirements OSHC specifications. 1.2 Related ***plans and details*** are correctly interpreted according to job requirements. 1.3 ***Materials, power and hand tools and equipment*** are selected and prepared consistent with job requirements. 1.4 Materials are re-checked and properly staged according to job requirements. 1.5 ***Defective materials*** are reported to immediate supervisor following standard operating procedures. 1.6 ***Unexpected situations*** are dealt with according to company rules and regulations. 1.7 Housekeeping is performed according to safety regulations.
2. Lay-out/erect and assemble post, girts and supports	2.1 Appropriate PPE is used according to job requirements and OSHC specifications. 2.2 Posts and girts are laid-out according to working drawings and specifications with tolerance of ± 3mm on all measurements, plumbness and levelness. 2.3 Post, girts and support are erected/assembled based on plans and specifications. 2.4 Unexpected situations are dealt with according to company rules and regulations. 2.5 Housekeeping is performed according to safety regulations.

3. Lay-out/install floor joists	3.1 Appropriate PPE is used according to job requirements and safety regulations. 3.2 Floor joists are set out, cut and fixed, and laterally supported in accordance with working drawings and specifications. 3.3 Floor joists are trimmed for floor openings and fixed with fastenings according to working drawings and specifications. 3.4 Floor joists are laid-out/installed with tolerance of ± 3mm on all measurements and levelness. 3.5 Unexpected situations are dealt with according to company rules and regulations. 3.6 Housekeeping is performed according to safety regulations.
4. Lay-out/install wall studs	4.1 Appropriate PPE is used according to job requirements and safety regulations. 4.2 Wall studs are identified and installed based on working drawings and specifications with tolerance of ± 3mm on all measurements, plumbness, levelness and squareness. 4.3 Unexpected situations are dealt with according to company rules and regulations. 4.4 Housekeeping is performed according to safety regulations.
5. Lay-out/fabricate/install roof frames	5.1 Appropriate PPE is used according to job requirements and safety regulations. 5.2 ***Types of roof***s and ***other components*** are fabricated, laid out and installed according to working drawings and specifications with tolerance of ± 3mm maximum on all dimensions, plumbness, levelness and squareness. 5.3 Roof components are installed according to working drawings and specifications. 5.4 Unexpected situations are dealt with according to company rules and regulations. 5.5 Housekeeping is performed according to safety regulations.

6. Lay-out/install ceiling joists/frames	6.1 Appropriate PPE is used according to job requirements and safety regulations 6.2 Ceiling joists/frames are laid out/installed according to working drawings and specifications with ± 3 mm tolerance on all dimensions, levelness and squareness. 6.3 Unexpected situations are dealt with according to company rules and regulations. 6.4 Daily report is accomplished according to company rules and regulations. 6.5 Housekeeping is performed according to safety regulations.

RANGE OF VARIABLES

VARIABLE	RANGE
1. PPE	May include but not limited to: 1.1 Gloves 1.2 Safety shoes 1.3 Safety hat 1.4 Safety belt 1.5 Dust mashesk 1.6 Working clot
2. Plans and details	2.1 Exact location 2.2 Dimensions 2.3 Symbols and abbreviations 2.4 Elevations 2.5 Sections and details 2.6 Quality and quantity of materials
3. Materials	3.1 Lumber 3.2 Nails 3.3 Bolts and nuts 3.4 Hanger ceiling (expansion bolts) 3.5 Metal bracket
4. Power and hand tools and equipment	May include but not limited to: 4.1 Saw 4.2 Hammer 4.3 Chalk line 4.4 Pencil 4.5 Plumb bob 4.6 Level hose 4.7 Push-pull/ zigzag rule 4.8 Fishing line 4.9 Spirit level 4.10 Crow bar 4.11 Chisel 4.12 Try square 4.13 Framing square

VARIABLE	RANGE
5. Defective materials	5.1 Natural 5.2 Manufacturer
6. Unexpected situations	May include but not limited to: 6.1 Damage to materials, tools or equipment 6.2 Injury to personnel
7. Types of roofs	May include but not limited to: 7.1 Flat roof 7.2 Shed or lean-to 7.3 Gable roof 7.4 Hip roof 7.5 Gable roof and dormer 7.6 Gable and valley roof 7.7 Hip and valley roof
8. Other components	May include but not limited to: 8.1 Trusses 8.2 Brace 8.3 Cleat 8.4 Rafter 8.5 Purlins 8.6 Fascia board

EVIDENCE GUIDE

1. Critical aspects of competency	Competency assessment requires evidence that the candidate: 1.1 Interpreted related plans and details according to job requirements. 1.2 Selected and prepared materials, hand and power tools, equipment and PPE are consistent with job requirements 1.3 Performed installing framing works procedures 1.4 Complied safety regulations for worksite operations. 1.5 Followed safe and effective operational use of tools and equipment. 1.6 Completed work operations without injury to personnel and damage to materials. 1.7 Communicated interactively with others to ensure safe and effective workplace operations.
2. Underpinning knowledge	2.1 Types and uses of PPE 2.2 Mensuration 2.3 Working drawings and specifications interpretation 2.4 Materials, power and hand tools, equipment use and specification 2.5 5-S 2.6 Principles of framing 2.5 Procedures for installing framing works 2.6 Safe and effective use of power and hand tools 2.7 Economic use of material 2.8 Staging and storing procedure of materials 2.9 Company rules and regulations
3. Underpinning skills	3.1 Using PPE 3.2 Applying mensuration 3.3 Interpreting working drawings and specifications 3.4 Using materials economically 3.5 Following 5S 3.6 Following procedures for installing framing works 3.7 Following safe and effective use of power and hand tools 3.8 Following staging and storing procedure 3.9 Following company rules and regulations

4. Resource implications	The following resources must be provided: 4.1 Work place location 4.2 Power and hand tools and equipment appropriate to installation of frames 4.3 Materials relevant to the proposed activity 4.4 Drawings and specifications relevant to the task 4.5 Appropriate PPE
5. Methods of assessment	Competency must be assessed through: 5.1 Direct observation of application to tasks 5.2 Questions related to underpinning knowledge
6. Context for assessment	6.1 Competency may be assessed in the work place or in a simulated work place setting.

SECTION 3 TRAINING STANDARDS

These standards are set to provide technical and vocational education and training (TVET) providers with information and other important requirements to consider when designing training programs for Carpentry NC II.

3.1 CURRICULUM DESIGN

Course Title: **CARPENTRY** NC Level: **NC II**
Nominal Training Duration: **18 Hours (Basic)**
24 Hours (Common)

Course Description:

This course is designed to enhance the knowledge, skills and desirable work attitude in Carpentry NC II. It covers the basic, common and core competencies.

BASIC COMPETENCIES

Unit of Competency	Learning Outcomes	Methodology	Assessment Approach
1. Participate in workplace communication	1.1 Obtain and convey workplace information. 1.2 Complete relevant work related documents. 1.3 Participate in workplace meeting and discussion.	Group discussion Interaction	• Demonstration • Observation • Interviews/ questioning
2. Work in a team environment	2.1 Describe and identify team role and responsibility in a team. 2.2 Describe work as a team member.	Discussion Interaction	• Demonstration • Observation • Interviews/ questioning
3. Practice career professionalism	3.1 Integrate personal objectives with organizational goals. 3.2 Set and meet work priorities. 3.3 Maintain professional growth and development	Discussion Interaction	• Demonstration • Observation • Interviews/ questioning
4. Practice occupational health and safety	4.1 Evaluate hazard and risks 4.2 Control hazards and risks 4.3 Maintain occupational health and safety awareness	Discussion Plant tour Symposium	• Observation • Interview

COMMON COMPETENCIES

SECTOR : CONSTRUCTION

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 mensurations 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

Course Title: **CARPENTRY** NC Level: **NC II**

Nominal Training Duration: **120 Hours**

Course Description:

The core competencies covers the competency on stake-out building lines, fabricate formworks, install/strip form works, install framing works, install architectural ceiling/wall sheats/panels and floor finishes and fabricate/install door/window jambs and panels.

CORE COMPETENCIES

Unit of Competency	Learning Outcomes	Methodology	Assessment Approach
1. Prepare / Stake-out building lines.	1.1 Use appropriate PPE. 1.2 Interpret construction plans and details. 1.3 Identify construction symbols 1.4 Prepare construction tools, equipment and materials. 1.5 Mark-out location of batterboard in accordance with plans and details 1.6 Set-up batterboard securely. 1.7 Mark and set building lines securely 1.8 Observe safety practices in staking-out building lines. 1.9 Unexpected situations are responded accordingly	Audio Visual Simulation Discussion Practical Lab Demonstration	Observation Questioning Written Test Demonstration

Unit of Competency	Learning Outcomes	Methodology	Assessment Approach
2. Fabricate formworks	2.1 Use appropriate PPE 2.2 Interpret construction plans and details. 2.3 Identify construction symbols 2.4 Prepare construction tools, equipment and materials. 2.5 Lay-out and cut formworks according to plans and details. 2.6 Fabricate formworks in accordance with plans and details. 2.7 Check and fix fabricated formworks for levelness, alignment, squareness and control dimension to specified tolerance. 2.8 Observe safety practices in fabricating formworks. 2.9 Unexpected situations are responded accordingly	Audio Visual Simulation Discussion Practical Lab Demonstration	Observation Questioning Written Test Demonstration

Unit of Competency	Learning Outcomes	Methodology	Assessment Approach
3. Install formworks components	3.1 Use appropriate PPE. 3.2 Select and prepare tools and equipment for installing formworks components. 3.3 Apply proper procedures in laying-out scaffolds. (e.g. height and span requirements) 3.4 Lay-out scaffolds and braces according to job requirements. 3.5 Erect shores, braces prior to installation of form panels. 3.6 Set, fix and erect form panels of building components according job requirements. 3.7 Removed waste materials, used form panels and scaffolds according to established operating standards. 3.8 Clean/maintain/store tools and equipments as required. 3.9 Unexpected situations are responded accordingly	Audio Visual Simulation Discussion Practical Lab Demonstration	Observation Questioning Written Test Demonstration

Unit of Competency	Learning Outcomes	Methodology	Assessment Approach
4. Strip formworks components	4.1 Use appropriate PPE. 4.2 Select and prepare tools and equipment for stripling formworks components. 4.3 Strip form panels following standard stripping procedures in line with the job requirements. 4.4 Apply proper procedures in dismantling scaffolds. 4.5 Erect shores, braces prior to installation of form panels. 4.6 Removed waste materials, used form panels and scaffolds according to established operating standards. 4.7 Clean/maintain/store tools and equipments as required. 4.8 Unexpected situations are responded accordingly.	Audio Visual Simulation Discussion Practical Lab Demonstration	Observation Questioning Written Test Demonstration

Unit of Competency	Learning Outcomes	Methodology	Assessment Approach
5. Installing framing works	5.1 Use appropriate PPE. 5.2 Select and prepare tools, materials and equipment for framing works. 5.3 Identify standard floor joist on-center spacing. 5.4 Demonstrate proper procedures in installing floor joist. 5.5 Lay-out and mark position of floor joist on the girders in line with plans and details. 5.6 Lay-out floor joist and nail into position according to job requirements. 5.7 Bridge floor joist perpendicularly in accordance with working drawings and specifications. 5.8 Cut floor joist according to job requirements. 5.9 Identify wall requirements according to working drawings and details. 5.10 Lay-out and install sole plate and top plate according to job requirements. 5.11 Lay-out and install wall studs according to working drawings and specifications. 5.12 Fabricate trusses according to job requirements.	Audio Visual Simulation Discussion Practical Lab Demonstration	Observation Questioning Written Test Demonstration

Unit of Competency	Learning Outcomes	Methodology	Assessment Approach
	5.13 Lay-out and install trusses according plans and specifications. 5.14 Install purlins according to wording drawing and details. 5.15 Lay-out and install fascia board according to job requirements. 5.16 Identify ceiling requirements such as manhole, electrical outlets, ventilations, etc. according to job requirements. 5.17 Install ceiling joist according to working drawings and specifications. 5.18 Demonstrate safe and effective operational use of tools and equipment. 5.19 Unexpected situations are responded accordingly		

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 learner-centered and should accommodate individualized and self-paced learning strategies;
- 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;
- Training program allows for recognition of prior learning (RPL) or current competencies;
- Training allows for multiple entry and exit; and
- Training programs are registered with the UTPRAS.

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 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, or audio, video or computer technologies.
- Project-Based Instruction is an authentic instructional model or strategy in which students plan, implement and evaluate projects that have real world applications.

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.

- A holder of National Certificate Level I
- Good Moral Character
- Ability to communicate
- Physically fit and mentally healthy
- Can perform basic mathematical computation and mensuration.

3.4 LIST OF TOOLS, EQUIPMENT AND MATERIALS FOR CARPENTRY NC II

TOOLS		EQUIPMENT		MATERIALS	
QTY		**QTY**		**QTY**	
25 pcs	Cross cut saw	5 sets	H-frame scaffolds,	25 pcs	Lumber, 2”x6”x8’, kiln dried, tangile
25 pcs	Claw hammer 8 oz	2 unit	Portable electric drill	25 pcs	Lumber, 2”x6”x12’, kiln dried, tangile
25 pcs	Claw hammer 16 oz	2 unit	Portable planer	50 pcs	Lumber, 2”x2”x12’, kiln dried, tangile
25 pcs	Chalk line reel	2 unit	Portable cirular saw	25 pcs	Wood moulding, 1”x4”x8’, ogee
25 pcs	Pencil			25 pcs	Wood moulding, 1”x1”x8’, quarter round
25 sets	Nylon string			25 pcs	Wood moulding, 1”x1”x8’, cove
25 pcs	Pull-push rule, 15 meters			50 pcs	rough lumber 2”x2”x12’
5 pcs	Crow bar			50 pcs	Loose pin hinges, 4”
25 pcs	Framing square			2 kg	Finishing wire nail, 1”
25 pcs	Try square			2 kg	Finishing wire nail, 1½ inches
5 pcs	Spirit level, 36 in.			2 kg	Finishing wire nail, 2 inches
1 pcs	Automatic level			2 kg	Finishing wire nail, 3 inches
25 pcs	Nail pouch			2 kg	Common wire nail, 1”
25 set	Nail set			2 kg	Common wire nail, 1½ inches
12 pcs	Chisel, ¼”			4 kg	Common wire nail, 2 inches

TOOLS		EQUIPMENT		MATERIALS	
QTY		**QTY**		**QTY**	
12 pcs	Chisel, ½ ”			4 kg	Common wire nail, 3 inches
12 pcs	Chisel, ¾ ”			25 pcs	Plywood,1/4”x4’x8’
12 pcs	Chisel, 2”			5 liters	White glue
6 pcs	Adjustable wrench, 8 inches			10 pcs.	Piano hinge
6 pcs	Adjustable wrench, 12 inches			100pcs.	Butt hinge assorted sizes
1 set	Combination spanner, 8mm to 24mm			25 pcs.	Concealed hinge
12 m	transparent hose, white, 3/8 in diameter			25 pcs.	Double-action hinge
12 m	Transparent hose, white, ¼ in.				
1 pcs	Hard hat, white, (for trainer)				
25 pcs	Hard hat, yellow (for trainees)			**LEARNING MATERIALS**	
25 pairs	Gloves, knitted				Interactive instructional modules
25 pairs	Safety shoes				Books in carpentry
25 pcs	Goggle				

3.5 TRAINING FACILITIES FOR CARPENTRY NC II

Based on a class size of 25 students/trainees

Space Requirement	Size in Meters	Area in Sq. Meters	Total Area in Sq. Meters
Student/Trainee Working Space	2 x 3 per student/trainee	6	150
Contextual Learning Laboratory / Lecture Room	4 x 5	20	20
Learning Resource Center	4 x 5	20	20
Tool Room/Storage	2 x 5	10	10
Wash room	2.5 x 4	10	10
Circulation area	10 x 6	60	60
TOTAL AREA			**270**

3.6 TRAINER'S QUALIFICATION FOR CARPENTRY NC II

- Must have undergone training on Training Methodology II (TM II)
- Must be a holder of National Certificate Level III or its equivalent
- Good moral character
- Must be a holder of professional license issued by PRC or equivalent
- Must be computer literate
- Must be physically and mentally fit
- *Must have 1 year 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 Carpentry NC II, 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 Carpentry NC II maybe attained through:

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

4.2.1.1 Prepare / stake-out building lines
4.2.1.2 Fabricate form works
4.2.1.3 Install form work components
4.2.1.4 Strip form work components
4.2.1.5 Install framing works

Successful candidates shall be awarded Certificates of Competency (COCs)

4.2.2 Demonstration of competence through project-type assessment covering all 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

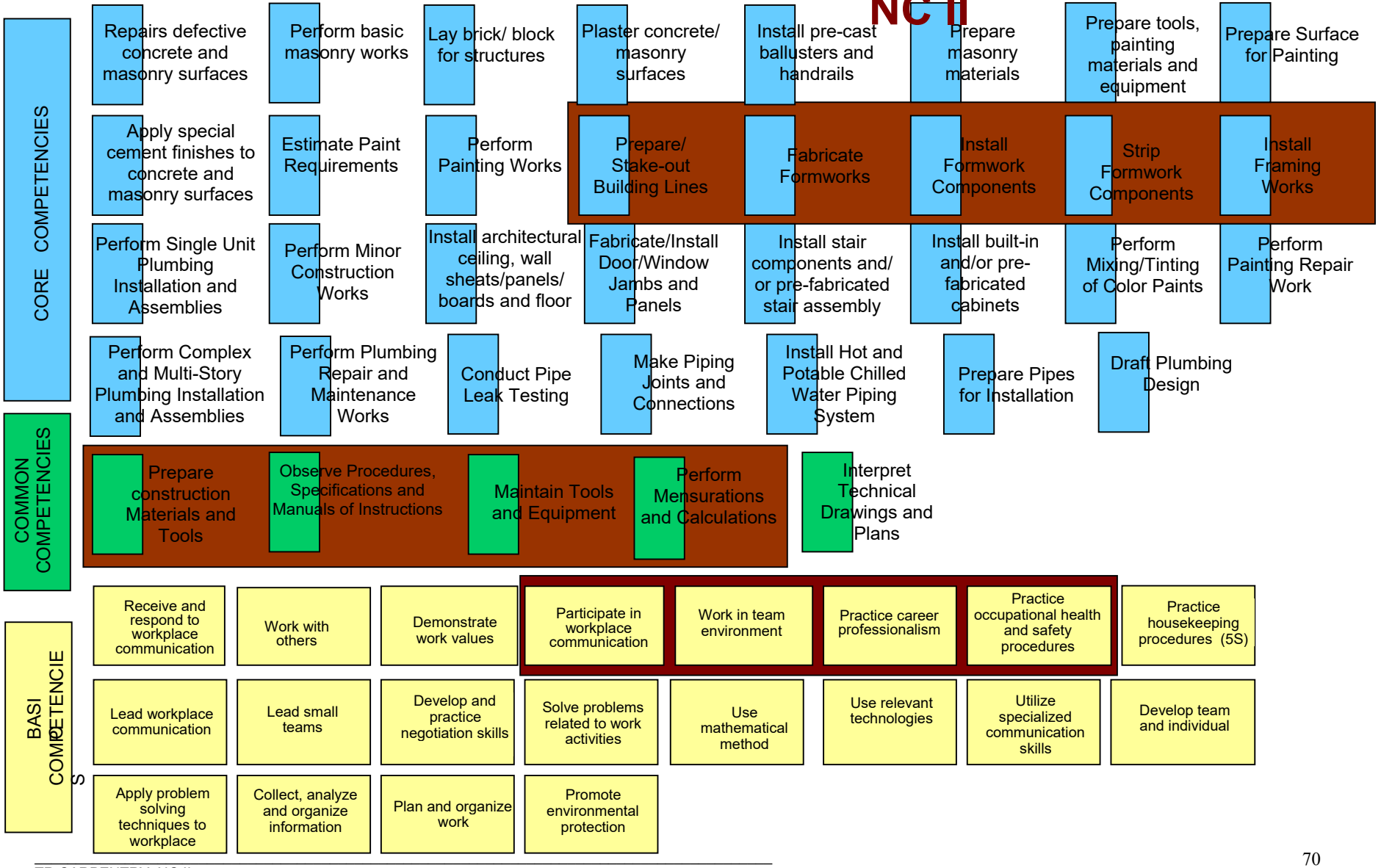
4.4.2. Experienced Workers (wage employed or self-employed)

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).

ANNEX A

COMPETENCY MAP
CONSTRUCTION - CIVIL WORKS SUB-SECTOR

CARPENTRY NC II



DEFINITION OF TERMS

1. Batterboard	A horizontal board nailed to corner posts located just outside the corners of a proposed building to assist in the accurate lay-out of foundation and excavation lines.
2. Joist	Is a steel or wood beam providing direct support for a floor.
3. Certification	Refers to the process of verifying and validating competencies of a person through assessment.
4. Competency	Is the application of knowledge, skills and attitudes to perform work activities to the standard expected in the workplace.
5. 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.
6. 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.
7. Level	Refers to the category following the level of difficulty and complexity of skills and knowledge required to do the job.
8. 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.
9. 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.
10. Range of Variable	It describes the circumstances or context in which the work is to be performed.
11. Staking out	Refers to the driving of stakes into the earth to indicate the foundation location of a structure to be built.
12. Shoring	Refers to the provision of temporary support with shores to a building or an excavation.

13.	Stringer	Refers to an inclined member supporting the treads and risers of a staircase.
14.	Stiffiners	Refers to a steel angle or plate attached to a slender beam to prevent its buckling by increasing its stiffness.
15.	Stock	Refers to a product or material kept in storage until needed for use or transferred to some ultimate point for use.
16.	Unit of Competency	Refers to a discrete aspect of work, which would normally be performed by only one person.
17.	Wall	Refers to a vertical structure or member forming an enclosure or defining a space.

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