

INSTALL DRAINAGE SYSTEM

UNIT CODE: CON/OS/PL/CR/03/4/A

UNIT DESCRIPTION

This unit covers the competencies required to install drainage systems. It involves interpreting the working drawings, setting out the drainage system, quantifying drainage system components and supplies, mounting and testing of drainage systems and 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. <i>Bold and italicized terms are elaborated in the Range</i>
1. Interpret working drawing	1.1 Working drawing are differentiated based on technical drawings standards. 1.2 The scale of the drawing is read based on the legend 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 materials for drainage system	2.1 <i>Materials for drainage system</i> are identified based on the drawings. 2.2 Supplies are identified based on specifications. 2.3 A schedule of materials is developed based on the drawing.
3. Set out Drainage systems	3.1 Measurements are transferred to the ground based on drawing 3.2 Joint positions are identified based on the drawing 3.3 Invert levels are taken based on the drawing.

4. Mount drainage system	4.1 Safety and health practises are observed based on OSHA 4.2 Above ground drainage components are laid based on the levels 4.3 Excavation for underground drainage components is carried out based on the layout. 4.4 Drainage pipeline base is stabilized based on drawings. 4.5 Underground drainage pipes are laid based on the levels 4.6 Drainage pipe work is protected based on specifications. 4.7 Inspection chambers and manholes are constructed according to specifications. 4.8 Drainage traps mounted based on specifications. 4.9 Drainage system is cured as per job requirements.
5. Test drainage system	5.1 Functionality tests are conducted based on best practices 5.2 Faults in drainage system are corrected based on best practice.
6. Carryout housekeeping activities	6.1 Backfilling and making-good is carried out based on best practice. 6.2 Drainage signage is placed based on legal requirements 6.3 Wastes are segregated and disposed of in line with environment protection guidelines. 6.4 Tools and equipment are cleaned and storage as per manufacturers' instructions. 6.5 Surplus materials and supplies are stored as per manufacturers' instructions. 6.6 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. Materials for drainage system may include but not limited to:	• Various types and sizes of fittings • Caulking tools • Various types of pipe supports • Clay pipes • UPVC • Cast iron • Concrete
2. Functionality tests may include but not limited to:	• Smoke test • Water test • Air test • Pressure test • Dye test
3. Faults in drainage system may include but not limited to:	• Leakages • Air lock • Water hammer • Blockages

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:

- Interpersonal skills
- Communication skills
- Sketching skills
- Interpretation skills
- Problem-solving skills
- Critical thinking skills
- Joining and jointing skills
- Organizing skills
- Measuring skills
- Numeracy skills
- Cutting skills
- Threading skills

- Bending skills
- Interpersonal Relationship skills

Required Knowledge

The individual needs to demonstrate knowledge of:

- Interpretation of symbols
- Conversion of units
- Levelling
- Drainage materials and supplies
- Drainage tools and equipment
- Types of pipes
- Materials and supplies
- Joining and jointing
- Mensuration
- Drainage systems
- Faults in drainage system
- Functionality tests

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 the working drawing correctly. 1.2 Used drainage tools and equipment appropriately. 1.3 Quantified required supplies and materials accurately. 1.4 Set out drainage system correctly 1.5 Installed above ground drainage system correctly 1.6 Installed below ground drainage system appropriately 1.7 Tested drainage system and work correctly 1.8 Conducted housekeeping on work area appropriately 1.9 Observed safety and health practises appropriately
--	---

2. Resource Implications	The following resources must be provided: 2.1 A functional workshop with basic plumbing tools, equipment, materials and supplies. 2.2 References and manuals including construction working drawings 2.3 Personal protective equipment
3. Methods of Assessment	Competency may be assessed through: 3.1 Observation 3.2 Oral questions 3.3 Written tests 3.4 Interviewing 3.5 Third party report 3.6 Portfolio
4. Context of Assessment	Assessment may be done: 4.1 On-the-job, 4.2 Off-the-job or 4.3 During Work placement.
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.