

COMPETENCY STANDARDS

WATERPROOFING SERVICES LEVEL III



CONSTRUCTION SECTOR

TECHNICAL EDUCATION AND SKILLS DEVELOPMENT AUTHORITY
East Service Road, South Luzon Expressway (SLEX), Taguig City, Metro Manila

*Technical Education and Skills Development Act of 1994
(Republic Act No. 7796)*

Section 22, "Establishment and Administration of the National Trade Skills Standards" of the RA 7796 known as the TESDA Act mandates TESDA to establish national occupational skill standards. The Authority shall develop and implement a certification and accreditation program in which private industry group and trade associations are accredited to conduct approved trade tests, and the local government units to promote such trade testing activities in their respective areas in accordance with the guidelines to be set by the Authority.

TABLE OF CONTENTS

CONSTRUCTION SECTOR

WATERPROOFING SERVICES LEVEL III

	Page/s	
Section 1	WATERPROOFING SERVICES LEVEL III	1
Section 2	COMPETENCY STANDARDS	2 – 70
	• Basic Competencies	2 – 39
	• Common Competencies	40 – 47
	• Core Competencies	48 – 70
GLOSSARY OF TERMS		71
ACKNOWLEDGEMENTS		72

**COMPETENCY STANDARDS FOR
WATERPROOFING SERVICES LEVEL III**

Section 1 WATERPROOFING SERVICES LEVEL III QUALIFICATION

The **WATERPROOFING SERVICES LEVEL III** Qualification consists of competencies that a person must achieve to perform waterproofing services. The competencies included in the qualification are to perform waterproofing preparation work, install sheet waterproofing materials, apply protective and finishing layers and conduct inspection and maintenance of waterproofing systems.

The units of competency comprising this qualification include the following:

CODE NO.	BASIC COMPETENCIES
400311319	Lead workplace communication
400311320	Lead small teams
400311321	Apply critical thinking and problem solving techniques in the workplace
400311322	Work in a diverse environment
400311323	Propose methods of applying learning and innovation in the organization
400311324	Use information systematically
400311325	Evaluate occupational safety and health work practices
400311326	Evaluate environmental work practices
400311327	Facilitate entrepreneurial skills for micro-small-medium enterprises (MSMEs)

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

CODE NO.	CORE COMPETENCIES
CS-CON712301	Perform Waterproofing Preparation Work
CS-CON712302	Install Sheet Waterproofing Materials
CS-CON712303	Install Liquid-Applied Waterproofing Systems
CS-CON712304	Apply Protective and Finishing Layers
CS-CON712305	Conduct Inspection and Maintenance of Waterproofing Systems

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

- Waterproof Worker

SECTION 2 COMPETENCY STANDARDS

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

BASIC COMPETENCIES

UNIT OF COMPETENCY : **LEAD WORKPLACE**

UNIT CODE : **400311319**

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

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Communicate information about workplace processes	1.1 Relevant communication method is selected based on workplace procedures 1.2 Multiple operations involving several topics/areas are communicated following enterprise requirements 1.3 Questioning is applied to gain extra information 1.4 Relevant sources of information are identified in accordance with workplace/ client requirements 1.5 Information is selected and organized following enterprise procedures	1.1 Organization requirements for written and electronic communication methods 1.2 Effective verbal communication methods 1.3 Business Writing 1.4 Workplace etiquette	1.1 Organizing information 1.2 Conveying intended meaning 1.3 Participating in a variety of workplace discussions 1.4 Complying with organization requirements for the use of written and electronic communication methods 1.5 Effective business writing 1.6 Effective clarifying and probing skills 1.7 Effective questioning techniques (clarifying and probing)

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	1.6 Verbal and written reporting is undertaken when required 1.7 Communication and negotiation skills are applied and maintained in all relevant situations		
2. Lead workplace discussions	2.1 Response to workplace issues are sought following enterprise procedures 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 plans undertaken in the workplace are communicated promptly	2.1 Organization requirements for written and electronic communication methods 2.2 Effective verbal communication methods 2.3 Workplace etiquette	2.1 Organizing information 2.2 Conveying intended meaning 2.3 Participating in variety of workplace discussions 2.4 Complying with organization requirements for the use of written and electronic communication methods 2.5 Effective clarifying and probing skills
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	3.1 Organization requirements for written and electronic communication methods 3.2 Effective verbal communication methods 3.3 Workplace etiquette 3.4 Communication problems and issues 3.5 Barriers in communication	2.1 Organizing information 2.2 Conveying intended meaning 2.3 Participating in a variety of workplace discussions 2.4 Complying with organization requirements for the use of written and electronic communication methods

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	3.4 Communication problems and issues are raised as they arise 3.5 Identify barriers in communication to be addressed appropriately		2.5 Effective clarifying and probing skills 2.6 Identifying issues 2.7 Negotiation and communication skills

RANGE OF VARIABLES

VARIABLE	RANGE
1. Methods of communication	May include: 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
2. Workplace discussions	May include: 2.1 Coordination meetings 2.2 Toolbox discussion 2.3 Peer-to-peer discussion

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 Demonstrated leadership skills in workplace communication 1.3 Made constructive contributions in workplace issues 1.4 Sought workplace issues effectively 1.5 Responded to workplace issues promptly 1.6 Presented information clearly and effectively written form 1.7 Used appropriate sources of information 1.8 Asked appropriate questions 1.9 Provided accurate information
2. Resource Implications	The following resources should be provided: 2.1 Variety of Information 2.2 Communication tools 2.3 Simulated workplace
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Case problem 3.2 Third-party report 3.3 Portfolio 3.4 Interview 3.5 Demonstration/Role-playing
4. Context for Assessment	4.1 Competency may be assessed in the workplace or in a simulated workplace environment

UNIT OF COMPETENCY : LEAD SMALL TEAMS

UNIT CODE : 400311320

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

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Provide team leadership	1.1 Work requirements are identified and presented to team members based on company policies and procedures 1.2 Reasons for instructions and requirements are communicated to team members based on company policies and procedures 1.3 Team members' and leaders' concerns are recognized, discussed and dealt with based on company practices	1.1 Facilitation of Team work 1.2 Company policies and procedures relating to work performance 1.3 Performance standards and expectations 1.4 Monitoring individual's and team's performance vis a vis client's and group's expectations	1.1 Communication skills required for leading teams 1.2 Group facilitation skills 1.3 Negotiating skills 1.4 Setting performance expectation
2. Assign responsibilities	2.1 Responsibilities are allocated having regard to the skills, knowledge and aptitude required to undertake the assigned task based on company policies. 2.2 Duties are allocated having regard to individual preference, domestic and personal considerations, whenever possible	2.1 Work plan and procedures 2.2 Work requirements and targets 2.3 Individual and group expectations and assignments 2.4 Ways to improve group leadership and membership	2.1 Communication skills 2.2 Management skills 2.3 Negotiating skills 2.4 Evaluation skills 2.5 Identifying team member's strengths and rooms for improvement

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
3. Set performance expectations for team members	3.1 Performance expectations are established based on client needs 3.2 Performance expectations are based on individual team members knowledge, skills and aptitude 3.3 Performance expectations are discussed and disseminated to individual team members	3.1 One's roles and responsibilities in the team 3.2 Feedback giving and receiving 3.3 Performance expectation	3.1 Communication skills 3.2 Accurate empathy 3.3 Congruence 3.4 Unconditional positive regard 3.5 Handling of Feedback
4. Supervise team performance	4.1 Performance is monitored based on defined performance criteria and/or assignment instruction 4.2 Team members are provided with feedback , positive support and advice on strategies to overcome any deficiencies based on company practices 4.3 Performance issues which cannot be rectified or addressed within the team are referred to appropriate personnel according to employer policy	4.1 Performance Coaching 4.2 Performance management 4.3 Performance Issues	4.1 Communication skills required for leading teams 4.2 Coaching skill

RANGE OF VARIABLES

VARIABLE	RANGE
1. Work requirements	May include: 1.1 Client Profile 1.2 Assignment instructions
2. Team member's concerns	May include: 2.1 Roster/shift details
3. Monitor performance	May include: 3.1 Formal process 3.2 Informal process
4. Feedback	May include: 4.1 Formal process 4.2 Informal process
5. Performance issues	May include: 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

<p>1. Critical aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Maintained or improved individuals and/or team performance given a variety of possible scenario</p> <p>1.2 Assessed and monitored team and individual performance against set criteria</p> <p>1.3 Represented concerns of a team and individual to next level of management or appropriate specialist and to negotiate on their behalf</p> <p>1.4 Allocated duties and responsibilities, having regard to individual's knowledge, skills and aptitude and the needs of the tasks to be performed</p> <p>1.5 Set and communicated performance expectations for a range of tasks and duties within the team and provided feedback to team members</p>
<p>2. Resource Implications</p>	<p>The following resources should be provided:</p> <p>2.1 Access to relevant workplace or appropriately simulated environment where assessment can take place</p> <p>2.2 Materials relevant to the proposed activity or task</p>
<p>3. Methods of Assessment</p>	<p>Competency in this unit may be assessed through:</p> <p>3.1 Written Examination</p> <p>3.2 Oral Questioning</p> <p>3.3 Portfolio</p>
<p>4. Context for Assessment</p>	<p>4.1 Competency may be assessed in actual workplace or at the designated TESDA Accredited Assessment Center.</p>

UNIT OF COMPETENCY : APPLY CRITICAL THINKING AND PROBLEM-SOLVING TECHNIQUES IN THE WORKPLACE

UNIT CODE : 400311321

UNIT DESCRIPTOR : This unit 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/s of specific problems in the workplace

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Examine specific workplace challenges	1.1 Variances are examined from normal operating parameters ; and product quality. 1.2 Extent, cause and nature of the specific problem are defined through observation, investigation and analytical techniques . 1.3 Problems are clearly stated and specified.	1.1 Competence includes a thorough knowledge and understanding of the process, normal operating parameters, and product quality to recognize non-standard situations. 1.2 Competence to include the ability to apply and explain, enough for the identification of fundamental causes of specific workplace challenges. 1.3 Relevant equipment and operational processes. 1.4 Enterprise goals, targets and measures. 1.5 Enterprise quality OHS and environmental requirement. 1.6 Enterprise information systems and data collation	1.1 Using range of analytical techniques (e.g., planning, attention, simultaneous and successive processing of information) in examining specific challenges in the workplace. 1.2 Identifying extent and causes of specific challenges in the workplace.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		1.7 Industry codes and standards.	
2. Analyze the causes of specific workplace challenges.	<p>2.1 Possible causes of specific problems are identified based on experience and the use of problem solving tools / analytical techniques.</p> <p>2.2 Possible cause statements are developed based on findings.</p> <p>2.3 Fundamental causes are identified per results of investigation conducted.</p>	<p>2.1 Competence includes a thorough knowledge and understanding of the process, normal operating parameters, and product quality to recognize non-standard situations.</p> <p>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</p> <p>2.3 Relevant equipment and operational processes.</p> <p>2.4 Enterprise goals, targets and measures.</p> <p>2.5 Enterprise quality OSH and environmental requirement.</p> <p>2.6 Enterprise information systems and data collation.</p> <p>2.7 Industry codes and standards.</p>	<p>2.1 Using range of analytical techniques (e.g., planning, attention, simultaneous and successive processing of information) in examining specific challenges in the workplace.</p> <p>2.2 Identifying extent and causes of specific challenges in the workplace.</p> <p>2.3 Providing clear-cut findings on the nature of each identified workplace challenges.</p>
3. Formulate resolutions to specific workplace challenges	3.1 All possible options are considered for resolution of the problem.	3.1 Competence to include the ability to apply and explain, sufficient for the	3.1 Using range of analytical techniques (e.g., planning, attention,

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	<p>3.2 Strengths and weaknesses of possible options are considered.</p> <p>3.3 Corrective actions are determined to resolve the problem and possible future causes.</p> <p>3.4 Action plans are developed identifying measurable objectives, resource needs and timelines in accordance with safety and operating procedures</p>	<p>identification of fundamental cause, determining the corrective action and provision of recommendation</p> <p>3.2 Relevant equipment and operational processes</p> <p>3.3 Enterprise goals, targets and measures</p> <p>3.4 Enterprise quality OSH and environmental requirement</p> <p>3.5 Principles of decision making strategies and techniques</p> <p>3.6 Enterprise information systems and data collation</p> <p>3.7 Industry codes and standards</p>	<p>simultaneous and successive processing of information) in examining specific challenges in the workplace.</p> <p>3.2 Identifying extent and causes of specific challenges in the workplace.</p> <p>3.3 Providing clear-cut findings on the nature of each identified workplace challenges.</p> <p>3.4 Devising, communicating, implementing and evaluating strategies and techniques in addressing specific workplace challenges.</p>
4. Implement action plans and communicate results	<p>4.1 Action plans are implemented and evaluated.</p> <p>4.2 Results of plan implementation and recommendations are prepared.</p> <p>4.3 Recommendations are presented to appropriate personnel.</p> <p>4.4 Recommendations are followed-up, if required.</p>	<p>4.1 Competence to include the ability to apply and explain, sufficient for the identification of fundamental cause, determining the corrective action and provision of recommendation</p> <p>4.2 Relevant equipment and operational processes</p>	<p>4.1 Using range of analytical techniques (e.g., planning, attention, simultaneous and successive processing of information) in examining specific challenges in the workplace.</p> <p>4.2 Identifying extent and causes of specific challenges in the workplace.</p>

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		4.3 Enterprise goals, targets and measures 4.4 Enterprise quality, OSH and environmental requirement 4.5 Principles of decision making strategies and techniques 4.6 Enterprise information systems and data collation 4.7 Industry codes and standards	4.3 Providing clear-cut findings on the nature of each identified workplace challenges. 4.4 Devising, communicating, implementing and evaluating strategies and techniques in addressing specific workplace challenges.

RANGE OF VARIABLES

VARIABLE	RANGE
1. Parameters	May include: 1.1 Processes 1.2 Procedures 1.3 Systems
2. Analytical techniques	May include: 2.1 Brainstorming 2.2 Intuitions/Logic 2.3 Cause and effect diagrams 2.4 Pareto analysis 2.5 SWOT analysis 2.6 Gant chart, Pert CPM and graphs 2.7 Scattergrams
3. Problem	May include: 3.1 Routine, non – routine and complex workplace and quality problems 3.2 Equipment selection, availability and failure 3.3 Teamwork and work allocation problem 3.4 Safety and emergency situations and incidents 3.5 Risk assessment and management
4. Action plans	May include: 4.1 Priority requirements 4.2 Measurable objectives 4.3 Resource requirements 4.4 Timelines 4.5 Co-ordination and feedback requirements 4.6 Safety requirements 4.7 Risk assessment 4.8 Environmental requirements

EVIDENCE GUIDE

1. Critical aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Examined specific workplace challenges.</p> <p>1.2 Analyzed the causes of specific workplace challenges.</p> <p>1.3 Formulated resolutions to specific workplace challenges.</p> <p>1.4 Implemented action plans and communicated results on specific workplace challenges.</p>
2. Resource Implications	<p>2.1 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.</p>
3. Methods of Assessment	<p>Competency in this unit may be assessed through:</p> <p>3.1 Observation</p> <p>3.2 Case Formulation</p> <p>3.3 Life Narrative Inquiry</p> <p>3.4 Standardized test</p>
4. Context for Assessment	<p>4.1 Competency may be assessed in actual workplace or at the designated TESDA Accredited Assessment Center.</p>

UNIT OF COMPETENCY : WORK IN A DIVERSE ENVIRONMENT

UNIT CODE : 400311322

UNIT DESCRIPTOR : This unit covers the outcomes required to work effectively in a workplace characterized by diversity in terms of religions, beliefs, races, ethnicities and other differences.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Develop an individual's cultural awareness and sensitivity	1.1 Individual differences with clients, customers and fellow workers are recognized and respected in accordance with enterprise policies and core values. 1.2 Differences are responded to in a sensitive and considerate manner 1.3 Diversity is accommodated using appropriate verbal and non-verbal communication.	1.1 Understanding cultural diversity in the workplace 1.2 Norms of behavior for interacting and dialogue with specific groups (e. g., Muslims and other non-Christians, non-Catholics, tribes/ethnic groups, foreigners) 1.3 Different methods of verbal and non-verbal communication in a multicultural setting	1.1 Applying cross-cultural communication skills (i.e. different business customs, beliefs, communication strategies) 1.2 Showing affective skills – establishing rapport and empathy, understanding, etc. 1.3 Demonstrating openness and flexibility in communication 1.4 Recognizing diverse groups in the workplace and community as defined by divergent culture, religion, traditions and practices
2. Work effectively in an environment that acknowledges and values cultural diversity	2.1 Knowledge, skills and experiences of others are recognized and documented in relation to team objectives.	2.1 Value of diversity in the economy and society in terms of Workforce development 2.2 Importance of inclusiveness in a diverse environment	2.1 Demonstrating cross-cultural communication skills and active listening 2.2 Recognizing diverse groups in the workplace and community as defined by

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	<p>2.2 Fellow workers are encouraged to utilize and share their specific qualities, skills or backgrounds with other team members and clients to enhance work outcomes.</p> <p>2.3 Relations with customers and clients are maintained to show that diversity is valued by the business.</p>	<p>2.3 Shared vision and understanding of and commitment to team, departmental, and organizational goals and objectives</p> <p>2.4 Strategies for customer service excellence</p>	<p>divergent culture, religion, traditions and practices</p> <p>2.3 Demonstrating collaboration skills</p> <p>2.4 Exhibiting customer service excellence</p>
<p>3. Identify common issues in a multicultural and diverse environment</p>	<p>3.1 <i>Diversity-related conflicts</i> within the workplace are effectively addressed and resolved.</p> <p>3.2 Discriminatory behaviors towards customers/ stakeholders are minimized and addressed accordingly.</p> <p>3.3 Change management policies are in place within the organization.</p>	<p>3.1 Value, and leverage of cultural diversity</p> <p>3.2 Inclusivity and conflict resolution</p> <p>3.3 Workplace harassment</p> <p>3.4 Change management and ways to overcome resistance to change</p> <p>3.5 Advanced strategies for customer service excellence</p>	<p>3.1 Addressing diversity-related conflicts in the workplace</p> <p>3.2 Eliminating discriminatory behavior towards customers and co-workers</p> <p>3.3 Utilizing change management policies in the workplace</p>

RANGE OF VARIABLES

VARIABLE	RANGE
1. Diversity	May include: 1.1 Religion 1.2 Ethnicity, race or nationality 1.3 Culture 1.4 Gender, age or personality 1.5 Educational background
2. Diversity-related conflicts	May include conflicts that result from: 2.1 Discriminatory behaviors 2.2 Differences of cultural practices 2.3 Differences of belief and value systems 2.4 Gender-based violence 2.5 Workplace bullying 2.6 Corporate jealousy 2.7 Language barriers 2.8 Individuals being differently-abled persons 2.9 Ageism (negative attitude and behavior towards old people)

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Adjusted language and behavior as required by interactions with diversity 1.2 Identified and respected individual differences in colleagues, clients and customers 1.3 Applied relevant regulations, standards and codes of practice	
2. Resource Implications	The following resources should be provided: 2.1 Access to workplace and resources 2.2 Manuals and policies on Workplace Diversity	
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Demonstration or simulation with oral questioning 3.2 Group discussions and interactive activities 3.3 Case studies/problems involving workplace diversity issues 3.4 Third-party report 3.5 Written examination 3.6 Role Plays	
4. Context for Assessment	4.1 Competency assessment may occur in workplace or any appropriately simulated environment	

UNIT OF COMPETENCY : PROPOSE METHODS OF APPLYING LEARNING AND INNOVATION IN THE ORGANIZATION

UNIT CODE : 400311323

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to assess general obstacles in the application of learning and innovation in the organization and to propose practical methods of such in addressing organizational challenges.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Assess work procedures, processes and systems in terms of innovative practices	1.1 Reasons for innovation are incorporated to work procedures. 1.2 Models of innovation are researched. 1.3 Gaps or barriers to innovation in one's work area are analyzed. 1.4 Staff who can support and foster innovation in the work procedure are identified.	1.1 Seven habits of highly effective people. 1.2 Character strengths that foster innovation and learning (Christopher Peterson and Martin Seligman, 2004) 1.3 Five minds of the future concepts (Gardner, 2007). 1.4 Adaptation concepts in neuroscience (Merzenich, 2013). 1.5 Transtheoretical model of behavior change (Prochaska, DiClemente, & Norcross, 1992).	1.1 Demonstrating collaboration and networking skills. 1.2 Applying basic research and evaluation skills 1.3 Generating insights on how to improve organizational procedures, processes and systems through innovation.
2. Generate practical action plans for improving work procedures, processes	2.1 Ideas for innovative work procedure to foster innovation using individual and group techniques are conceptualized 2.2 Range of ideas with other team members and colleagues are	2.1 Seven habits of highly effective people. 2.2 Character strengths that foster innovation and learning (Christopher Peterson and Martin Seligman, 2004)	2.1 Assessing readiness for change on simple work procedures, processes and systems. 2.2 Generating insights on how to improve organizational procedures,

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	<p>evaluated and discussed</p> <p>2.3 Work procedures and processes subject to change are selected based on <i>workplace requirements</i> (feasible and innovative).</p> <p>2.4 Practical action plans are proposed to facilitate simple changes in the work procedures, processes and systems.</p> <p>2.5 <i>Critical inquiry</i> is applied and used to facilitate discourse on adjustments in the simple work procedures, processes and systems.</p>	<p>2.3 Five minds of the future concepts (Gardner, 2007).</p> <p>2.4 Adaptation concepts in neuroscience (Merzenich, 2013).</p> <p>2.5 Transtheoretical model of behavior change (Prochaska, DiClemente, & Norcross, 1992).</p>	<p>processes and systems through innovation.</p> <p>2.3 Facilitating action plans on how to apply innovative procedures in the organization.</p>
<p>3. Evaluate the effectiveness of the proposed action plans</p>	<p>3.1 Work structure is analyzed to identify the impact of the new work procedures</p> <p>3.2 Co-workers/key personnel is consulted to know who will be involved with or affected by the work procedure</p> <p>3.3 Work instruction operational plan of the new work procedure is developed and evaluated.</p> <p>3.4 Feedback and suggestion are recorded.</p> <p>3.5 Operational plan is updated.</p> <p>3.6 Results and impact on the developed</p>	<p>3.1 Five minds of the future concepts (Gardner, 2007).</p> <p>3.2 Adaptation concepts in neuroscience (Merzenich, 2013).</p> <p>3.3 Transtheoretical model of behavior change (Prochaska, DiClemente, & Norcross, 1992).</p>	<p>3.1 Generating insights on how to improve organizational procedures, processes and systems through innovation.</p> <p>3.2 Facilitating action plans on how to apply innovative procedures in the organization.</p> <p>3.3 Communicating results of the evaluation of the proposed and implemented changes in the workplace procedures and systems.</p>

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	<p>work instructions are reviewed</p> <p>3.7 Results of the new work procedure are evaluated</p> <p>3.8 Adjustments are recommended based on results gathered</p>		<p>3.4 Developing action plans for continuous improvement on the basic systems, processes and procedures in the organization.</p>

RANGE OF VARIABLES

VARIABLE	RANGE
1. Reasons	May include: 1.1 Strengths and weaknesses of the current systems, processes and procedures. 1.2 Opportunities and threats of the current systems, processes and procedures.
2. Models of innovation	May include: 2.1 Seven habits of highly effective people. 2.2 Five minds of the future concepts (Gardner, 2007). 2.3 Neuroplasticity and adaptation strategies.
3. Gaps or barriers	May include: 3.1 Machine 3.2 Manpower 3.3 Methods 3.4 Money
4. Critical Inquiry	May include: 4.1 Preparation. 4.2 Discussion. 4.3 Clarification of goals. 4.4 Negotiate towards a Win-Win outcome. 4.5 Agreement. 4.6 Implementation of a course of action. 4.7 Effective verbal communication. See our pages: Verbal Communication and Effective Speaking. 4.8 Listening. 4.9 Reducing misunderstandings is a key part of effective negotiation. 4.10 Rapport Building. 4.11 Problem Solving. 4.12 Decision Making. 4.13 Assertiveness. 4.14 Dealing with Difficult Situations.

EVIDENCE GUIDE

<p>1. Critical aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Established the reasons why innovative systems are required</p> <p>1.2 Established the goals of a new innovative system</p> <p>1.3 Analyzed current organizational systems to identify gaps and barriers to innovation.</p> <p>1.4 Assessed work procedures, processes and systems in terms of innovative practices.</p> <p>1.5 Generate practical action plans for improving work procedures, and processes.</p> <p>1.6 Reviewed the trial innovative work system and adjusted reflect evaluation feedback, knowledge management systems and future planning.</p> <p>1.7 Evaluated the effectiveness of the proposed action plans.</p>
<p>2. Resource Implications</p>	<p>The following resources should be provided:</p> <p>2.1 Pens, papers and writing implements.</p> <p>2.2 Cartolina.</p> <p>2.3 Manila papers.</p>
<p>3. Methods of Assessment</p>	<p>Competency in this unit may be assessed through:</p> <p>3.1 Psychological and behavioral Interviews.</p> <p>3.2 Performance Evaluation.</p> <p>3.3 Life Narrative Inquiry.</p> <p>3.4 Review of portfolios of evidence and third-party workplace reports of on-the-job performance.</p> <p>3.5 Sensitivity analysis.</p> <p>3.6 Organizational analysis.</p> <p>3.7 Standardized assessment of character strengths and virtues applied.</p>
<p>4. Context for Assessment</p>	<p>4.1 Competency may be assessed individually in the actual workplace or simulation environment in TESDA accredited institutions.</p>

UNIT OF COMPETENCY : USE INFORMATION SYSTEMATICALLY

UNIT CODE : 400311324

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to use technical information systems, apply information technology (IT) systems and edit, format & check information.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Use technical information	1.1 Information are collated and organized into a suitable form for reference and use 1.2 Stored information are classified so that it can be quickly identified and retrieved when needed 1.3 Guidance are advised and offered to people who need to find and use information	1.1 Application in collating information 1.2 Procedures for inputting, maintaining and archiving information 1.3 Guidance to people who need to find and use information 1.4 Organize information 1.5 Classify stored information for identification and retrieval 1.6 Operate the technical information system by using agreed procedures	1.1 Collating information 1.2 Operating appropriate and valid procedures for inputting, maintaining and archiving information 1.3 Advising and offering guidance to people who need to find and use information 1.4 Organizing information into a suitable form for reference and use 1.5 Classifying stored information for identification and retrieval 1.6 Operating the technical information system by using agreed procedures
2. Apply information technology (IT)	2.1 Technical information system is operated using agreed procedures 2.2 Appropriate and valid procedures are operated for	3.1 Attributes and limitations of available software tools 3.2 Procedures and work instructions for the use of IT	3.1 Identifying attributes and limitations of available software tools 3.2 Using procedures and

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	<p>inputting, maintaining and archiving information</p> <p>2.3 Software required are utilized to execute the project activities</p> <p>2.4 Information and data obtained are handled, edited, formatted and checked from a range of internal and external sources</p> <p>2.5 Information are extracted, entered, and processed to produce the outputs required by customers</p> <p>2.6 Own skills and understanding are shared to help others</p> <p>2.7 Specified security measures are implemented to protect the confidentiality and integrity of project data held in IT systems</p>	<p>3.3 Operational requirements for IT systems</p> <p>3.4 Sources and flow paths of data</p> <p>3.5 Security systems and measures that can be used</p> <p>3.6 Extract data and format reports</p> <p>3.7 Methods of entering and processing information</p> <p>3.8 WWW enabled applications</p>	<p>work instructions for the use of IT</p> <p>3.3 Describing operational requirements for IT systems</p> <p>3.4 Identifying sources and flow paths of data</p> <p>3.5 Determining security systems and measures that can be used</p> <p>3.6 Extracting data and format reports</p> <p>3.7 Describing methods of entering and processing information</p> <p>3.8 Using WWW applications</p>
3. Edit, format and check information	<p>3.1 Basic editing techniques are used</p> <p>3.2 Accuracy of documents are checked</p> <p>3.3 Editing and formatting tools and techniques are used for more complex documents</p> <p>3.4 Proof reading techniques is used to check that</p>	<p>3.1 Basic file-handling techniques</p> <p>3.2 Techniques in checking documents</p> <p>3.3 Techniques in editing and formatting</p> <p>3.4 Proof reading techniques</p>	<p>3.1 Using basic file-handling techniques is used for the software</p> <p>3.2 Using different techniques in checking documents</p> <p>3.3 Applying editing and formatting techniques</p> <p>3.4 Applying proof reading techniques</p>

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	documents look professional		

RANGE OF VARIABLES

VARIABLE	RANGE
1. Information	May include: 1.1 Property 1.2 Organizational 1.3 Technical reference
2. Technical information	May include: 2.1 paper based 2.2 electronic
3. Software	May include: 3.1 Spreadsheets 3.2 Databases 3.3 word processing 3.4 presentation
4. Sources	May include: 4.1 other IT systems 4.2 manually created 4.3 within own organization 4.4 outside own organization 4.5 geographically remote
5. Customers	May include: 5.1 Colleagues 5.2 company and project management 5.3 clients
6. Security measures	May include: 6.1 access rights to input; 6.2 passwords; 6.3 access rights to outputs; 6.4 data consistency and back-up; 6.5 recovery plans

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Used technical information systems and information technology 1.2 Applied information technology (IT) systems 1.3 Edited, formatted and checked information
2. Resource Implications	The following resources should be provided: 2.1 Computers 2.2 Software and IT system
3. Methods of Assessment	Competency in this unit should be assessed through: 3.1 Direct Observation 3.2 Oral interview 3.3 Written test
4. Context for Assessment	4.1. Competency may be assessed individually in the actual workplace or through accredited institution

UNIT OF COMPETENCY : EVALUATE OCCUPATIONAL SAFETY AND HEALTH WORK PRACTICES

UNIT CODE : 400311325

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to interpret Occupational Safety and Health practices, set OSH work targets, and evaluate effectiveness of Occupational Safety and Health work instructions

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Interpret Occupational Safety and Health practices	1.1 OSH work practices issues are identified relevant to work requirements 1.2 OSH work standards and procedures are determined based on applicability to nature of work 1.3 Gaps in work practices are identified related to relevant OSH work standards	1.1 OSH work practices issues 1.2 OSH work standards 1.3 General OSH principles and legislations 1.4 Company/ workplace policies/ guidelines 1.5 Standards and safety requirements of work process and procedures	1.1 Communication skills 1.2 Interpersonal skills 1.3 Critical thinking skills 1.4 Observation skills
2. Set OSH work targets	2.1 Relevant work information are gathered necessary to determine OSH work targets 2.2 OSH Indicators based on gathered information are agreed upon to measure effectiveness of workplace OSH policies and procedures 2.3 Agreed OSH indicators are endorsed for approval from appropriate personnel	2.1 OSH work targets 2.2 OSH Indicators 2.3 OSH work instructions 2.4 Safety and health requirements of tasks 2.5 Workplace guidelines on providing feedback on OSH and security concerns 2.6 OSH regulations Hazard control procedures 2.7 OSH trainings relevant to work	2.1 Communication skills 2.2 Collaborating skills 2.3 Critical thinking skills 2.4 Observation skills

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	2.4 OSH work instructions are received in accordance with workplace policies and procedures*		
3. Evaluate effectiveness of Occupational Safety and Health work instructions	3.1 OSH Practices are observed based on workplace standards 3.2 Observed OSH practices are measured against approved OSH metrics 3.3 Findings regarding effectiveness are assessed and gaps identified are implemented based on OSH work standards	3.1 OSH Practices 3.2 OSH metrics 3.3 OSH Evaluation Techniques 3.4 OSH work standards	3.1 Critical thinking skills 3.2 Evaluating skills

RANGE OF VARIABLES

VARIABLE	RANGE
4. OSH Work Practices Issues	May include: 3.1 Workers' experience/observance on presence of work hazards 3.1 Unsafe/unhealthy administrative arrangements (prolonged work hours, no break-time, constant overtime, scheduling of tasks) 3.1 Reasons for compliance/non-compliance to use of PPEs or other OSH procedures/policies/ guidelines
4. OSH Indicators	May include: 3.1 Increased of incidents of accidents, injuries 3.1 Increased occurrence of sickness or health complaints/symptoms 3.1 Common complaints of workers' related to OSH 3.1 High absenteeism for work-related reasons
3. OSH Work Instructions	May include: 3.1 Preventive and control measures, and targets 3.2 Eliminate the hazard (i.e., get rid of the dangerous machine) 3.3 Isolate the hazard (i.e. keep the machine in a closed room and operate it remotely; barricade an unsafe area off) 3.4 Substitute the hazard with a safer alternative (i.e., replace the machine with a safer one) 3.5 Use administrative controls to reduce the risk (i.e. give trainings on how to use equipment safely; OSH-related topics, issue warning signages, rotation/shifting work schedule) 3.6 Use engineering controls to reduce the risk (i.e. use safety guards to machine) 3.7 Use personal protective equipment 3.8 Safety, Health and Work Environment Evaluation 3.9 Periodic and/or special medical examinations of workers
4. OSH metrics	May include: 4.1 Statistics on incidence of accident and injuries 4.2 Morbidity (Type and Number of Sickness) 4.3 Mortality (Cause and Number of Deaths) 4.4 Accident Rate

EVIDENCE GUIDE

<p>1. Critical aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Identify OSH work practices issues relevant to work requirements</p> <p>1.2 Identify gaps in work practices related to relevant OSH work standards</p> <p>1.3 Agree upon OSH Indicators based on gathered information to measure effectiveness of workplace OSH policies and procedures</p> <p>1.4 Receive OSH work instructions in accordance with workplace policies and procedures</p> <p>1.5 Compare Observed OSH practices with against approved OSH work instructions</p> <p>1.6 Assess findings regarding effectiveness based on OSH work standards</p>
<p>2. Resource Implications</p>	<p>The following resources should be provided:</p> <p>2.1 Facilities, materials, tools and equipment necessary for the activity</p>
<p>3. Methods of Assessment</p>	<p>Competency in this unit may be assessed through:</p> <p>3.1 Observation/Demonstration with oral questioning</p> <p>3.2 Third party report</p> <p>3.3 Written exam</p>
<p>4. Context for Assessment</p>	<p>4.1 Competency may be assessed in the work place or in a simulated work place setting</p>

UNIT OF COMPETENCY : EVALUATE ENVIRONMENTAL WORK PRACTICES

UNIT CODE : 400311326

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitude to interpret environmental Issues, establish targets to evaluate environmental practices and evaluate effectiveness of environmental practices

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
3. Interpret environmental practices, policies and procedures	1.1 Environmental work practices issues are identified relevant to work requirements 1.2 Environmental Standards and Procedures nature of work are determined based on Applicability to nature of work 1.3 Gaps in work practices related to Environmental Standards and Procedures are identified	1.1 Environmental Issues 1.2 Environmental Work Procedures 1.3 Environmental Laws 1.4 Environmental Hazardous and Non-Hazardous Materials 1.5 Environmental required license, registration or certification	1.1 Analyzing Environmental Issues and Concerns 1.2 Critical thinking 1.3 Problem Solving 1.4 Observation Skills
2. Establish targets to evaluate environmental practices	2.1 Relevant information are gathered necessary to determine environmental work targets 2.2 Environmental Indicators based on gathered information are set to measure environmental work targets 2.3 Indicators are verified with appropriate personnel	2.1 Environmental Indicators 2.2 Relevant Environment Personnel or expert 2.3 Relevant Environmental Trainings and Seminars	2.1 Investigative Skills 2.2 Critical thinking 2.3 Problem Solving 2.4 Observation Skills
3. Evaluate effectiveness of	3.1 Work environmental practices are	3.1 Environmental Practices	3.1 Documentation and Record Keeping Skills

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
environmental practices	<p>recorded based on workplace standards</p> <p>3.2 Recorded work environmental practices are compared against planned indicators</p> <p>3.3 Findings regarding effectiveness are assessed and gaps identified are implemented based on environment work standards and procedures</p> <p>3.4 Results of environmental assessment are conveyed to appropriate personnel</p>	3.2 Environmental Standards and Procedures	<p>3.2 Critical thinking</p> <p>3.3 Problem Solving</p> <p>3.4 Observation Skills</p>

RANGE OF VARIABLES

VARIABLE	RANGE
1. Environmental Practices Issues	May include: 1.1 Water Quality 1.2 National and Local Government Issues 1.3 Safety 1.4 Endangered Species 1.5 Noise 1.6 Air Quality 1.7 Historic 1.8 Waste 1.9 Cultural
2. Environmental Indicators	May include: 2.1 Noise level 2.2 Lighting (Lumens) 2.3 Air Quality – Toxicity 2.4 Thermal Comfort 2.5 Vibration 2.6 Radiation 2.7 Quantity of the Resources 2.8 Volume

EVIDENCE GUIDE

<p>1. Critical aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Identified environmental issues relevant to work requirements</p> <p>1.2 Identified gaps in work practices related to Environmental Standards and Procedures</p> <p>1.3 Gathered relevant information necessary to determine environmental work targets</p> <p>1.4 Set environmental indicators based on gathered information to measure environmental work targets</p> <p>1.5 Recorded work environmental practices are recorded based on workplace standards</p> <p>1.6 Conveyed results of environmental assessment to appropriate personnel</p>
<p>2. Resource Implications</p>	<p>The following resources should be provided:</p> <p>2.1 Workplace/Assessment location</p> <p>2.2 Legislation, policies, procedures, protocols and local ordinances relating to environmental protection</p> <p>2.3 Case studies/scenarios relating to environmental protection</p>
<p>3. Methods of Assessment</p>	<p>Competency in this unit may be assessed through:</p> <p>3.1 Written/ Oral Examination</p> <p>3.2 Interview/Third Party Reports</p> <p>3.3 Portfolio (citations/awards from GOs and NGOs, certificate of training – local and abroad)</p> <p>3.4 Simulations and role-plays</p>
<p>4. Context for Assessment</p>	<p>4.1 Competency may be assessed in actual workplace or at the designated TESDA center.</p>

UNIT OF COMPETENCY : FACILITATE ENTREPRENEURIAL SKILLS FOR MICRO-SMALL-MEDIUM ENTERPRISES (MSMEs)

UNIT CODE : 400311327

UNIT DESCRIPTOR : This unit covers the outcomes required to build, operate and grow a micro/small-scale enterprise.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Develop and maintain micro-small-medium enterprise (MSMEs) skills in the organization	1.1 Appropriate business strategies are determined and set for the enterprise based on current and emerging business environment. 1.2 Business operations are monitored and controlled following established procedures. 1.3 Quality assurance measures are implemented consistently. 1.4 Good relations are maintained with staff/workers. 1.5 Policies and procedures on occupational safety and health and environmental concerns are constantly observed.	1.1 Business models and strategies 1.2 Types and categories of businesses 1.3 Business operation 1.4 Basic Bookkeeping 1.5 Business internal controls 1.6 Basic quality control and assurance concepts 1.7 Government and regulatory processes	1.1 Basic bookkeeping/ accounting skills 1.2 Communication skills 1.3 Building relations with customer and employees 1.4 Building competitive advantage of the enterprise
2. Establish and maintain client-base/market	2.1 Good customer relations are maintained 2.2 New customers and markets are identified, explored and reached out to.	2.1 Public relations concepts 2.2 Basic product promotion strategies 2.3 Basic market and feasibility studies 2.4 Basic business ethics	2.1 Building customer relations 2.2 Individual marketing skills 2.3 Using basic advertising (posters/ tarpaulins, flyers,

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	2.3 Promotions/ Incentives are offered to loyal customers 2.4 Additional products and services are evaluated and tried where feasible. 2.5 Promotional /advertising initiatives are carried out where necessary and feasible.		social media, etc.)
3. Apply budgeting and financial management skills	3.1 Enterprise is built up and sustained through judicious control of cash flows. 3.2 Profitability of enterprise is ensured through appropriate internal controls . 3.3 Unnecessary or lower- priority expenses and purchases are avoided.	3.1 Cash flow management 3.2 Basic financial management 3.3 Basic financial accounting 3.4 Business internal controls	3.1 Setting business priorities and strategies 3.2 Interpreting basic financial statements 3.3 Preparing business plans

RANGE OF VARIABLES

VARIABLE	RANGE
1. Business strategies	May include: 1.1 Developing/Maintaining niche market 1.2 Use of organic/healthy ingredients 1.3 Environment-friendly and sustainable practices 1.4 Offering both affordable and high-quality products and services 1.5 Promotion and marketing strategies (e. g., on-line marketing)
2. Business operations	May include: 2.1 Purchasing 2.2 Accounting/Administrative work 2.3 Production/Operations/Sales
3. Internal controls	May include: 3.1 Accounting systems 3.2 Financial statements/reports 3.3 Cash management
4. Promotional/Advertising initiatives	May include: 4.1 Use of tarpaulins, brochures, and/or flyers 4.2 Sales, discounts and easy payment terms 4.3 Use of social media/Internet 4.4 "Service with a smile" 4.5 Extra attention to regular customers

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate : 1.1 Demonstrated basic entrepreneurial skills 1.2 Demonstrated ability to conceptualize and plan a micro/small enterprise 1.3 Demonstrated ability to manage/operate a micro/small-scale business
2. Resource Implications	The following resources should be provided: 2.1 Simulated or actual workplace 2.2 Tools, materials and supplies needed to demonstrate the required tasks 2.3 References and manuals
3. Methods of Assessment	Competency in this unit may be assessed through : 3.1 Written examination 3.2 Demonstration/observation with oral questioning 3.3 Portfolio assessment with interview 3.4 Case problems
4. Context for Assessment	4.1 Competency may be assessed in actual workplace or at the designated TESDA center.

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 in various workplace settings

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify materials	1.1 Materials are identified as per job requirements 1.2 Quantity and <i>description of materials and tools</i> conform with the job requirements 1.3 Tools and accessories are identified according to job requirements	1.1 Different work specifications 1.2 Types and uses of carpentry tools and accessories	1.1 Identifying tools and accessories according to the job requirements
2. Prepare requisition of materials	2.1 <i>Materials and tools</i> needed are requested according to the identified requirements 2.2 Request is done as per <i>company standard operating procedures (SOP)</i> 2.3 Substitute materials and tools are provided without sacrificing cost and quality of work	2.1 Work requirements 2.2 Types and uses of carpentry tools and accessories 2.3 Material take-off 2.4 Requisition procedures	2.1 Preparing material take-off 2.2 Requesting materials and tools
3. Receive and inspect materials	3.1 Materials and tools issued are inspected as per quantity and specification	3.1 Policy on receiving material deliveries 3.2 Material and tools quality and defects	3.1 Checking and inspecting materials and tools

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	3.2 Tools, accessories and materials are checked 3.3 Materials and tools are set aside to appropriate location	3.3 Material handling	3.2 Storing/ stacking of tool and materials

RANGE OF VARIABLES

VARIABLE	RANGE
1. Description of materials and tools	May include: 1.1 Brand name 1.2 Size 1.3 Capacity 1.4 Kind of application
2. Tools and accessories	May include: 2.1 Electrical supplies 2.2 Mechanical supplies 2.3 Cleaning supplies
3. Company standard operating procedures	May include: 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 Provided tools with safety devices
2. Resource Implications	The following resources should be provided: 2.1 Workplace location 2.2 Materials relevant to the unit of competency 2.3 Plans, drawings and specifications relevant to the activities
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Direct observation/Demonstration with oral questioning
4. Context for Assessment	4.1 Competency may be assessed in actual workplace or at the designated TESDA Accredited Assessment Center

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 <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
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	1.1 Types of manuals used in carpentry 1.2 Identification of symbols used in the manuals	1.1 Identifying manuals and specifications 1.2 Accessing information and data
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	2.1 Types of manuals used in carpentry 2.2 Types of symbols used in manuals 2.3 System of measurements 2.4 Unit conversion	2.1 Interpreting symbols and specifications 2.2 Accessing information and data 2.3 Applying conversion of units of measurements
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	3.1 Types of manuals used in carpentry 3.2 Types and application of symbols in manuals 3.3 Unit conversion	3.1 Applying information from manuals

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	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	4.1 Types of manuals used in carpentry 4.2 Manual storing and maintaining procedures	4.1 Storing and maintaining manuals

RANGE OF VARIABLES

VARIABLE	RANGE
1. Manual	May include: 1.1 Manufacturer's Specification Manual 1.2 Maintenance Procedure Manual 1.3 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. Resource Implications	The following resources should be provided: 2.1 All manuals/catalogues relative to construction sector
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Direct observation/Demonstration with Oral Questioning
4. Context for Assessment	4.1 Competency may be assessed in actual workplace or at the designated TESDA Accredited Assessment Center

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.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Analyze signs, symbols and data	1.1 Signs, symbols and data are identified according to job specifications 1.2 Signs, symbols and data are determined according to site regulations	1.1 Signs and symbols 1.2 Rules and regulations	1.1 Interpreting working drawing
2. Interpret drawings and plans	2.1 Necessary tools and materials are identified according to the work 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	2.1 Systems of measurement 2.2 Linear measurement 2.3 Dimension 2.4 Unit conversion	2.2 Interpreting drawing 2.2 Matching specification details with existing resources

RANGE OF VARIABLES

VARIABLE	RANGE
1. Signs and symbols	May include: 1.1 Speed limit 1.2 Direction/Road 1.3 Warnings
2. Site regulations	May include: 2.1 Instructions 2.2 Signages 2.3 Work schedules 2.4 Work bulletin boards 2.5 Charts 2.6 Memos 2.7 Site Map 2.8 Emergency response plan 2.9 Permits
3. Tools and materials	May include: 3.1 Rulers 3.2 Protractor 3.3 Steel tape 3.4 Calculator 3.5 Pen Marker/ Pencil/Chalk stone
4. Work plan	May include: 4.1 Job requirements 4.2 Installation instructions 4.3 Components instruction

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 and job requirements 1.2 Identified tools and materials in accordance with job requirements 1.3 Demonstrated ability to determine job specifications based on working drawing
2. Resource Implications	The following resources should be provided: 2.1 Workplace 2.2 Drawings and specification relevant to task 2.3 Materials and instrument relevant to proposed activity
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Direct observation/Demonstration with Oral Questioning 3.2 Written Examination
4. Context for Assessment	4.1 Competency may be assessed in actual workplace or at the designated TESDA Accredited Assessment Center.

CORE COMPETENCIES

UNIT OF COMPETENCY : **PERFORM WATERPROOFING PREPARATION WORK**

UNIT CODE : **CS-CON712301**

UNIT DESCRIPTOR : This unit covers the knowledge, skills, and attitudes required to perform waterproofing preparation works. It includes preparing work areas for waterproofing activities, inspecting substrate surface prior to waterproofing, and applying surface preparation techniques.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Prepare work area for waterproofing activities	1.1 Work area is cleared based on work requirements . 1.2 Hazardous materials are removed in accordance with safety procedures . 1.3 Surrounding areas are protected following site protection standards . 1.4 Tools and equipment are checked based on operational requirements . 1.5 Materials are organized according to job specifications.	SCIENCE 1.1 Basic properties of construction site hazards TECHNOLOGY 1.2 Types of tools used in waterproofing 1.3 Functions of basic waterproofing equipment MATHEMATICS 1.4 Estimating work area dimensions COMMUNICATIONS 1.5 Understanding job orders and site plans ENVIRONMENTAL CONCERNS 1.6 Handling hazardous materials 1.7 Waste disposal procedures	1.1 Clearing obstacles from work area 1.2 Removing waste and debris 1.3 Organizing tools and materials 1.4 Identifying safety hazards 1.5 Positioning protection barriers 1.6 Checking operational condition of equipment 1.7 Following safety signage 1.8 Labelling hazardous substances
2. Inspect substrate surface prior to waterproofing	2.1 Substrate condition is assessed according to technical specifications.	SCIENCE 2.1 Moisture behavior on different surfaces	2.1 Assessing substrate integrity 2.2 Identifying cracks and surface defects

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	2.2 Cracks and defects are identified based on visual inspection. 2.3 Moisture levels are checked in accordance with manufacturer's guidelines. 2.4 Surface cleanliness is verified following industry standards.	2.2 Structural surface conditions TECHNOLOGY 2.3 Tools for surface inspection 2.4 Methods for moisture detection MATHEMATICS 2.5 Measuring substrate area COMMUNICATION 2.6 Reducing water leakage impact on environment ENVIRONMENTAL CONCERNS 2.7 Avoiding runoff from excess material 2.8 Controlling dust or fumes from application equipment 2.9 Managing container waste and residue	2.3 Measuring moisture content 2.4 Using inspection tools 2.5 Cleaning surface contaminants 2.6 Comparing against specifications 2.7 Reporting findings clearly
3. Apply surface preparation techniques	3.1 Surface is cleaned according to type of material. 3.2 Priming materials are applied following application procedures. 3.3 Loose particles are removed based on cleaning standards. 3.4 Required drying time is observed according to manufacturer's specifications.	SCIENCE 3.1 Surface adhesion principles 3.2 Chemical interaction of primers TECHNOLOGY 3.3 Equipment for surface cleaning 3.4 Application methods for primers MATHEMATICS 3.5 Calculating primer coverage COMMUNICATIONS 3.6 Following written instructions on primer use	3.1 Cleaning different surface types 3.2 Applying primers evenly 3.3 Removing loose and foreign particles 3.4 Observing drying intervals 3.5 Using cleaning equipment properly 3.6 Handling primers with care 3.7 Ensuring area ventilation 3.8 Monitoring surface readiness

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		ENVIRONMENTAL CONCERNS 3.7 Managing dust and chemical emissions during preparation	

RANGE OF VARIABLES

VARIABLE	RANGE
1. Work requirements	May include: 1.1 Scope of waterproofing activity 1.2 Site conditions and layout 1.3 Job specifications and priorities 1.4 Timelines and sequencing of work
2. Hazardous materials	May include: 2.1 Sharp or protruding debris 2.2 Leftover sealants or adhesives 2.3 Combustible substances 2.4 Unsecured chemical containers
3. Safety procedures	May include: 3.1 Use of personal protective equipment (PPE) 3.2 Proper material handling and lifting techniques 3.3 Placement of safety signs and barriers 3.4 Spill response and containment methods
4. Surrounding areas	May include: 4.1 Adjacent rooms or zones 4.2 Landscaped or finished spaces 4.3 Occupied areas or traffic zones 4.4 Vulnerable fixtures or surfaces
5. Site protection standards	May include: 5.1 Use of drop sheets or floor coverings 5.2 Masking or taping boundary edges 5.3 Installation of barricades or cones 5.4 Hoarding or temporary enclosures
6. Tools and equipment	May include: 6.1 Sealant guns and rollers 6.2 Utility knives and cutting tools 6.3 Brushes, buckets, sprayers 6.4 Measuring tapes and levels
7. Operational requirements	May include: 7.1 Cleanliness and functionality of tools 7.2 Calibration and readiness for use 7.3 Compatibility with materials to be applied 7.4 Safety inspection before deployment
8. Materials	May include: 8.1 Waterproofing membranes or sheets 8.2 Primers and coatings 8.3 Adhesives and tapes 8.4 Sealants and bonding agents
9. Substrate condition	May include: 9.1 Smoothness or roughness 9.2 Presence of contaminants or laitance 9.3 Cracks, holes, or separation 9.4 Structural soundness and stability

VARIABLE	RANGE
10. Cracks and defects	May include: 10.1 Expansion and shrinkage cracks 10.2 Delaminated surfaces 10.3 Surface blistering or pitting 10.4 Undulations or uneven finishes
11. Moisture levels	May include: 11.1 Surface dampness 11.2 Subsurface water presence 11.3 Relative humidity content 11.4 Measurement using meters or indicators
12. Surface cleanliness	May include: 12.1 Absence of dust, grease, or oil 12.2 Removal of old adhesives or paint 12.3 Debris-free and dry surfaces 12.4 Compliant with required surface finish
13. Surface	May include: 13.1 Concrete or cementitious substrates 13.2 Masonry blocks or bricks 13.3 Metals and steel surfaces 13.4 Wood or gypsum board panels
14. Priming materials	May include: 14.1 Bituminous primers 14.2 Epoxy-based bonding agents 14.3 Acrylic or polyurethane primers 14.4 Water-based or solvent-based primers
15. Loose particles	May include: 15.1 Dust and surface laitance 15.2 Sand, grit, or foreign debris 15.3 Rust or corrosion flakes 15.4 Peeling paint or coatings
16. Drying time	May include: 16.1 Manufacturer-recommended intervals 16.2 Time based on ambient temperature and humidity 16.3 Minimum recoat time\ 16.4 Curing time before membrane application

EVIDENCE GUIDE

<p>1. Critical Aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Prepared work area for waterproofing activities</p> <ul style="list-style-type: none"> 1.1.1 Cleared work area 1.1.2 Removed hazardous materials 1.1.3 Protected surrounding areas 1.1.4 Checked tools and equipment 1.1.5 Organized materials <p>1.2 Inspected substrate surface prior to waterproofing</p> <ul style="list-style-type: none"> 1.2.1 Assessed substrate condition 1.2.2 Identified cracks and defects 1.2.3 Check moisture levels 1.2.4 Verified surface cleanliness <p>1.3 Applied surface preparation techniques</p> <ul style="list-style-type: none"> 1.3.1 Cleaned surface 1.3.2 Applied priming material 1.3.3 Removed loose particles 1.3.4 Observed required drying time
<p>2. Resource Implications</p>	<p>The following resources should be provided:</p> <ul style="list-style-type: none"> 2.1 Actual or simulated work site with substrate areas for preparation 2.2 Full set of tools and equipment (manual and powered) 2.3 Personal protective equipment (PPE) 2.4 Waterproofing materials including primers and membranes 2.5 Substrate samples (concrete, metal, wood) for inspection 2.6 Manufacturer's specifications and site layout plans
<p>3. Methods of Assessment</p>	<p>Competency in this unit may be assessed through:</p> <ul style="list-style-type: none"> 3.1 Demonstration with questioning 3.2 Observation with questioning 3.3 Interview/Oral questioning 3.4 Written Test 3.5 Portfolio Assessment
<p>4. Context for Assessment</p>	<p>4.1 Competency may be assessed in the actual workplace or at the designated TESDA Accredited Assessment Center.</p>

UNIT OF COMPETENCY : INSTALL SHEET WATERPROOFING MATERIALS

UNIT CODE : CS-CON712302

UNIT DESCRIPTOR : This unit covers the knowledge, skills, and attitudes required to install sheet waterproofing materials. This included preparing sheet waterproofing materials, installing sheet waterproofing membranes and applying finishing and detailing.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Prepare sheet waterproofing materials	1.1 Sheet materials are selected based on job requirements. 1.2 Materials are inspected in accordance with quality standards. 1.3 Cutting tools are prepared according to material type. 1.4 Materials are measured based on layout plans . 1.5 Materials are cut based on layout plans.	SCIENCE 1.1 Characteristics of waterproofing membranes TECHNOLOGY 1.2 Tools and equipment for cutting and handling membranes MATHEMATICS 1.3 Calculating lengths, overlaps, and quantities COMMUNICATION 1.4 Interpreting material specifications ENVIRONMENTAL CONCERNS 1.5 Safe disposal of off-cuts and damaged materials	1.1 Selecting appropriate membranes 1.2 Measuring sheets accurately 1.3 Cutting membranes according to layout 1.4 Inspecting material for defects 1.5 Preparing layout references 1.6 Organizing cut pieces for installation 1.7 Maintaining tools in cutting condition
2. Install sheet waterproofing membranes	2.1 Sheets are positioned following installation layout . 2.2 Overlaps are aligned according to manufacturer's specifications. 2.3 Seams are bonded in accordance with	SCIENCE 2.1 Behavior of membranes during bonding and pressing TECHNOLOGY 2.2 Equipment used for heating and applying membranes	2.1 Aligning sheets with layout 2.2 Bonding seams with precision 2.3 Pressing membranes evenly 2.4 Heating seams consistently 2.5 Verifying membrane alignment

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	<p><i>bonding techniques.</i></p> <p>2.4 Membranes are pressed firmly based on <i>application requirements.</i></p> <p>2.5 Installed membranes are checked for defects following <i>inspection protocols.</i></p>	<p>MATHEMATICS</p> <p>2.3 Determining overlap width and bond coverage</p> <p>COMMUNICATION</p> <p>2.4 Understanding layout instructions</p> <p>ENVIRONMENTAL CONCERNS</p> <p>2.5 Managing fumes or heat from bonding tools</p>	<p>2.6 Detecting installation flaws</p> <p>2.7 Adjusting sheets as needed</p>
3. Apply finishing and detailing	<p>3.1 <i>Corners and joints</i> are sealed according to detail specifications.</p> <p>3.2 <i>Edges</i> are trimmed in accordance with aesthetic requirements.</p> <p>3.3 <i>Drainage points</i> are incorporated following waterproofing design.</p>	<p>SCIENCE</p> <p>3.1 Waterproofing behavior at joints and edges</p> <p>TECHNOLOGY</p> <p>3.2 Tools for sealing and trimming edges</p> <p>MATHEMATICS</p> <p>3.3 Measuring for uniform finishes</p> <p>COMMUNICATION</p> <p>3.4 Understanding detailing instructions</p> <p>ENVIRONMENTAL CONCERNS</p> <p>3.5 Preventing water ingress in detailed areas</p>	<p>3.1 Sealing corners and laps</p> <p>3.2 Trimming excess material cleanly</p> <p>3.3 Embedding membranes at drainage</p> <p>3.4 Aligning edges with walls or structures</p> <p>3.5 Following detailing drawings</p> <p>3.6 Smoothing final finish</p>

RANGE OF VARIABLES

VARIABLE	RANGE
1. Sheet materials	May include: 1.1 torch-on membrane 1.2 self-adhesive membrane
2. Materials	May include: 2.1 waterproofing membranes 2.2 insulation materials 2.3 vapor barriers
3. Cutting tools	May include: 3.1 utility knife 3.2 Scissors 3.3 shears
4. Layout plans	May include: 4.1 floor plan 4.2 detail drawings 4.3 section details
5. Installation layout	May include: 5.1 floor plan 5.2 membrane layout drawing 5.3 alignment reference marks
6. Overlaps	May include: 6.1 side laps 6.2 end laps 6.3 T-joints
7. Bonding techniques	May include: 7.1 torch application 7.2 hot-air welding 7.3 self-adhesive backing
8. Application requirements	May include: 8.1 specified pressure 8.2 even adhesion 8.3 full surface contact
9. Inspection protocols	May include: 9.1 visual inspection 9.2 probe test 9.3 seam inspection checklist
10. Corners and joints	May include: 10.1 internal corner 10.2 external corner 10.3 pipe penetration
11. Edges	May include: 11.1 wall junctions 11.2 terminations 11.3 upturns

VARIABLE	RANGE
12. Drainage points	May include: 12.1 roof drain 12.2 scupper 12.3 gutter outlet

EVIDENCE GUIDE

<p>1. Critical Aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Prepared sheet waterproofing materials</p> <p> 1.1.1 Selected sheet materials</p> <p> 1.1.2 Inspected materials</p> <p> 1.1.3 Prepared cutting tools</p> <p> 1.1.4 Measured materials</p> <p> 1.1.5 Cut materials</p> <p>1.2 Installed sheet waterproofing membranes</p> <p> 1.2.1 Positioned sheets</p> <p> 1.2.2 Aligned overlaps</p> <p> 1.2.3 Bonded seams</p> <p> 1.2.4 Pressed membranes</p> <p> 1.2.5 Checked installed membranes</p> <p>1.3 Applied finishing and detailing</p> <p> 1.3.1 Sealed corners and joints</p> <p> 1.3.2 Trimmed Edges</p> <p> 1.3.3 Incorporated drainage points</p>
<p>2. Resource Implications</p>	<p>The following resources should be provided:</p> <p>2.1 Actual or simulated roof deck or wall surface for installation</p> <p>2.2 Sheet membrane materials (torch-on, self-adhesive)</p> <p>2.3 Cutting and bonding tools (roller, knife, torch)</p> <p>2.4 Personal protective equipment (PPE)</p> <p>2.5 Layout plans, installation diagrams, and detailing drawings</p> <p>2.6 Manufacturer’s specifications and job order forms</p>
<p>3. Methods of Assessment</p>	<p>Competency in this unit may be assessed through:</p> <p>3.1 Demonstration with questioning</p> <p>3.2 Observation with questioning</p> <p>3.3 Interview/Oral questioning</p> <p>3.4 Written Test</p> <p>3.5 Portfolio Assessment</p>
<p>4. Context for Assessment</p>	<p>4.1 Competency may be assessed in the actual workplace or at the designated TESDA Accredited Assessment Center.</p>

UNIT OF COMPETENCY : INSTALL LIQUID-APPLIED WATERPROOFING SYSTEMS

UNIT CODE : CS-CON712303

UNIT DESCRIPTOR : This unit covers the skills, knowledge, and attitudes required to install liquid-applied waterproofing systems. It includes preparing liquid waterproofing materials, and applying liquid waterproofing systems.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Prepare liquid waterproofing materials	1.1 Liquid materials are identified based on waterproofing type . 1.2 Products are mixed in accordance with manufacturer's instructions. 1.3 Containers are labeled according to safety standards. 1.4 Containers are handled according to safety standards.	SCIENCE 1.1 Composition and curing properties of liquid membranes TECHNOLOGY 1.2 Mixing and safety handling procedures MATHEMATICS 1.3 Estimating quantities for mixing COMMUNICATION 1.4 Reading product instructions and SDS ENVIRONMENTAL CONCERNS 1.5 Safe disposal of liquid containers	1.1 Identifying appropriate liquid membranes 1.2 Mixing components accurately 1.3 Labelling containers for application 1.4 Following mixing ratios 1.5 Managing unused materials 1.6 Storing materials properly
2. Apply liquid waterproofing systems	2.1 Waterproofing layers are applied following application sequence. 2.2 Coating thickness is monitored according to technical data sheet. 2.3 Curing time is observed based on manufacturer's recommendation.	SCIENCE 2.1 Drying behavior of liquid coatings TECHNOLOGY 2.2 Tools for liquid application MATHEMATICS 2.3 Measuring thickness of layers	2.1 Applying coatings in layers 2.2 Monitoring drying intervals 2.3 Measuring film thickness 2.4 Protecting surrounding areas 2.5 Complying with technical application guides

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	2.4 <i>Treated areas</i> are protected following protection guidelines..	COMMUNICATION 2.4 Recording application sequence and conditions ENVIRONMENTAL CONCERNS 2.5 Managing drips, fumes, and overspray	2.6 Verifying complete coverage

RANGE OF VARIABLES

VARIABLE	RANGE
1. Liquid materials	May include: 1.1 Polyurethane 1.2 Acrylic 1.3 cementitious
2. Waterproofing type	May include: 2.1 positive-side 2.2 negative-side 2.3 blind-side waterproofing
3. Products	May include: 3.1 single-component 3.2 two-component systems
4. Containers	May include: 4.1 pails 4.2 Buckets 4.3 drums
5. Waterproofing layers	May include: 5.1 Primer 5.2 base coat 5.3 top coat
6. Coating thickness	May include: 6.1 wet film thickness 6.2 dry film thickness
7. Treated areas	May include: 7.1 floor slab 7.2 Wall 7.3 joint section

EVIDENCE GUIDE

<p>1. Critical Aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <ol style="list-style-type: none"> 1. Prepared liquid waterproofing materials <ol style="list-style-type: none"> 1.1.1 Identified liquid materials 1.1.2 Mixed products 1.1.3 Labeled containers 1.1.4 Handled containers 1.2 Applied liquid waterproofing systems <ol style="list-style-type: none"> 1.2.1 Applied waterproofing layers 1.2.2 Monitored coating thickness 1.2.3 Observed curing time 1.2.4 Protected treated areas 1.2.5 Observed safety and environmental protocols
<p>2. Resource Implications</p>	<p>The following resources should be provided:</p> <ol style="list-style-type: none"> 2.1 Liquid-applied waterproofing products (polyurethane, acrylic, cementitious) 2.2 Mixing tools (drill mixer, hand paddle) 2.3 Application tools (brush, roller, spray gun) 2.4 PPE (gloves, goggles, respirators) 2.5 Technical data sheets and SDS documents 2.6 Work surface for practical demonstration (horizontal/vertical substrates)
<p>3. Methods of Assessment</p>	<p>Competency in this unit may be assessed through:</p> <ol style="list-style-type: none"> 3.1 Demonstration with questioning 3.2 Observation with questioning 3.3 Interview/Oral questioning 3.4 Written Test 3.5 Portfolio Assessment
<p>4. Context for Assessment</p>	<p>4.1 Competency may be assessed in the actual workplace or at the designated TESDA Accredited Assessment Center.</p>

UNIT OF COMPETENCY : APPLY PROTECTIVE AND FINISHING LAYERS

UNIT CODE : CS-CON712304

UNIT DESCRIPTOR : This unit covers the skills, knowledge, and attitudes required to apply protective and finishing layers. It includes installing protective layers over waterproofed surface and applying finishing coats and sealants

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Install protective layers over waterproofed surface	1.1 Protective boards are placed in accordance with installation plans. 1.2 Screed or cement topping is applied following finishing procedures . 1.3 Protection materials are secured based on site conditions .	SCIENCE 1.1 Properties of screed and protection materials TECHNOLOGY 1.2 Tools for applying protective layers MATHEMATICS 1.3 Estimating depth and area COMMUNICATION 1.4 Reading layout plans ENVIRONMENTAL CONCERNS 1.5 Reducing construction waste	1.1 Placing protective sheets 1.2 Securing boards to surface 1.3 Pouring screed to required depth 1.4 Leveling topping uniformly 1.5 Adjusting protective coverage
2. Apply finishing coats and sealants	2.1 Finishing coats are selected based on environmental conditions . 2.2 Sealants are applied following joint treatment guidelines. 2.3 Completed areas are inspected in accordance with quality standards.	SCIENCE 1.1 Compatibility of coatings with substrate TECHNOLOGY 1.2 Sealant tools and application methods MATHEMATICS 1.3 Calculating sealant volume per joint COMMUNICATION 1.4 Reporting visual inspection outcomes	2.1 Selecting appropriate coating 2.2 Applying sealants along joints 2.3 Inspecting surface finish 2.4 Following finish specifications 2.5 Touching up imperfections

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		ENVIRONMENTAL CONCERNS 1.5 Using low-VOC finishing products	

RANGE OF VARIABLES

VARIABLE	RANGE
1. Protective boards	May include: 1.1 insulation boards 1.2 protection panels 1.3 fiber cement boards
2. Screed or cement topping	May include: 2.1 lean concrete 2.2 sand-cement screed 2.3 polymer-modified topping
3. Finishing procedures	May include: 3.1 Troweling 3.2 Curing 3.3 leveling
4. Protection materials	May include: 4.1 foam boards 4.2 Geotextiles 4.3 mortar coatings
5. Site conditions	May include: 5.1 Indoor 5.2 Outdoor 5.3 exposed to weather
6. Finishing coats	May include: 6.1 Hoisting methods 6.2 Load transfer techniques 6.3 Rigging systems 6.4 Equipment mobilization
7. Environmental conditions	May include: 7.1 Modular equipment systems 7.2 Automation tools 7.3 Prefabrication options 7.4 Updated lifting gear
8. Sealants	May include: 8.1 Digital integration of equipment 8.2 Smart sensors for monitoring 8.3 Sustainable material alternatives 8.4 Prototype testing strategies
9. Completed areas	May include 9.1 surface to be handed over 9.2 finished wall 9.3 exposed floor

EVIDENCE GUIDE

<p>1. Critical Aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Installed protective layers over waterproofed surface</p> <p> 1.1.1 Placed protective boards</p> <p> 1.1.2 Applied screed or cement topping</p> <p> 1.1.3 Secured protection materials</p> <p>1.2 Applied finishing coats and sealants</p> <p> 1.2.1 Selected finishing coats</p> <p> 1.2.2 Applied sealants</p> <p> 1.2.3 Inspected completed areas</p>
<p>2. Resource Implications</p>	<p>The following resources should be provided:</p> <p>2.1 Protective materials (insulation boards, geotextiles)</p> <p>2.2 Screed and cement topping materials</p> <p>2.3 Finishing coats and sealants (low-VOC paint, polyurethane)</p> <p>2.4 Application tools (trowel, brush, cartridge gun)</p> <p>2.5 Job layout plans and finishing specifications</p> <p>2.6 PPE (gloves, masks, boots)</p> <p>2.7 Simulated or actual substrate surface (floor, wall, edge)</p>
<p>3. Methods of Assessment</p>	<p>Competency in this unit may be assessed through:</p> <p>3.1 Demonstration with questioning</p> <p>3.2 Observation with questioning</p> <p>3.3 Interview/Oral questioning</p> <p>3.4 Written Test</p> <p>3.5 Portfolio Assessment</p>
<p>4. Context for Assessment</p>	<p>4.1 Competency may be assessed in the actual workplace or at the designated TESDA Accredited Assessment Center.</p>

UNIT OF COMPETENCY : CONDUCT INSPECTION AND MAINTENANCE OF WATERPROOFING SYSTEMS

UNIT CODE : CS-CON712305

UNIT DESCRIPTOR : This unit covers the skills, knowledge, and attitudes required to conduct inspection and maintenance of waterproofing systems. It includes inspecting completed waterproofing systems, and performing maintenance and repair.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Inspect completed waterproofing systems	1.1 Visual inspection is performed according to maintenance schedule. 1.2 Faults or defects are identified based on checklist . 1.3 Repairs are documented following reporting procedures .	SCIENCE 1.1 Signs of waterproofing degradation TECHNOLOGY 1.2 Tools for inspection and leak detection MATHEMATICS 1.3 Tracking inspection intervals COMMUNICATION 1.4 Writing reports and logs ENVIRONMENTAL CONCERNS 1.5 Preventing damage from untreated defects	1.1 Inspecting membrane condition 1.2 Identifying leakage points 1.3 Noting repair issues 1.4 Using checklists systematically 1.5 Reporting inspection outcomes
2. Perform maintenance and repair	2.3 Maintenance tasks are carried out in accordance with service requirements. 2.3 Damaged sections are replaced based on assessment findings. 2.3 Waterproofing performance is verified following remedial action.	SCIENCE 2.1 Waterproofing system failure indicators TECHNOLOGY 2.2 Repair methods and materials MATHEMATICS 2.3 Estimating repair material needs COMMUNICATION 2.4 Coordinating repair activities	2.1 Performing patch repairs 2.2 Replacing defective membranes 2.3 Sealing re-treated areas 2.4 Testing waterproof integrity 2.5 Completing maintenance records

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		ENVIRONMENTAL CONCERNS 2.5 Avoiding over-application of materials	

RANGE OF VARIABLES

VARIABLE	RANGE
1. Visual inspection	May include: 1.1 walk-through assessment 1.2 close-range observation 1.3 surface scanning
2. Faults or defects	May include: 2.1 Blistering 2.2 Peeling 2.3 cracking
3. Checklist	May include: 3.1 inspection form 3.2 quality control list 3.3 defect log
4. Reporting procedures	May include: 4.1 digital log 4.2 manual form 4.3 photo documentation
5. Maintenance tasks	May include: 5.1 Cleaning 5.2 Recoating 5.3 Reinforcement
6. Damaged sections	May include: 6.1 torn membranes 6.2 delaminated coatings 6.3 unsealed joints
7. Waterproofing performance	May include: 7.1 absence of leaks 7.2 adhesion quality 7.3 water repellency

EVIDENCE GUIDE

<p>1. Critical Aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Inspected completed waterproofing systems <ul style="list-style-type: none"> 1.1.1 Performed visual inspection 1.1.2 Identified faults or defects 1.1.3 Documented repairs 1.2 Performed maintenance and repair <ul style="list-style-type: none"> 1.2.1 Carried maintenance tasks 1.2.2 Replaced damage sections 1.2.3 Verified Waterproofing performance
<p>2. Resource Implications</p>	<p>The following resources should be provided:</p> <ul style="list-style-type: none"> 2.1 Completed waterproofed surface with controlled defects 2.2 Inspection tools (moisture meter, flashlight, checklist) 2.3 Repair tools and materials (scraper, sealing gun, membranes) 2.4 Maintenance schedule, report forms, and checklist templates 2.5 PPE (gloves, goggles, overalls) 2.6 Manufacturer’s service guides or repair instructions
<p>3. Methods of Assessment</p>	<p>Competency in this unit may be assessed through:</p> <ul style="list-style-type: none"> 3.1 Demonstration with questioning 3.2 Observation with questioning 3.3 Interview/Oral questioning 3.4 Written Test 3.5 Portfolio Assessment
<p>4. Context for Assessment</p>	<p>4.1 Competency may be assessed in the actual workplace or at the designated TESDA Accredited Assessment Center.</p>

GLOSSARY OF TERMS

1) Application Sequence	The specific order in which waterproofing layers (e.g., primer, membrane, top coat) are applied.
2) Checklist	A standardized list used to verify completion and compliance of waterproofing steps.
3) Curing Time	The period required for a waterproofing product to reach full effectiveness.
4) Defect	Any visible or measurable fault in the waterproofing system that may compromise performance.
5) Inspection Protocol	A structured procedure for visually and/or physically checking the integrity of waterproofing.
6) Membrane	A waterproof layer applied to prevent water ingress, available in sheet or liquid-applied form.
7) Overlap	The area where sheets or membranes are laid over each other to ensure a continuous barrier.
8) Primer	A preparatory coating applied to enhance adhesion of waterproofing materials.
9) Protective Layer	Materials installed over waterproofed surfaces to shield them from mechanical damage.
10)Screed	A layer of material, usually sand and cement, applied to create a level surface.
11)Sealant	A substance used to block the passage of fluids through surfaces or joints.
12)Substrate	The underlying surface or material to which waterproofing is applied.
13)Treated Area	The surface or section that has been covered with waterproofing materials.
14)Waterproofing	The process of making a surface or structure resistant to the passage of water.

ACKNOWLEDGEMENTS

The Technical Education and Skills Development Authority (TESDA) is particularly grateful for the valuable technical support provided by the following industry stakeholders for the review and development of this Competency Standards. The time and inputs generously given during this undertaking are also highly appreciated and recognized as they made significant contributions to the constitution of this CS.

THE TECHNICAL EXPERT PANEL (TEP)

Gong Zhongwei

Technical Expert

Xinjiang Shihezi Vocational Technical
College

Lu Jinhe

Technical Expert

Xinjiang Shihezi Vocational Technical
College

Zhang Lianzhong

Technical Expert

Qinghai College of Architectural
Technology

Liu Yafeng

Technical Expert

Xinjiang Shihezi Vocational Technical

Ma Bo

Technical Expert

Qinghai College of Architectural
Technology

Zhang Ting

Technical Expert

Xinjiang Shihezi Vocational Technical
College

The MANAGEMENT and STAFF of the TESDA Secretariat

Qualifications and Standards Office (QSO)

DIR. EL CID H. CASTILLO, Executive Director

Dir. REDILYN C. AGUB, Assistant Executive Director

TESDA – QSO Technical Facilitators

MS. BERNADETTE S. AUDIJE, Division-Chief, CSDD

MS. MERCEDES E. JAVIER, Division-Chief, CPSDD

MS. CHERRY L. TORALDE

MS. MARISOL V. GALLEGOS

TESDA – QSO Technical Support Staff

MR. CYRIL M. OGOC JR.