

PLUMBING

Assessment Package

National Vocational
Certificate Level 3

Version 1 - December 2014

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Document Version

December, 2014
Islamabad, Pakistan

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1

ASSESSMENT SUMMARY AND RECORD

ACTIVITY	METHOD				DESIRED OUTCOMES	RESULT	
	WRITTEN	ORAL	PORTFOLIO	OBSERVATION		COMPETENT	NOT YET COMPETENT
NATURE OF ACTIVITY					DESIRED OUTCOMES FOR SUCCESSFUL ASSESSMENT OF: APPLY PLUMBER SOLAR HEATING TECHNICIAN SKILLS		
Practical final project	✓	✓	✓	✓	Complete supplied project brief related to application of Plumber Solar Heating Technician skills: <ul style="list-style-type: none"> • Apply knowledge of entrepreneurial ideas • Plan work and calculate cost • Install, commission and maintain solar water heating system • Install gas heating appliances • Install fittings and pipes • Install sanitary ware 		
Knowledge assessment		✓			<ul style="list-style-type: none"> • Answer all questions the Assessment Panel will have following oral presentation of completed project brief 		
Other requirements	✓	✓	✓	✓	<ul style="list-style-type: none"> • All completed formative assessments including: <ul style="list-style-type: none"> ○ Observations ○ Demonstrations ○ Questions and recorded answers • All completed course assignments and projects including: <ul style="list-style-type: none"> ○ Drawings and sketches of plumbing layouts ○ Calculations of materials, labour costs and overall costs • Completed work forms/records • Completed job cards • Evidence of development of business plan which includes: <ul style="list-style-type: none"> ○ Financial plan ○ Service and product delivery ○ Marketing strategy 		

2

CANDIDATE ASSESSMENT

Candidate Name..... Father Name

ALL WORK ASSESSED FOR THESE COMPETENCY STANDARDS MUST BE YOUR OWN WORK.

GUIDANCE TO CANDIDATE

To meet this standard you are required to:

- Apply Plumber Solar Heating Technician skills

ACTIVITIES	CANDIDATE RESPONSE
<p>1. Complete portfolio of evidence</p>	<ul style="list-style-type: none"> • All completed formative assessments including: <ul style="list-style-type: none"> ○ Observations ○ Demonstrations ○ Questions and recorded answers • All completed course assignments and projects including: <ul style="list-style-type: none"> ○ Drawings and sketches of plumbing layouts ○ Calculations of materials, labour costs and overall costs • Completed work forms/records • Completed job cards • Evidence of development of business plan which includes: <ul style="list-style-type: none"> ○ Financial plan ○ Service and product delivery ○ Marketing strategy
<p>2. Complete project brief of applying Plumber Solar Heating Technician skills under observation by Instructor</p>	<ul style="list-style-type: none"> • I will correctly complete requirements of supplied project brief under the following conditions: <ul style="list-style-type: none"> ○ In a group or individually, as required by project brief ○ Supplied brief will require a 5 day period to complete in a workshop environment <p>Your Assessment Panel will be looking for your competence in:</p> <ul style="list-style-type: none"> ○ Demonstrating task skills, task management (integration of tasks), managing any contingencies which may arise and task outcomes throughout the project timeframe ○ Applying knowledge and skill in the working environment
<p>3. Present completed project brief to Assessment Panel</p>	<ul style="list-style-type: none"> • Oral presentation of project brief and completed project work to Assessment Panel. • Presentation to include: <ul style="list-style-type: none"> ○ Requirements of brief ○ Planning and preparation of project ○ Problems encountered and how they were dealt with ○ Project outcome/s ○ Lessons learnt from undertaking project (reflective thinking) • Presentation to take no longer than 10 minutes
<p>4. Answer all questions Assessor Panel will have following project presentation</p>	<p>My answers to questions are correct and demonstrate my understanding of the topics and their application.</p>


3

ASSESSOR JUDGEMENT GUIDE

Candidate Name Father Name

INSTRUCTIONS FOR ASSESSMENT PANEL	<p>THIS SECTION CONTAINS MINIMUM EVIDENCE REQUIREMENTS.</p> <ul style="list-style-type: none"> The Assessment Panel will consist of three members: a registered Assessor, the candidate's Instructor and an expert from the private sector. The project brief will consist of integrated task requirements to enable the candidate to supply sufficient evidence of their competence in the skills required to work as a Plumber Solar Heating Technician The project brief must be suitable for the level of knowledge and skills required (i.e. Level 3) The timeframe for completion of assigned project brief is 5 working days The candidate may work in a team or as an individual to complete the project brief. If in a team, the contribution of each candidate must be clearly defined and observable.
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ACTIVITIES	MINIMUM EVIDENCE REQUIRED	YES/NO	ASSESSOR COMMENTS ON CANDIDATE PERFORMANCE	
1. Completes all course assignments	<ul style="list-style-type: none"> All completed formative assessments including: <ul style="list-style-type: none"> Observations Demonstrations Questions and recorded answers All completed course assignments and projects including: <ul style="list-style-type: none"> Drawings and sketches of plumbing layouts Calculations of materials, labour costs and overall costs Completed work forms/records Completed job cards Evidence of development of business plan which includes: <ul style="list-style-type: none"> Financial plan Service and product delivery Marketing strategy 			
	2. Complete project brief of applying plumber (Assistant) skills on solar photovoltaic (PV) systems under observation by Instructor	Completed requirements of supplied project brief under the following conditions:		
		<ul style="list-style-type: none"> In a group or individually, as required by project brief 		
		<ul style="list-style-type: none"> Supplied brief will require a 5 day period to complete in a workshop environment 		
		<ul style="list-style-type: none"> Demonstrating task skills, task management (integration of tasks), managing any contingencies which may arise and task outcomes throughout the project timeframe 		
	3. Present completed project brief to Assessment Panel	<ul style="list-style-type: none"> Applying knowledge and skill in the working environment 		
		Oral presentation of project brief and completed project work to Assessment Panel.		
		Presentation to include:		
<ul style="list-style-type: none"> Requirements of brief Planning and preparation of project Problems encountered and how they were dealt with 				
<ul style="list-style-type: none"> Project outcome/s Lesson learnt (reflective thinking) 				

ACTIVITIES	MINIMUM EVIDENCE REQUIRED	YES/NO		ASSESSOR COMMENTS ON CANDIDATE PERFORMANCE
	Presentation to take no longer than 10 minutes			
4. Answer all questions Assessment Panel will have following project presentation	Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application. Assessment Panel to document all questions asked, if any, and the answers here. Use extra pages as required and attach here. 			

4

LIST OF TOOLS, EQUIPMENT, MATERIAL AND CONTEXT OF ASSESSMENT

Instructions

This section contains information regarding;

- Context of the assessment
- List of required tools and equipment.
- List of consumable items required during the service

1. Context of Assessment

This practical final project will be conducted in a Plumber's lab/workshop environment.

Required tools, equipment and consumables will vary according to project brief.



ASSESSMENT MATERIAL EVIDENCE GUIDE	<h1>LEN0123A.v1 Apply knowledge of entrepreneurial ideas</h1>
Qualification LEN0123.v1 Level: 3 Credit: 5 Version: 1	

CONTENTS	1. Assessment Summary and Record 2. Candidate Assessment 3. Assessor Judgement Guide 4. List of required tools/ equipment, material and context of assessment
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ASSESSMENT AND ASSESSOR DETAILS	Competent <input type="checkbox"/> Not Yet Competent <input type="checkbox"/>																				
	Assessment <input type="checkbox"/> Re-Assessment <input type="checkbox"/>																				
Assessor Name: Assessor Code																					
Assessor Signature Date	<table border="1" style="display: inline-table;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> <tr> <td style="text-align: center;">DD</td> <td style="text-align: center;">MM</td> <td colspan="6"></td> <td style="text-align: center;">YYYY</td> </tr> </table>												DD	MM							YYYY
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CANDIDATE DETAILS	Candidate Name: <small style="display: flex; justify-content: space-between; width: 100%;">First Name Last Name</small>
	Father Name
	Institute Name and District
	CNIC/BFORM # <small>OR</small>
	Registration Number:
	Gender Male <input type="checkbox"/> Female <input type="checkbox"/>
Candidate Consent I agree to the time and date of the assessment and am aware of the requirements of the assessment. I fully understand my rights of appeal.	
Candidate Signature:	

ASSESSMENT RESULTS SUMMARY FORM	You can use this coversheet as an <i>Assessment Results Summary Form</i> . Simply post a photocopy of this completed coversheet to NAVTTCC
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1

ASSESSMENT SUMMARY & RECORD

CANDIDATE NAME:

FATHER NAME:

ACTIVITY	METHOD			DESIRED OUTCOMES	RESULT		
	WRITTEN	ORAL	OBSERVATION		PORTFOLIOS	COMPETENT	NOT YET COMPETENT
NATURE OF ACTIVITY	WRITTEN	ORAL	OBSERVATION	PORTFOLIOS	DESIRED OUTCOMES FOR SUCCESSFUL ASSESSMENT OF COMPETENCY STANDARD: APPLY KNOWLEDGE OF ENTREPRENEURIAL IDEAS	COMPETENT	NOT YET COMPETENT
Knowledge Assessment		✓			<ul style="list-style-type: none"> • Answer all questions in the knowledge assessment on the following topics: <ul style="list-style-type: none"> ○ Demonstrating knowledge of the requirements of entrepreneurs ○ Conducting business start-up activities ○ Developing a financial strategy ○ Developing a marketing strategy ○ Implementing and controlling business financial strategy 		
Other Requirements	✓	✓	✓	✓	<ul style="list-style-type: none"> • All candidate formative assessments completed by Instructor including; <ul style="list-style-type: none"> ○ Observations ○ Demonstrations ○ Questions and recorded answers • All work produced as module projects and assignments • Completed learner logbooks • Completed work records • Evidence of development of business plan which includes: <ul style="list-style-type: none"> ○ Financial plan ○ Service and product delivery ○ Marketing strategy 		

2

CANDIDATE ASSESSMENT

Candidate Name:

Father Name:

ALL WORK ASSESSED IN THIS COMPETENCY STANDARD MUST BE YOUR OWN WORK.

GUIDANCE TO CANDIDATE

To meet this standard you are required to complete the following practical tasks within set timeframe:

- Demonstrating knowledge of the requirements of entrepreneurs
- Conducting business start-up activities
- Developing a financial strategy
- Developing a marketing strategy
- Implementing and controlling business financial strategy

ACTIVITIES	CANDIDATE RESPONSE
<p>1. Complete knowledge assessment</p>	<p>Answer all questions in the knowledge assessment on the following topics:</p> <ul style="list-style-type: none"> ● Requirements of entrepreneurs <ul style="list-style-type: none"> ○ Identify the importance of entrepreneurs for Pakistan ○ Identify challenges of being an entrepreneur ○ Confirm and implement strategies for improving personal entrepreneurship qualities ● Conducting business start-up activities <ul style="list-style-type: none"> ○ Select and secure business premises ○ Secure business operating clearance ○ Secure business support service ● Developing a financial strategy <ul style="list-style-type: none"> ○ Project profit and loss and cash flow including total cost of set-up ○ Identify sources of funding ○ Establish and follow bank requirements ● Developing a marketing strategy <ul style="list-style-type: none"> ○ Identify potential profitable opportunities and target markets ○ Plan service and product delivery ○ Identify competitors operating in the industry ○ Identify methods of promotion ● Implementing and controlling business financial strategy <ul style="list-style-type: none"> ○ Implement financial control system to maintain business cash and general liquidity ○ Prepare financial statements and interpret results ○ Prepare and implement periodic plans and budgets
<p>2. Other requirements</p>	<ul style="list-style-type: none"> ● All candidate formative assessments completed by Instructor including: <ul style="list-style-type: none"> ○ Observations ○ Demonstrations ○ Questions and recorded answers ● All work produced as module projects and assignments ● Completed learner logbooks ● Completed work records ● Evidence of development of business plan which includes: <ul style="list-style-type: none"> ○ Financial plan ○ Service and product delivery ○ Marketing strategy

3

ASSESSOR JUDGEMENT GUIDE

Candidate Name:

Father Name:

INSTRUCTIONS FOR ASSESSOR

THIS SECTION CONTAINS MINIMUM EVIDENCE REQUIREMENTS.

Oral questioning may be used to clarify candidate understanding of the topic and its application.

ACTIVITIES	MINIMUM EVIDENCE REQUIRED	YES/NO	ASSESSOR COMMENTS
1. Knowledge assessment	<p>Answer all questions in the knowledge assessment on the following topics:</p> <ul style="list-style-type: none"> • Requirements of entrepreneurs <ul style="list-style-type: none"> ○ Identify the importance of entrepreneurs for Pakistan ○ Identify challenges of being an entrepreneur ○ Confirm and implement strategies for improving personal entrepreneurship qualities • Conducting business start-up activities <ul style="list-style-type: none"> ○ Select and secure business premises ○ Secure business operating clearance ○ Secure business support service • Developing a financial strategy <ul style="list-style-type: none"> ○ Project profit and loss and cash flow including total cost of set-up ○ Identify sources of funding ○ Establish and follow bank requirements • Developing a marketing strategy <ul style="list-style-type: none"> ○ Identify potential profitable opportunities and target markets ○ Plan service and product delivery ○ Identify competitors operating in the industry ○ Identify methods of promotion • Implementing and controlling business financial strategy <ul style="list-style-type: none"> ○ Implement financial control system to maintain business cash and general liquidity ○ Prepare financial statements and interpret results ○ Prepare and implement periodic plans and budgets 		
2. Other requirements	<ul style="list-style-type: none"> • All candidate formative assessments completed by Instructor including; <ul style="list-style-type: none"> ○ Observations ○ Demonstrations ○ Questions and recorded answers • All work produced as module projects and assignments • Completed learner logbooks • Completed work records 		

4

LIST OF TOOLS, EQUIPMENT, MATERIAL AND CONTEXT OF ASSESSMENT

Instructions	<p>This section contains information regarding;</p> <ul style="list-style-type: none"> • Context of the assessment • List of required tools and equipment. • List of consumable items required during the service
1. Context of Assessment	This practical skill demonstration will be conducted in a Building Electrician's lab/workshop environment

2. List of consumable items required		
S. No	Consumable Items	Quantity
1	Pen	1 per candidate
2	Knowledge assessment with sufficient space for answers	1 per candidate



ASSESSMENT MATERIAL EVIDENCE GUIDE	<h1>LEN0123B.v1 Plan work and calculate cost</h1>
Qualification LEN0123.v1 Level: 3 Credit: 5 Version: 1	

CONTENTS	1. Assessment Summary and Record 2. Candidate Assessment 3. Assessor Judgement Guide 4. List of required tools/ equipment, material and context of assessment
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1

ASSESSMENT SUMMARY & RECORD

CANDIDATE NAME:

FATHER NAME:

ACTIVITY	METHOD			DESIRED OUTCOMES	RESULT		
	WRITTEN	ORAL	OBSERVATION		COMPETENT	NOT YET COMPETENT	
NATURE OF ACTIVITY				PORTFOLIOS	DESIRED OUTCOMES FOR SUCCESSFUL ASSESSMENT OF COMPETENCY STANDARD: PLAN WORK AND CALCULATE COST		
Practical skill demonstration			✓		<ul style="list-style-type: none"> • Interpret drawings, sketches and specifications • Produce drawings and sketches • Calculate material and labour cost 		
Knowledge Assessment		✓			<ul style="list-style-type: none"> • Answer any questions your assessor may have for you during the practical skill demonstration 		
Other Requirements	✓	✓	✓	✓	<ul style="list-style-type: none"> • All candidate formative assessments completed by Instructor including; <ul style="list-style-type: none"> ○ Observations ○ Demonstrations ○ Questions and recorded answers • All work completed as module assignments and projects including; <ul style="list-style-type: none"> ○ Drawings and sketches of wiring layouts ○ Calculations of materials, labour costs, input and output voltage measurements • Completed work records • Completed learner logbooks 		

2

CANDIDATE ASSESSMENT

Candidate Name:

Father Name:

ALL WORK ASSESSED IN THIS COMPETENCY STANDARD MUST BE YOUR OWN WORK.

GUIDANCE TO CANDIDATE

To meet this standard you are required to complete the following practical tasks within set timeframe:

- Interpret drawings, sketches and specifications
- Produce drawings and sketches
- Calculate material and labour cost

ACTIVITIES	CANDIDATE RESPONSE
<p>1. Complete practical assessment</p>	<p>During a practical assessment, under observation by an assessor, I will correctly:</p> <p>Interpret drawings, sketches and specifications</p> <ul style="list-style-type: none"> • Identify and obtain safety and other regulatory requirements as per job requirement • Interpret and confirm layout plan • Identify distribution points <p>Produce drawings and sketches</p> <ul style="list-style-type: none"> • Produce basic technical drawing and sketch • Dimension drawing and sketch correctly • Scale drawing and sketch <p>Calculate material and labour cost</p> <ul style="list-style-type: none"> • Identify location for installation • Estimate material requirements derived from produced drawing or sketch • Produce estimated overall cost for installation including labour cost <p>Meet set timeframes required to plan and calculate costs for produced drawing or sketch</p>
<p>2. Complete knowledge assessment</p>	<p>Answer all questions my assessor may have during the practical assessment</p>
<p>3. Other requirements</p>	<ul style="list-style-type: none"> • All candidate formative assessments completed by Instructor including: <ul style="list-style-type: none"> ○ Observations ○ Demonstrations ○ Questions and recorded answers • All work completed as module assignments and projects including: <ul style="list-style-type: none"> ○ Drawings and sketches of wiring layouts ○ Calculations of materials, labour costs, input and output voltage measurements • Completed work records • Completed learner logbooks

3

ASSESSOR JUDGEMENT GUIDE

Candidate Name:

Father Name:

INSTRUCTIONS FOR ASSESSOR

THIS SECTION CONTAINS MINIMUM EVIDENCE REQUIREMENTS.

The supplied electrical appliance and products requiring maintenance must meet the evidence requirements of the candidate's competence in installing electrical products and appliances

Set timeframe for practical skill demonstration must reflect the commercially viable timeframe for the tasks.

Oral questioning may be used to clarify candidate understanding of the topic and its application

ACTIVITIES	MINIMUM EVIDENCE REQUIRED	YES/NO	ASSESSOR COMMENTS
1. Completed practical assessment	During a practical assessment, under observation by an assessor, the candidate correctly carried out:		
	Interpreting drawings, sketches and specifications		
	<ul style="list-style-type: none"> Identify and obtain safety and other regulatory requirements as per job requirement 		
	<ul style="list-style-type: none"> Interpret and confirm layout plan 		
	<ul style="list-style-type: none"> Identify distribution points 		
	Producing drawings and sketches		
	<ul style="list-style-type: none"> Produce basic technical drawing and sketch 		
	<ul style="list-style-type: none"> Dimension drawing and sketch correctly 		
	<ul style="list-style-type: none"> Scale drawing and sketch 		
	Calculating material and labour cost		
	<ul style="list-style-type: none"> Identify location for installation 		
<ul style="list-style-type: none"> Estimate material requirements derived from produced drawing or sketch 			
<ul style="list-style-type: none"> Produce estimated overall cost for installation including labour cost 			
	Meeting set timeframes required to plan and calculate costs for produced drawing or sketch		
2. Knowledge assessment	<p>Candidate's answers to questions are correct and demonstrate understanding of the topics and their application.</p> <p><i>Assessor to document below all questions asked and candidate answers. Use extra sheets if required and attached.</i></p>		
3. Other requirements	<ul style="list-style-type: none"> All candidate formative assessments completed by Instructor including; <ul style="list-style-type: none"> Observations Demonstrations Questions and recorded answers All work completed as module assignments and projects including; <ul style="list-style-type: none"> Drawings and sketches of wiring layouts Calculations of materials, labour costs, input and output voltage measurements Completed work records Completed learner logbooks 		

4

LIST OF TOOLS, EQUIPMENT, MATERIAL AND CONTEXT OF ASSESSMENT

Instructions	<p>This section contains information regarding;</p> <ul style="list-style-type: none"> Context of the assessment List of required tools and equipment. List of consumable items required during the service
1. Context of Assessment	<p>This practical skill demonstration will be conducted in a Building Electrician's lab/workshop environment</p> <p>The Assessor will select the required tools, equipment and consumables from the list below for the assessment</p>

2. List of tools and equipment required		
S. No	Tools and equipment	Quantity
1	Personal protective equipment	
2	Fire extinguishers	
3	First aid box	
4	Adjustable wrench	
5	Amp meter	
6	AVO meter	
7	Batteries	
8	Battery charger	
9	Bench vice	
10	Ceiling hole cutter	
11	Charge controller	
12	Chisel	
13	Clamp on meter	
14	Compass	
15	Cutter	
16	Drill machine	
17	Earth tester meter	
18	Extension board	
19	File set	
20	First Aid box	
21	Gloves	
22	Goggles	
23	Grinder	
24	Hammer	
25	Hand drill machine	
26	Helmet	
27	Hertz meter	
28	Hex saw	
29	Knife (cable)	
30	Level	
31	L-key set	
32	Lock plier	
33	Measuring tape	
34	Megger meter (Analog & Digital)	
35	Micrometer	
36	Multimeter	
37	Number punch	
38	Phase sequence meter	
39	Pipe cutter	
40	Pipe vice	
41	Pipe wrench	
42	Plier set	

43	Punching tool (Networking /Telephone)	
44	Ratchet set	
45	Safety boots	
46	Scissor	
47	Screw driver set	
48	Soldering iron	
49	Spanner set	
50	Steel scale	
51	Steel wire	
52	synchronizing meter	
53	Tachometer	
54	Tester	
55	Thimble press	
56	Tong tester (clamp-on meter) AC/DC	
57	Torch	
58	Vernier caliper	
59	Volt meter	
60	Wire gauge	
61	Wood saw	

3. List of consumable items required		
S. No	Consumable Items	Quantity
1	Gi Pipe ½",3/4",1"	
2	Gi fitting ½",3/4",1" (Elbow, tee, socket etc.)	
3	PPRC pipe 25mm,32mm	
4	PPRC fitting 25mm,32mm	
5	PVC pipe 2",3",4"	
6	U PVC 2",3",4"	
7	P trap 4"	
8	Solution PVC	
9	All types of valves ½"	
10	Plastic Pipe ½",3/4",1"	
11	Cp Fitting	



ASSESSMENT MATERIAL EVIDENCE GUIDE	<h1>LEN0153C.v1 Install solar water heating Appliances</h1>
Qualification LEN0153.v1 Level: 3 Credit: 20 Version: 1	

CONTENTS	1. Assessment Summary and Record 2. Candidate Assessment 3. Assessor Judgement Guide 4. List of required tools/ equipment, material and context of assessment
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ASSESSMENT AND ASSESSOR DETAILS	Competent <input type="checkbox"/> Not Yet Competent <input type="checkbox"/>																			
	Assessment <input type="checkbox"/> Re-Assessment <input type="checkbox"/>																			
	Assessor Name: Assessor Code Assessor Signature Date <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> <tr> <td style="text-align: center;">DD</td> <td style="text-align: center;">MM</td> <td colspan="6"></td> <td style="text-align: center;">YYYY</td> </tr> </table>											DD	MM							YYYY
DD	MM							YYYY												

CANDIDATE DETAILS	Candidate Name: <small style="display: flex; justify-content: space-between; width: 100%;"> First Name Last Name </small>																				
	Father Name:																				
	Institute Name and District:																				
	CNIC/BFORM # <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td> </tr> </table>																				
	OR Registration Number:																				
Gender Male <input type="checkbox"/> Female <input type="checkbox"/>																					
Candidate Consent I agree to the time and date of the assessment and am aware of the requirements of the assessment. I fully understand my rights of appeal. Candidate Signature:																					

ASSESSMENT RESULTS SUMMARY FORM	You can use this coversheet as an <i>Assessment Results Summary Form</i> . Simply post a photocopy of this completed coversheet to NAVTTC
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1

ASSESSMENT SUMMARY & RECORD

CANDIDATE NAME:

FATHER NAME:

ACTIVITY	WRITTEN	METHOD			DESIRED OUTCOMES	RESULT	
		ORAL	OBSERVATION	PORTFOLIOS		COMPETENT	NOT YET COMPETENT
NATURE OF ACTIVITY	WRITTEN	ORAL	OBSERVATION	PORTFOLIOS	DESIRED OUTCOMES FOR SUCCESSFUL ASSESSMENT OF COMPETENCY STANDARD: INSTALL, COMMISSION AND MAINTAIN SOLAR WATER HEATING SYSTEM	COMPETENT	NOT YET COMPETENT
Practical skill demonstration			✓		<ul style="list-style-type: none"> Plan and prepare for work Install and commission solar water heating system Carry out maintenance on solar water heating system components Complete work 		
Knowledge Assessment		✓			<ul style="list-style-type: none"> Answer any questions your assessor may have for you during the practical skill demonstration 		
Other Requirements	✓	✓	✓	✓	<ul style="list-style-type: none"> All candidate formative assessments completed by Instructor including; <ul style="list-style-type: none"> Observations Demonstrations Questions and recorded answers All work completed as module assignments and projects including evidence of carrying out Lux readings Completed work records Completed learner logbooks 		

2

CANDIDATE ASSESSMENT

Candidate Name:

Father Name:

ALL WORK ASSESSED IN THIS COMPETENCY STANDARD MUST BE YOUR OWN WORK.

GUIDANCE TO CANDIDATE

To meet this standard you are required to complete the following practical tasks of installing, commissioning and maintaining solar water heating system within set timeframe:

- Plan and prepare for work
- Install and commission solar water heating system
- Carry out maintenance on solar water heating system components
- Complete work

ACTIVITIES	CANDIDATE RESPONSE
<p>1. Complete practical assessment of installing, commissioning and maintaining solar water heating system under observation by an Assessor</p>	<p>During a practical assessment, under observation by an assessor, I will correctly:</p> <p>Plan and prepare for work</p> <ul style="list-style-type: none"> • Identify and obtain safety and other regulatory requirements for installation • Conduct site survey • Interpret and confirm layout plan and installation location for sufficient light radiation • Perform measurements as required <p>Install and commission solar water heating system</p> <ul style="list-style-type: none"> • Check for safety hazards • Join and install water stand, pipes and fittings • Commission solar water heating system and conduct operational testing <p>Carry out maintenance on solar water heating system components</p> <ul style="list-style-type: none"> ○ Check for safety hazards and secure worksite ○ Select tools and equipment for maintenance ○ Carry out maintenance procedures and operational measurements <p>Complete work</p> <ul style="list-style-type: none"> • Complete work related documents and procedures • Perform final quality inspection • Clean up and store tools, equipment and material <p>Meeting set timeframes required for using and maintaining hand tools and hand-held powered tools and equipment for electrical, mechanical and civil construction works</p>
<p>2. Complete knowledge assessment</p>	<p>Answer all questions my assessor may have during the practical assessment</p>
<p>3. Other requirements</p>	<ul style="list-style-type: none"> • All candidate formative assessments completed by Instructor including; <ul style="list-style-type: none"> ○ Observations ○ Demonstrations ○ Questions and recorded answers • All work completed as module assignments and projects including evidence of carrying out Lux readings • Completed work records • Completed learner logbooks

3

ASSESSOR JUDGEMENT GUIDE

Candidate Name:

Father Name:

INSTRUCTIONS FOR ASSESSOR	THIS SECTION CONTAINS MINIMUM EVIDENCE REQUIREMENTS.		
	The supplied solar water heating system requiring installation, commissioning and maintenance must meet the evidence requirements of the candidate's competence in installing, commissioning and maintaining solar water heating systems.		
	Set timeframe for practical skill demonstration must reflect the commercially viable timeframe for the tasks.		
	Oral questioning may be used to clarify candidate understanding of the topic and its application.		

ACTIVITIES	MINIMUM EVIDENCE REQUIRED	YES/NO	ASSESSOR COMMENTS
1. Completed practical ASSESSMENT of installing, commissioning and maintaining solar water heating system under observation by an Assessor	During a practical assessment, under observation by an assessor, the candidate correctly carried out:		
	Planning and preparing for work		
	<ul style="list-style-type: none"> o Identify and obtain safety and other regulatory requirements for installation 		
	<ul style="list-style-type: none"> o Conduct site survey 		
	<ul style="list-style-type: none"> o Interpret and confirm layout plan and installation location for sufficient light radiation 		
	<ul style="list-style-type: none"> o Perform measurements as required 		
	Installing and commissioning solar water heating system		
	<ul style="list-style-type: none"> o Check for safety hazards 		
	<ul style="list-style-type: none"> o Join and install water stand, pipes and fittings 		
	<ul style="list-style-type: none"> o Commission solar water heating system and conduct operational testing 		
	Carrying out maintenance on solar water heating system components		
	<ul style="list-style-type: none"> o Check for safety hazards and secure worksite 		
	<ul style="list-style-type: none"> o Select tools and equipment for maintenance 		
	<ul style="list-style-type: none"> o Carry out maintenance procedures and operational measurements 		
Completing work			
<ul style="list-style-type: none"> o Complete work related documents and procedures 			
<ul style="list-style-type: none"> o Perform final quality inspection 			
<ul style="list-style-type: none"> o Clean up and store tools, equipment and material 			
	Meeting set timeframe appropriate for supplied solar water heating system requiring installation, commissioning and maintenance		
2. Knowledge assessment	<p>Candidate's answers to questions are correct and demonstrate understanding of the topics and their application.</p> <p><i>Assessor to document below all questions asked and candidate answers. Use extra sheets if required and attached.</i></p>		
3. Other requirements	<ul style="list-style-type: none"> • All candidate formative assessments completed by Instructor including; 		

	<ul style="list-style-type: none"> ○ Observations ○ Demonstrations ○ Questions and recorded answers ● All work completed as module assignments and projects including evidence of carrying out Lux readings ● Completed work records ● Completed learner logbooks 			
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4

LIST OF TOOLS, EQUIPMENT, MATERIAL AND CONTEXT OF ASSESSMENT

Instructions	<p>This section contains information regarding;</p> <ul style="list-style-type: none"> Context of the assessment List of required tools and equipment. List of consumable items required during the service
1. Context of Assessment	<p>This practical skill demonstration will be conducted in a Plumber's lab/workshop environment</p> <p>The Assessor will select the required tools, equipment and consumables from the list below for the assessment</p>

1. List of tools and equipment required		
S. No	Tools and equipment	Quantity
1	Adjustable wrench 6",8",12"	
2	Pipe Bender Machine Hydraulic complete set	
3	Chisel set	
4	Trowel	
5	Electric Drill machine(hammering with healti)3/4"	
6	Die (Ratchet),Die Fix 1/2,3/4,1,2	
7	Extension board 10 meter 2 core	
8	First Aid box	
9	Gloves lather, rubber	
10	Safety goggles Plastic, glass	
11	Hand Electric Grinder Electric Wall Cutter	
12	Grip plier 10"	
13	Hammer 250gm,500gm,1000gm,1500gm,2000gm	
14	Hand bit 1/4", 3/8"	
15	Helmet ABS Material	
16	Hacksaw 12" with blade	
17	Spirit Level 6",12",8"	
18	L-key set Star L key Set	
19	Measuring tape meter ,10 meter	
20	Pipe wrench ,10",12",14",18"	
21	Plass (pipe cutter) 1/2", 2"	
22	PPRC Heater 750W to 1000W	
23	PPR/Gi cutter 10" Gi Pipe Cutter 1/2 to 2"	
24	Safety boots(Shoes)	
25	Screw driver set 6",8",10",12"	
26	Spanner set 6mm to 24mm	
27	Testing pump (leakage) (Hand type)	
28	Tools box iron+3 draws	
29	Torch Chargeable	
30	Vice with iron stand(2nos)	
31	Compass Spring type 8"	
32	Solar Water Heater (Complete Set) Different denominations of different types	
33	Water Filling Pumps Centrifugal pump 1/2" Reciprocating 1/2"	
34	Pipe Insulation Material	
35	Sealing Tapes	
36	Bench Vice 5" with bench	
37	Oil Can	
38	Center Punch	
39	Wire Brush	
40	Pipe Reemar	
41	Tap Set 1/8",1/4",3/8",1/2",3/4",1" with handle	
42	Air Compressor 10 bar	
43	Tri square 6",8"	

2. List of consumable items required		
S. No	Consumable Items	Quantity
1	Gi Pipe ½", ¾", 1"	
2	Gi fitting ½", ¾", 1" (Elbow, tee, socket etc.)	
3	PPRC pipe 25mm, 32mm	
4	PPRC fitting 25mm, 32mm	
5	PVC pipe 2", 3", 4"	
6	U PVC 2", 3", 4"	
7	P trap 4"	
8	Solution PVC	
9	All types of valves ½"	
10	Plastic Pipe ½", ¾", 1"	
11	Cp Fitting	



ASSESSMENT MATERIAL EVIDENCE GUIDE	<h1>LEN0153D.v1 Install gas heating appliances</h1>
Qualification LEN0153.v1 Level: 3 Credit: 20 Version: 1	

CONTENTS	1. Assessment Summary and Record 2. Candidate Assessment 3. Assessor Judgement Guide 4. List of required tools/ equipment, material and context of assessment
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ASSESSMENT AND ASSESSOR DETAILS	Competent <input type="checkbox"/>	Not Yet Competent <input type="checkbox"/>																				
	Assessment <input type="checkbox"/>	Re-Assessment <input type="checkbox"/>																				
	Assessor Name:	Assessor Code																				
Assessor Signature	Date	<table border="1" style="display: inline-table; text-align: center;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> <tr> <td>DD</td> <td>MM</td> <td colspan="2">YYYY</td> <td colspan="6"></td> </tr> </table>											DD	MM	YYYY							
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CANDIDATE DETAILS	Candidate Name:	<small>First Name</small>	<small>Last Name</small>																				
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	OR																						
Registration Number:																							
Gender	Male <input type="checkbox"/>	Female <input type="checkbox"/>																					
Candidate Consent	I agree to the time and date of the assessment and am aware of the requirements of the assessment. I fully understand my rights of appeal.																						
Candidate Signature:																							

ASSESSMENT RESULTS SUMMARY FORM	You can use this coversheet as an <i>Assessment Results Summary Form</i> . Simply post a photocopy of this completed coversheet to NAVTTTC
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1

ASSESSMENT SUMMARY & RECORD

CANDIDATE NAME:

FATHER NAME:

ACTIVITY	WRITTEN	METHOD			DESIRED OUTCOMES	RESULT	
		ORAL	OBSERVATION	PORTFOLIOS		COMPETENT	NOT YET COMPETENT
NATURE OF ACTIVITY	WRITTEN	ORAL	OBSERVATION	PORTFOLIOS	DESIRED OUTCOMES FOR SUCCESSFUL ASSESSMENT OF COMPETENCY STANDARD: INSTALL GAS HEATING APPLIANCES	COMPETENT	NOT YET COMPETENT
Practical skill demonstration			✓		<ul style="list-style-type: none"> Plan and prepare for work Install appliances Complete work 		
Knowledge Assessment		✓			<ul style="list-style-type: none"> Answer any questions your assessor may have for you during the practical skill demonstration 		
Other Requirements	✓	✓	✓	✓	<ul style="list-style-type: none"> All candidate formative assessments completed by Instructor including; <ul style="list-style-type: none"> Observations Demonstrations Questions and recorded answers All work completed as module assignments and projects Completed work records Completed learner logbooks 		

2

CANDIDATE ASSESSMENT

Candidate Name:

Father Name:

ALL WORK ASSESSED IN THIS COMPETENCY STANDARD MUST BE YOUR OWN WORK.

GUIDANCE TO CANDIDATE

To meet this standard you are required to complete the following practical tasks of installing gas heating appliances within set timeframe:

- Plan and prepare for work
- Install appliances
- Complete work

ACTIVITIES	CANDIDATE RESPONSE
<p>1. Complete practical assessment of installing gas heating appliances under observation of an assessor</p>	<p>During a practical assessment, under observation by an assessor, I will correctly:</p> <p>Plan and prepare for work</p> <ul style="list-style-type: none"> • Identify and obtain safety and other regulatory requirements for installation • Interpret and confirm layout plan for gas lamp and heater • Select tools and equipment and perform measurements <p>Install appliances</p> <ul style="list-style-type: none"> ○ Check for safety hazards ○ Join and install pipes, fittings and accessories ○ Conduct operational testing <p>Complete work</p> <ul style="list-style-type: none"> • Complete work related documents and procedures • Perform final quality inspection • Clean up and store tools, equipment and material <p>Meet set timeframe appropriate for supplied gas heating appliances requiring installation</p>
<p>2. Complete knowledge assessment</p>	<p>Answer all questions my assessor may have during the practical assessment</p>
<p>3. Other requirements</p>	<ul style="list-style-type: none"> • All candidate formative assessments completed by Instructor including: <ul style="list-style-type: none"> ○ Observations ○ Demonstrations ○ Questions and recorded answers • All work completed as module assignments and projects • Completed work records • Completed learner logbooks

3

ASSESSOR JUDGEMENT GUIDE

Candidate Name:

Father Name:

INSTRUCTIONS FOR ASSESSOR

THIS SECTION CONTAINS MINIMUM EVIDENCE REQUIREMENTS.

The supplied gas heating appliances requiring installation must meet the evidence requirements of the candidate's competence in installing gas appliances

Set timeframe for practical skill demonstration must reflect the commercially viable timeframe for the tasks.

Oral questioning may be used to clarify candidate understanding of the topic and its application.

ACTIVITIES	MINIMUM EVIDENCE REQUIRED	YES/NO	ASSESSOR COMMENTS
1. Completed PRACTICAL assessment of installing gas heating appliances under observation of an assessor	During a practical assessment, under observation by an assessor, the candidate correctly carried out:		
	Planning and preparing for work		
	<ul style="list-style-type: none"> ○ Identify and obtain safety and other regulatory requirements for installation 		
	<ul style="list-style-type: none"> ○ Interpret and confirm layout plan for gas lamp and heater 		
	<ul style="list-style-type: none"> ○ Select tools and equipment and perform measurements 		
	<ul style="list-style-type: none"> ○ Install appliances 		
	Checking for safety hazards		
	<ul style="list-style-type: none"> ○ Join and install pipes, fittings and accessories 		
	<ul style="list-style-type: none"> ○ Conduct operational testing 		
	Completing work		
	<ul style="list-style-type: none"> ○ Complete work related documents and procedures 		
	<ul style="list-style-type: none"> ○ Perform final quality inspection 		
	<ul style="list-style-type: none"> ○ Clean up and store tools, equipment and material 		
	Meeting set timeframe appropriate for supplied gas heating appliances requiring installation		
2. Knowledge assessment	<p>Candidate's answers to questions are correct and demonstrate understanding of the topics and their application.</p> <p><i>Assessor to document below all questions asked and candidate answers. Use extra sheets if required and attached.</i></p>		
3. Other requirements	<ul style="list-style-type: none"> • All candidate formative assessments completed by Instructor including; <ul style="list-style-type: none"> ○ Observations ○ Demonstrations ○ Questions and recorded answers • All work completed as module assignments and projects • Completed work records • Completed learner logbooks 		

4

LIST OF TOOLS, EQUIPMENT, MATERIAL AND CONTEXT OF ASSESSMENT

Instructions	<p>This section contains information regarding;</p> <ul style="list-style-type: none"> Context of the assessment List of required tools and equipment. List of consumable items required during the service
1. Context of Assessment	This practical skill demonstration will be conducted in a Plumber's lab/workshop environment The Assessor will select the required tools, equipment and consumables from the list below for the assessment

2. List of tools and equipment required

S. No	Tools and equipment	Quantity
1	Adjustable wrench 6",8",12"	
2	Pipe Bender Machine Hydraulic complete set	
3	Chisel set	
4	Trowel	
5	Electric Drill machine(hammering with healti)3/4"	
6	Die (Ratchet),Die Fix 1/2,3/4,1,2	
7	Extension board 10 meter 2 core	
8	First Aid box	
9	Gloves lather, rubber	
10	Safety goggles Plastic, glass	
11	Hand Electric Grinder Electric Wall Cutter	
12	Grip plier 10"	
13	Hammer 250gm,500gm,1000gm,1500gm,2000gm	
14	Hand bit 1/4", 3/8"	
15	Helmet ABS Material	
16	Hacksaw 12" with blade	
17	Spirit Level 6",12",8"	
18	L-key set Star L key Set	
19	Measuring tape meter ,10 meter	
20	Pipe wrench ,10",12",14",18"	
21	Plass (pipe cutter) 1/2", 2"	
22	PPRC Heater 750W to 1000W	
23	PPR/Gi cutter 10" Gi Pipe Cutter 1/2 to 2"	
24	Safety boots(Shoes)	
25	Screw driver set 6",8",10",12"	
26	Spanner set 6mm to 24mm	
27	Testing pump (leakage) (Hand type)	
28	Tools box iron+3 draws	
29	Torch Chargeable	
30	Vice with iron stand(2nos)	
31	Compass Spring type 8"	
32	Solar Water Heater (Complete Set) Different denominations of different types	
33	Water Filling Pumps Centrifugal pump 1/2" Reciprocating 1/2	
34	Pipe Insulation Material	
35	Sealing Tapes	
36	Bench Vice 5" with bench	
37	Oil Can	
38	Center Punch	
39	Wire Brush	
40	Pipe Reemar	
41	Tap Set 1/8",1/4",3/8",1/2",3/4",1" with handle	
42	Air Compressor 10 bar	
43	Tri square 6",8"	

3. List of consumable items required

S. No	Consumable Items	Quantity
1	Gi Pipe ½", ¾", 1"	
2	Gi fitting ½", ¾", 1" (Elbow, tee, socket etc.)	
3	PPRC pipe 25mm, 32mm	
4	PPRC fitting 25mm, 32mm	
5	PVC pipe 2", 3", 4"	
6	U PVC 2", 3", 4"	
7	P trap 4"	
8	Solution PVC	
9	All types of valves ½"	
10	Plastic Pipe ½", ¾", 1"	
11	Cp Fitting	



ASSESSMENT MATERIAL EVIDENCE GUIDE	<h1>LEN0153E.v1 Install fittings and pipes</h1>
Qualification LEN0153.v1 Level: 3 Credit: 20 Version: 1	

CONTENTS	1. Assessment Summary and Record 2. Candidate Assessment 3. Assessor Judgement Guide 4. List of required tools/ equipment, material and context of assessment
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ASSESSMENT AND ASSESSOR DETAILS	Competent <input type="checkbox"/> Not Yet Competent <input type="checkbox"/>																
	Assessment <input type="checkbox"/> Re-Assessment <input type="checkbox"/>																
	Assessor Name: Assessor Code Assessor Signature Date <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> <tr> <td style="text-align: center; font-size: 8px;">DD</td> <td style="text-align: center; font-size: 8px;">MM</td> <td colspan="4"></td> <td style="text-align: center; font-size: 8px;">YYYY</td> </tr> </table>											DD	MM				
DD	MM					YYYY											

CANDIDATE DETAILS	Candidate Name: <small style="margin-left: 100px;">First Name</small> <small>Last Name</small>																				
	Father Name																				
	Institute Name and District																				
	CNIC/BFORM # <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td> </tr> </table>																				
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Candidate Signature:																					

ASSESSMENT RESULTS SUMMARY FORM	You can use this coversheet as an <i>Assessment Results Summary Form</i> . Simply post a photocopy of this completed coversheet to NAVTTCC
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NAVTTCC OFFICE ONLY	1. DATE FORM RECEIVED: <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> <tr> <td style="text-align: center; font-size: 8px;">DD</td> <td style="text-align: center; font-size: 8px;">MM</td> <td colspan="4"></td> <td style="text-align: center; font-size: 8px;">YYYY</td> </tr> </table>									DD	MM					YYYY	2. DATE ENTERED INTO DATABASE: <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> <tr> <td style="text-align: center; font-size: 8px;">DD</td> <td style="text-align: center; font-size: 8px;">MM</td> <td colspan="4"></td> <td style="text-align: center; font-size: 8px;">YYYY</td> </tr> </table>									DD	MM					YYYY
DD	MM					YYYY																										
DD	MM					YYYY																										

1

ASSESSMENT SUMMARY & RECORD

CANDIDATE NAME:

FATHER NAME:

ACTIVITY	METHOD			DESIRED OUTCOMES	RESULT		
	WRITTEN	ORAL	OBSERVATION		COMPETENT	NOT YET COMPETENT	
NATURE OF ACTIVITY				PORTFOLIOS	DESIRED OUTCOMES FOR SUCCESSFUL ASSESSMENT OF COMPETENCY STANDARD: INSTALL FITTINGS AND PIPES		
Practical skill demonstration			✓		<ul style="list-style-type: none"> Plan and prepare for work Assemble and install pipes and fittings Complete work 		
Knowledge Assessment		✓			<ul style="list-style-type: none"> Answer any questions your assessor may have for you during the practical skill demonstration 		
Other Requirements	✓	✓	✓	✓	<ul style="list-style-type: none"> All candidate formative assessments completed by Instructor including; <ul style="list-style-type: none"> Observations Demonstrations Questions and recorded answers All work completed as module assignments and projects Completed work records Completed learner logbooks 		

2

CANDIDATE ASSESSMENT

Candidate Name:

Father Name:

ALL WORK ASSESSED IN THIS COMPETENCY STANDARD MUST BE YOUR OWN WORK.

GUIDANCE TO CANDIDATE

To meet this standard you are required to complete the following practical tasks of installing fittings and pipes within set timeframe:

- Plan and prepare for work
- Assemble and install pipes and fittings
- Complete work

ACTIVITIES	CANDIDATE RESPONSE
1. Complete practical assessment of installing fittings and pipes under observation by an assessor	<p>During a practical assessment, under observation by an assessor, I will correctly:</p> <p>Plan and prepare for work</p> <ul style="list-style-type: none">• Identify and obtain safety and other regulatory requirements for installation• Interpret and confirm layout plan• Perform marking out and measure, cut to length and bend pipes <p>Install appliances</p> <ul style="list-style-type: none">○ Check for safety hazards○ Join and install pipes and fittings○ Perform levelling <p>Complete work</p> <ul style="list-style-type: none">• Complete work related documents and procedures• Perform final quality inspection• Clean up and store tools, equipment and material <p>Meet set timeframe appropriate for supplied plumbing fittings and pipes requiring installation</p>
2. Complete knowledge assessment	Answer all questions my assessor may have during the practical assessment
3. Other requirements	<ul style="list-style-type: none">• All candidate formative assessments completed by Instructor including:<ul style="list-style-type: none">○ Observations○ Demonstrations○ Questions and recorded answers• All work completed as module assignments and projects• Completed work records• Completed learner logbooks

3

ASSESSOR JUDGEMENT GUIDE

Candidate Name:

Father Name:

INSTRUCTIONS FOR ASSESSOR

THIS SECTION CONTAINS MINIMUM EVIDENCE REQUIREMENTS.

The supplied fittings and pipes requiring installation must meet the evidence requirements of the candidate's competence in installing fittings and pipes

Set timeframe for practical skill demonstration must reflect the commercially viable timeframe for the tasks.

Oral questioning may be used to clarify candidate understanding of the topic and its application.

ACTIVITIES	MINIMUM EVIDENCE REQUIRED	YES/NO	ASSESSOR COMMENTS	
1. Completed PRACTICAL assessment of installing fittings and pipes under observation by an assessor	During a practical assessment, under observation by an assessor, the candidate correctly carried out:			
	Planning and preparing for work			
	<ul style="list-style-type: none"> ○ Identify and obtain safety and other regulatory requirements for installation ○ Interpret and confirm layout plan ○ Perform marking out and measure, cut to length and bend pipes ○ Install appliances 			
	Checking for safety hazards			
	<ul style="list-style-type: none"> ○ Join and install pipes and fittings ○ Perform levelling 			
	Completing work			
	<ul style="list-style-type: none"> ○ Complete work related documents and procedures ○ Perform final quality inspection ○ Clean up and store tools, equipment and material 			
	Meeting set timeframe appropriate for supplied fittings and pipes requiring installation			
	2. Knowledge assessment	<p>Candidate's answers to questions are correct and demonstrate understanding of the topics and their application.</p> <p><i>Assessor to document below all questions asked and candidate answers. Use extra sheets if required and attached.</i></p>		
	3. Other requirements	<ul style="list-style-type: none"> • All candidate formative assessments completed by Instructor including; <ul style="list-style-type: none"> ○ Observations ○ Demonstrations ○ Questions and recorded answers • All work completed as module assignments and projects • Completed work records • Completed learner logbooks 		

4

LIST OF TOOLS, EQUIPMENT, MATERIAL AND CONTEXT OF ASSESSMENT

instructions	This section contains information regarding; <ul style="list-style-type: none"> Context of the assessment List of required tools and equipment. List of consumable items required during the service
1. Context of Assessment	This practical skill demonstration will be conducted in a Plumber's lab/workshop environment The Assessor will select the required tools, equipment and consumables from the list below for the assessment

2. List of tools and equipment required

S. No	Tools and equipment	Quantity
1	Adjustable wrench 6",8",12"	
2	Pipe Bender Machine Hydraulic complete set	
3	Chisel set	
4	Trowel	
5	Electric Drill machine(hammering with healti)3/4"	
6	Die (Ratchet),Die Fix 1/2,3/4,1,2	
7	Extension board 10 meter 2 core	
8	First Aid box	
9	Gloves lather, rubber	
10	Safety goggles Plastic, glass	
11	Hand Electric Grinder Electric Wall Cutter	
12	Grip plier 10"	
13	Hammer 250gm,500gm,1000gm,1500gm,2000gm	
14	Hand bit 1/4", 3/8"	
15	Helmet ABS Material	
16	Hacksaw 12" with blade	
17	Spirit Level 6",12",8"	
18	L-key set Star L key Set	
19	Measuring tape meter ,10 meter	
20	Pipe wrench ,10",12",14",18"	
21	Plass (pipe cutter) 1/2", 2"	
22	PPRC Heater 750W to 1000W	
23	PPR/Gi cutter 10" Gi Pipe Cutter 1/2 to 2"	
24	Safety boots(Shoes)	
25	Screw driver set 6",8",10",12"	
26	Spanner set 6mm to 24mm	
27	Testing pump (leakage) (Hand type)	
28	Tools box iron+3 draws	
29	Torch Chargeable	
30	Vice with iron stand(2nos)	
31	Compass Spring type 8"	
32	Solar Water Heater (Complete Set) Different denominations of different types	
33	Water Filling Pumps Centrifugal pump 1/2" Reciprocating 1/2	
34	Pipe Insulation Material	
35	Sealing Tapes	
36	Bench Vice 5" with bench	
37	Oil Can	
38	Center Punch	
39	Wire Brush	
40	Pipe Reemar	
41	Tap Set 1/8",1/4",3/8",1/2",3/4",1" with handle	
42	Air Compressor 10 bar	
43	Tri square 6",8"	

3. List of consumable items required		
S. No	Consumable Items	Quantity
1	Gi Pipe ½", ¾", 1"	
2	Gi fitting ½", ¾", 1" (Elbow, tee, socket etc.)	
3	PPRC pipe 25mm, 32mm	
4	PPRC fitting 25mm, 32mm	
5	PVC pipe 2", 3", 4"	
6	U PVC 2", 3", 4"	
7	P trap 4"	
8	Solution PVC	
9	All types of valves ½"	
10	Plastic Pipe ½", ¾", 1"	
11	Cp Fitting	



ASSESSMENT MATERIAL

EVIDENCE GUIDE

Qualification
LEN0153.v1
Level: 3
Credit: 10
Version: 1

LEN0153F.v1 Install sanitary ware

CONTENTS

1. Assessment Summary and Record
2. Candidate Assessment
3. Assessor Judgement Guide
4. List of required tools/ equipment, material and context of assessment

ASSESSMENT AND ASSESSOR DETAILS

Competent Not Yet Competent

Assessment Re-Assessment

Assessor Name: Assessor Code:

Assessor Signature: Date:

DD	MM	YYYY								

CANDIDATE DETAILS

Candidate Name:
First Name Last Name

Father Name:

Institute Name and District:

CNIC/BFORM #

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OR

Registration Number:

Gender Male Female

Candidate Consent I agree to the time and date of the assessment and am aware of the requirements of the assessment. I fully understand my rights of appeal.

Candidate Signature:

ASSESSMENT RESULTS SUMMARY FORM

You can use this coversheet as an *Assessment Results Summary Form*. Simply post a photocopy of this completed coversheet to NAVTTCC

NAVTTCC OFFICE ONLY

1. DATE FORM RECEIVED:

DD	MM	YYYY								

2. DATE ENTERED INTO DATABASE:

DD	MM	YYYY								

1

ASSESSMENT SUMMARY & RECORD

CANDIDATE NAME:

FATHER NAME:

ACTIVITY	METHOD			DESIRED OUTCOMES	RESULT	
	WRITTEN	ORAL	OBSERVATION		COMPETENT	NOT YET COMPETENT
NATURE OF ACTIVITY				DESIRED OUTCOMES FOR SUCCESSFUL ASSESSMENT OF COMPETENCY STANDARD: INSTALL SANITARY WARE		
Practical skill demonstration			✓	<ul style="list-style-type: none"> Plan and prepare for work Install sanitary ware Complete work 		
Knowledge Assessment		✓		<ul style="list-style-type: none"> Answer any questions your assessor may have for you during the practical skill demonstration 		
Other Requirements	✓	✓	✓	<ul style="list-style-type: none"> All candidate formative assessments completed by Instructor including; <ul style="list-style-type: none"> Observations Demonstrations Questions and recorded answers All work completed as module assignments and projects Completed work records Completed learner logbooks 		

2

CANDIDATE ASSESSMENT

Candidate Name:

Father Name:

ALL WORK ASSESSED IN THIS COMPETENCY STANDARD MUST BE YOUR OWN WORK.

GUIDANCE TO CANDIDATE

To meet this standard you are required to complete the following practical tasks of installing sanitary ware within set timeframe:

- Plan and prepare for work
- Install sanitary ware
- Complete work

ACTIVITIES	CANDIDATE RESPONSE
1. Complete practical assessment	<p>During a practical assessment, under observation by an assessor, I will correctly:</p> <p>Plan and prepare for work</p> <ul style="list-style-type: none">• Identify and obtain safety and other regulatory requirements for installation• Interpret and confirm layout plan• Identify and select tools and equipment• Perform measurements <p>Install appliances</p> <ul style="list-style-type: none">○ Check for safety hazards○ Mark out installation points and fixtures and modify as required○ Install sanitary ware and join pipes○ Conduct operational testing <p>Complete work</p> <ul style="list-style-type: none">• Complete work related documents and procedures• Perform final quality inspection• Clean up and store tools, equipment and material <p>Meet set timeframe appropriate for supplied sanitary ware requiring installation</p>
2. Complete knowledge assessment	Answer all questions my assessor may have during the practical assessment
3. Other requirements	<ul style="list-style-type: none">• All candidate formative assessments completed by Instructor including:<ul style="list-style-type: none">○ Observations○ Demonstrations○ Questions and recorded answers• All work completed as module assignments and projects• Completed work records• Completed learner logbooks

3

ASSESSOR JUDGEMENT GUIDE

Candidate Name:

Father Name:

INSTRUCTIONS FOR ASSESSOR

THIS SECTION CONTAINS MINIMUM EVIDENCE REQUIREMENTS.

The supplied sanitary ware requiring installation must meet the evidence requirements of the candidate's competence in installing sanitary ware

Set timeframe for practical skill demonstration must reflect the commercially viable timeframe for the tasks.

Oral questioning may be used to clarify candidate understanding of the topic and its application.

ACTIVITIES	MINIMUM EVIDENCE REQUIRED	YES/NO	ASSESSOR COMMENTS	
1. Completed practical assessment	During a practical assessment, under observation by an assessor, the candidate correctly carried out:			
	Planning and preparing for work			
	<ul style="list-style-type: none"> ○ Identify and obtain safety and other regulatory requirements for installation ○ Interpret and confirm layout plan ○ Identify and select tools and equipment ○ Perform measurements 			
	Installing sanitary ware			
	<ul style="list-style-type: none"> ○ Check for safety hazards ○ Mark out installation points and fixtures and modify as required ○ Install sanitary ware and join pipes ○ Conduct operational testing 			
	Completing work			
	<ul style="list-style-type: none"> ○ Complete work related documents and procedures ○ Perform final quality inspection ○ Clean up and store tools, equipment and material 			
	Meeting set timeframe appropriate for supplied sanitary ware requiring installation			
	2. Knowledge assessment	<p>Candidate's answers to questions are correct and demonstrate understanding of the topics and their application.</p> <p><i>Assessor to document below all questions asked and candidate answers. Use extra sheets if required and attached.</i></p>		
	3. Other requirements	<ul style="list-style-type: none"> • All candidate formative assessments completed by Instructor including; <ul style="list-style-type: none"> ○ Observations ○ Demonstrations ○ Questions and recorded answers • All work completed as module assignments and projects • Completed work records • Completed learner logbooks 		

4

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1. Context of Assessment	This practical skill demonstration will be conducted in a Plumber's lab/workshop environment The Assessor will select the required tools, equipment and consumables from the list below for the assessment

2. List of tools and equipment required		
S. No	Tools and equipment	Quantity
1	Adjustable wrench 6",8",12"	
2	Pipe Bender Machine Hydraulic complete set	
3	Chisel set	
4	Trowel	
5	Electric Drill machine(hammering with healti)3/4"	
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7	Extension board 10 meter 2 core	
8	First Aid box	
9	Gloves lather, rubber	
10	Safety goggles Plastic, glass	
11	Hand Electric Grinder Electric Wall Cutter	
12	Grip plier 10"	
13	Hammer 250gm,500gm,1000gm,1500gm,2000gm	
14	Hand bit 1/4", 3/8"	
15	Helmet ABS Material	
16	Hacksaw 12" with blade	
17	Spirit Level 6",12",8"	
18	L-key set Star L key Set	
19	Measuring tape meter ,10 meter	
20	Pipe wrench ,10",12",14",18"	
21	Plass (pipe cutter) 1/2", 2"	
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3. List of consumable items required		
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7	P trap 4"	
8	Solution PVC	
9	All types of valves ½"	
10	Plastic Pipe ½", ¾", 1"	
11	Cp Fitting	

1

ASSESSMENT SUMMARY AND RECORD

ACTIVITY	METHOD				DESIRED OUTCOMES	RESULT	
	WRITTEN	ORAL	PORTFOLIO	OBSERVATION		COMPETENT	NOT YET COMPETENT
NATURE OF ACTIVITY					DESIRED OUTCOMES FOR SUCCESSFUL ASSESSMENT OF: APPLY PLUMBER SOLAR HEATING TECHNICIAN SKILLS		
Practical final project	✓	✓	✓	✓	Complete supplied project brief related to application of Plumber Solar Heating Technician skills: <ul style="list-style-type: none"> • Apply knowledge of entrepreneurial ideas • Plan work and calculate cost • Install, commission and maintain solar water heating system • Install gas heating appliances • Install fittings and pipes • Install sanitary ware 		
Knowledge assessment		✓			<ul style="list-style-type: none"> • Answer all questions the Assessment Panel will have following oral presentation of completed project brief 		
Other requirements	✓	✓	✓	✓	<ul style="list-style-type: none"> • All completed formative assessments including: <ul style="list-style-type: none"> ○ Observations ○ Demonstrations ○ Questions and recorded answers • All completed course assignments and projects including: <ul style="list-style-type: none"> ○ Drawings and sketches of plumbing layouts ○ Calculations of materials, labour costs and overall costs • Completed work forms/records • Completed job cards • Evidence of development of business plan which includes: <ul style="list-style-type: none"> ○ Financial plan ○ Service and product delivery ○ Marketing strategy 		

2

CANDIDATE ASSESSMENT

Candidate Name..... Father Name

ALL WORK ASSESSED FOR THESE COMPETENCY STANDARDS MUST BE YOUR OWN WORK.

GUIDANCE TO CANDIDATE

To meet this standard you are required to:

- Apply Plumber Solar Heating Technician skills

ACTIVITIES	CANDIDATE RESPONSE
1. Complete portfolio of evidence	<ul style="list-style-type: none"> • All completed formative assessments including: <ul style="list-style-type: none"> ○ Observations ○ Demonstrations ○ Questions and recorded answers • All completed course assignments and projects including: <ul style="list-style-type: none"> ○ Drawings and sketches of plumbing layouts ○ Calculations of materials, labour costs and overall costs • Completed work forms/records • Completed job cards • Evidence of development of business plan which includes: <ul style="list-style-type: none"> ○ Financial plan ○ Service and product delivery ○ Marketing strategy
2. Complete project brief of applying Plumber Solar Heating Technician skills under observation by Instructor	<ul style="list-style-type: none"> • I will correctly complete requirements of supplied project brief under the following conditions: <ul style="list-style-type: none"> ○ In a group or individually, as required by project brief ○ Supplied brief will require a 5 day period to complete in a workshop environment <p>Your Assessment Panel will be looking for your competence in:</p> <ul style="list-style-type: none"> ○ Demonstrating task skills, task management (integration of tasks), managing any contingencies which may arise and task outcomes throughout the project timeframe ○ Applying knowledge and skill in the working environment
3. Present completed project brief to Assessment Panel	<ul style="list-style-type: none"> • Oral presentation of project brief and completed project work to Assessment Panel. • Presentation to include: <ul style="list-style-type: none"> ○ Requirements of brief ○ Planning and preparation of project ○ Problems encountered and how they were dealt with ○ Project outcome/s ○ Lessons learnt from undertaking project (reflective thinking) • Presentation to take no longer than 10 minutes
4. Answer all questions Assessor Panel will have following project presentation	<p>My answers to questions are correct and demonstrate my understanding of the topics and their application.</p>


3

ASSESSOR JUDGEMENT GUIDE

Candidate Name Father Name

INSTRUCTIONS FOR ASSESSMENT PANEL	<p>THIS SECTION CONTAINS MINIMUM EVIDENCE REQUIREMENTS.</p> <ul style="list-style-type: none"> The Assessment Panel will consist of three members: a registered Assessor, the candidate's Instructor and an expert from the private sector. The project brief will consist of integrated task requirements to enable the candidate to supply sufficient evidence of their competence in the skills required to work as a Plumber Solar Heating Technician The project brief must be suitable for the level of knowledge and skills required (i.e. Level 3) The timeframe for completion of assigned project brief is 5 working days The candidate may work in a team or as an individual to complete the project brief. If in a team, the contribution of each candidate must be clearly defined and observable.
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ACTIVITIES	MINIMUM EVIDENCE REQUIRED	YES/NO	ASSESSOR COMMENTS ON CANDIDATE PERFORMANCE
1. Completes all course assignments	<ul style="list-style-type: none"> All completed formative assessments including: <ul style="list-style-type: none"> Observations Demonstrations Questions and recorded answers All completed course assignments and projects including: <ul style="list-style-type: none"> Drawings and sketches of plumbing layouts Calculations of materials, labour costs and overall costs Completed work forms/records Completed job cards Evidence of development of business plan which includes: <ul style="list-style-type: none"> Financial plan Service and product delivery Marketing strategy 		
2. Complete project brief of applying plumber (Assistant) skills on solar photovoltaic (PV) systems under observation by Instructor	<p>Completed requirements of supplied project brief under the following conditions:</p> <ul style="list-style-type: none"> In a group or individually, as required by project brief Supplied brief will require a 5 day period to complete in a workshop environment Demonstrating task skills, task management (integration of tasks), managing any contingencies which may arise and task outcomes throughout the project timeframe Applying knowledge and skill in the working environment 		
3. Present completed project brief to Assessment Panel	<p>Oral presentation of project brief and completed project work to Assessment Panel.</p> <p>Presentation to include:</p> <ul style="list-style-type: none"> Requirements of brief Planning and preparation of project Problems encountered and how they were dealt with Project outcome/s Lesson learnt (reflective thinking) 		

ACTIVITIES	MINIMUM EVIDENCE REQUIRED	YES/NO		ASSESSOR COMMENTS ON CANDIDATE PERFORMANCE
	Presentation to take no longer than 10 minutes			
4. Answer all questions Assessment Panel will have following project presentation	<p>Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application.</p> <p>Assessment Panel to document all questions asked, if any, and the answers here. Use extra pages as required and attach here. </p>			

4

LIST OF TOOLS, EQUIPMENT, MATERIAL AND CONTEXT OF ASSESSMENT

Instructions

This section contains information regarding;

- Context of the assessment
- List of required tools and equipment.
- List of consumable items required during the service


1. Context of Assessment


This practical final project will be conducted in a Plumber's lab/workshop environment.


Required tools, equipment and consumables will vary according to project brief.


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