INSTALL WATER STORAGE SYSTEMS AND ANCILLARY APPLIANCES

UNIT CODE: CON/OS/PL/CR/05/4/A

UNIT DESCRIPTION

This unit covers the competencies required to install storage systems and ancillary appliances. It involves interpreting working, quantifying materials and supplies, mounting and testing of water storage systems and ancillary appliances as well as carrying out housekeeping practices.

This standard applies in the construction industry.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the **key outcomes** which make up **workplace function**.	**PERFORMANCE CRITERIA** These are **assessable** statements which specify the required level of performance for each of the elements. ***Bold and italicized terms are elaborated in the Range***
1. Interpret working drawing	1.1 Working drawing are interpreted based on technical drawings standards. 1.2 The scale of the drawing is read based on the legend/key. 1.3 Imperial measurements are converted into metric measurements based on conversion table. 1.4 Symbols are identified based on technical drawings standards 1.5 Reference points are identified on the ground based on the site drawing.
2. Quantify storage and ancillary appliances supplies and materials required	2.1 Materials required for installing storage and ***ancillary appliances*** are identified based on requirements of the job. 2.2 ***Supplies*** required for installation of storage and ancillary appliances are identified based on requirements of the job. 2.3 ***Types of storage*** and ***types of pumps*** required are enumerated based on the drawing. 2.4 Materials and supplies required are measured and counted based on working drawings and specifications 2.5 Schedules of storage and pumps are prepared based on working drawings

3. Mount water storage structures and ancillary appliances	3.1 **Tools and equipment** needed for fixing storage and ancillary appliances are identified based on the job requirements. 3.2 Tools and equipment are used based manufacturer's instructions. 3.3 ***Positioning*** of Storage and ancillary appliances is determined based on drawings. 3.4 **Support** for Storage and ancillary appliances are put in place based manufacturers' instructions. 3.5 Storage and ancillary appliances are mounted based job requirements and manufacturer's installation manual. 3.6 Personal Protective Equipment is used in line with occupational safety and health regulations. 3.7 Housekeeping is conducted on work area based on work place procedure 3.8 Safety and health practices are observed based on OSHA.
4. Test storage and ancillary appliances	4.1 Functionality of the Storage and ancillary appliances are tested based on manufacturer's manual and requirements. 4.2 **Faults** in Storage and ancillary appliances functionality are corrected based on workplace policy. 4.3 Commission the storage system as per the client's/ contract requirements.
5. Carryout housekeeping activities	5.1 Wastes are segregated and disposed of in line with environment protection guidelines. 5.2 Tools and equipment are cleaned and storage as per manufacturers' instructions. 5.3 Surplus materials and supplies are stored as per manufacturers' instructions. 5.4 Records are kept as per workplace procedure.

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. Ancillary appliances may include but not limited to:	• Pipes • Various type of Valves • Fittings • Various types of tanks • Various types of pumps • Various types of taps • Strainers • Various pumps and controllers • Solar storage / tanks and collectors • Flanges • Solar water heaters • Pumps and controllers • Instant water heaters • Washing machines (connections) • Water purifiers
2. Tools and equipment may include but not limited to:	• Pipe wrench • Pipe cutter • Hacksaw • Pipe Threading Equipment • Vice - 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. Supplies may include but not limited to:	• Fittings • Gaskets and O-rings • Caulking agents • Sealant and glue • Water proofing agents
4. Types of storage may include but not limited to:	• Plastic tanks (PE) • Steel tanks • Concrete tanks • Masonry tanks • Rubber tanks • Aluminium Alloy tanks • Fibre Reinforced Plastics (FRP) tanks • Insulated tanks
5. Types of pumps may include but not limited to:	• Sump pumps • Submersible pumps • Centrifugal pumps • Booster pumps • Various types of controllers
6. Positioning may include but not limited to:	• Underground • on-ground • above ground (elevated)
7. Support may include but not limited to:	• Steel Pipes • Concrete • Timber • Masonry • Compact Earth
8. Faults may include but not limited to:	• Low and high pressure • Air locks • 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
- 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. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Interpreted working drawing correctly. 1.2 Quantified storage and ancillary appliances supplies and materials required accurately. 1.3 Installed storage systems and ancillary appliances according to work requirements properly. 1.4 Tested storage and ancillary appliances to functionality according to manuals.

	1.5 Conducted housekeeping on work area appropriately 1.6 Observed safety and health practise appropriately
2. Resource implications	The following resources must be provided: 2.5 A functional workshop with basic plumbing tools, instruments and equipment 2.6 Materials and supplies necessary for the tasks 2.7 Reference and maintenance manuals 2.8 Personal protective equipment
3. Methods of Assessment	Competency may be assessed through: 3.1 Observation 3.2 Written test 3.3 Third party report 3.4 Portfolio 3.5 Oral questioning 3.6 Interviewing
4. Context of Assessment	4.1 On-the-job 4.2 Off-the-job 4.3 Work placement
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended