INSTALL STORAGE AND PUMPING SYSTEMS

UNIT CODE: CON/OS/PL/CR/03/3/A

Unit Description

This unit specifies the competencies required to install storage and pumping systems. It involves interpretation of drawings quantifying storage and ancillary appliance, and testing and commissioning storage and ancillary appliances, it applies in the construction industry

Element	Performance Criteria
These describe the key outcomes which make up workplace	These are assessable statements which
	specify the required level of performance
function	for each of the elements
	Bold and italicized terms are elaborated
	in the Range
1. Interpret working	1.1 Working drawings are differentiated based on
drawing	international technical drawings (ISO 128).
	1.2 Imperial measurements are converted into metric
	measurements based on conversion table.
	1.3 Symbols are identified and interpreted based on
	international technical drawings (ISO 128).
	1.4 Storage and ancillary appliance position is identified
	based on working drawings.
2. Interpret water storage	2.1 Water storage appliances manufacturers' drawing is
appliances	interpreted as presented.
manufacturers	2.2 Pipe work installation to water storage appliances are
drawings	done as per manufacturers 'instructions.
3. Interpret pumps	3.1 Water pump manufacturers' drawing is interpreted as
manufacturers	presented.
drawing	3.2 Pipe work installation to pump is done as per
	manufacturer's instructions.
4. Quantify storage and	4.1 <i>Materials</i> required for installing storage and
ancillary appliances	ancillary appliances are identified based on
supplies and materials	requirements of the job.
required	4.2 Supplies required for installation of storage and
	ancillary
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ELEMENTS AND PERFORMANCE CRITERIA

	 4.3 appliances are identified based on requirements of the job. 4.4 Quantity and <i>types of storage</i> and <i>types of pumps</i> required are enumerated based on the drawing.
5. Install storage systems and ancillary appliances	 5.1 Tools and equipment needed for fixing storage and ancillary appliances are selected based on the job requirements. 5.2 Tools and equipment are used based manufacturer's instructions 5.3 Storage and ancillary appliances positioning are determined based on drawings. 5.4 Support for Storage and ancillary appliances are put in place-based manufacturers' instructions 5.5 Storage and ancillary appliances are mounted based on job requirements and manufacturer's installation manual. 5.6 Personal Protective Equipment is used in line with occupational safety and health regulations
6. Test and commission storage and Ancillary appliances	 6.1 Functionality of the Storage and ancillary appliances are tested based on manufacturer's manual and requirements. 6.2 Faults in Storage and ancillary appliances functionality and leakage is corrected based on workplace policy. 6.3 Commission the storage and pumping system as per the clients/ contract requirements.

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variables	Range
1. Materials may include	• Pipes
but not limited to:	Various type of Valves
	• Fittings
	• Various types of tanks

	Various types of pumps
2. Tools and Equipment	• Pipe wrench
may include but not	Pipe withenPipe cutter
limited to:	Hacksaw
minied to:	
	Pipe threading equipment
	• Vise - Bench
	• Tap and Punch
	• Files
	Screwdrivers
	• Drill with various sizes of bits
	• Mallet
	• Ball hammer
	Masonry chisel
	• PPR machine / Heat Fusion
	• equipment
	• Pipe bender
	Sealant gun
3. Ancillary Appliances	Float valves
may include but not limited to:	Control valves
	Pressure relief valves
	Non-return valves
	• Foot valves
	• Strainers
	• Various pumps and controllers
	• Solar storage / tanks and collectors
	• Flanges
4. Supplies may include	• Fittings
but not limited to:	• Gaskets and O-rings
	Caulking agents
	Sealant and glue
	 Water proofing agents
5. Storage type may	Plastic tanks (PE)
include but not limited	 Steel tanks
to	Steel talksConcrete tanks
	Masonry tanksRubber tanks

 Fiber Reinforced Plastics (FRP) Insulated tanks Septic tank systems Pumps types may Sump pumps Submersible pumps Centrifugal pumps Booster pumps Various types of controllers Ancillary appliances Solar water heaters Pumps and controllers Safety valves Sump tanks Instant water heaters Washing machines connections) Water purifiers Positioning may Underground Above ground (elevated) Support may include Steel Steel Steel Steel Pipes Concrete Timber Masonry Compact earth 		Aluminum Alloy
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Compact earth		• Timber
		• Masonry
		Compact earth
10. Faults may include but • Low and high pressure	10. Faults may include but	Low and high pressure
not limited to: • Air locks	not limited to:	
• Leaks		
Clogged system		
 Control valve problems 		
Pump faults		

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- Drawing and interpretation skills
- Problem-solving skills
- Critical thinking skills
- Communication skills
- Interpersonal relationship skills
- Organizing skills
- Measuring skills
- Numeracy skills
- Cutting skills
- Threading skills
- Fusion skills
- Bending skills

Required Knowledge

The individual needs to demonstrate knowledge of:

- Drawing and drawing interpretation
- Mensuration
- Basic fluid mechanics
- Storage systems
- Pumping systems
- Support system for elevated storage
- Plumbing ancillary systems
- Solar water heating systems
- Septic storage systems

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

 1. 1. Critical aspects of competency Assessment requires evidence that the Candidate: 1.1 Interpreted working drawing correctly. 2.2 Quantified storage and ancillary appliances supplies and materials required accurately. 3 Installed storage systems and ancillary appliances according to work requirements properly. 4 Tested storage and ancillary appliances to functionality according to manuals

2. Resource	The following resources must be provided:
Implications	2.1 A functional workshop with basic tools, equipment and
	sanitary appliances.
	2.2 Reference and appliance manuals
	2.3 Personal protective equipment
3. Methods of	Competency may be assessed through:
Assessment	3.1 Observation.
	3.2 Written test
	3.3 Interview
	3.4 Oral questioning
	3.5 Project
4. Context of	Assessment may be done:
Assessment	4.1 On-the –job
	4.2 Off-the –job
	4.3 During work placement
5. Guidance	Holistic assessment with other units relevant to the industry sector
information for	workplace and job role is recommended
assessment	2