INSTALL PIPES IN BUILDINGS

UNIT CODE: CON/OS/PL/CR/01/3/A

Unit Description

This unit specifies the competencies required to install pipes in buildings. It involves interpreting drawings, using tools and equipment, quantifying materials requirement, fitting-up domestic pipework as well as testing functionality of pipework. It 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 Drawings are differentiated based on ***type of drawing***. 1.2 The scale of the drawing is read based on the provided key. 1.3 Imperial measurements are converted into metric measurements based on conversion table. 1.4 Symbols are identified based on internationally accepted codes. 1.5 Isometric piping drawings are drawn based on internationally accepted codes.
2. Use piping tools and equipment	2. 1***Piping tools and equipment*** are identified based on the requirements of the job. 2. 2Piping tools and equipment are cared for and maintained based on manufacturer's manual and workplace place policy. 2. 3Piping tools and equipment are used based on manufacturer's instructions. 2. 4Piping tools and equipment are stored based on manufacturer's instructions. 2. 5***Personal Protective Equipment*** *is* used in line with SOP 2. 6Materials *r*equired for piping are identified based on the drawings. 2. 7Supplies are identified based on ***specifications.***

	2. 8A schedule of materials is created based on the drawing.
3. Quantify piping materials	3.1 Materials *r*equired for piping are identified based on the drawings. 3.2 Supplies are identified based on ***specifications.*** 3.3 A schedule of materials is created based on the drawing.
4. Fit-up domestic pipe work	4.1 Galvanized Iron pipes are threaded based on international codes. 4.2 Thermoplastic pipes are joined in accordance with international piping code. 4.3 Poly Vinyl Chloride pipes are joined as per manufacturer's instructions. 4.4 Pipes are fitted based on drawing specifications. 4.5 Pipe bending is done based on type, drawing specifications and requirements of the job. 4.6 Solar water heater system is installed based manufacturer's instructions.
5. Test functionality of pipe work	5.1 Hydro static test is conducted based on international pipe testing codes. 5.2 Air test is conducted based on international pipe testing codes 5.3 Faults in pipe work functionality and leakage are corrected based on workplace policy

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. Personal Protective may include but not limited to:	• Hardhat • Gloves • Dustcoat / overall • Safety shoes / boots
2. Piping tools and may include but not limited to:	• Pipe wrench • Pipe cutter

	• Hacksaw • 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
3. Materials may include but not limited to:	• Various types of pipes • Various types and sizes of fittings • Caulking supplies • Various types of pipe support • Sandpapers • Threading oil • Thread tape • Solar water heater (passive and active) • Various types of valves
4. Specifications may include but not limited to:	• Gradient • Level • Plumpness
5. Solar water but not limited to:	• Active system • Passive system (vacuum tubes,etc.)
6. Test may include but not limited to	• Smoke test • Water test • Air test
7. Type of drawing may include but not limited to	• Architectural Engineering Details and sections • Isometric drawings
8. Thermoplastic may include but not limited to:	• PPR-Poly propylene random pipes • HDPE-High density poly • ethylene pipes

9. Bending methods may include but not limited to	• Bending machines for GI pipes • Burning for PVC pipes • Sanding for PVC pipes

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

Required Knowledge

The individual needs to demonstrate knowledge of:

- Measurement
- Fusion
- Bending
- Mensuration
- Plumping systems
- Solar water heating systems
- Rain water harvesting system
- Firefighting systems
- Drainage Waste and Vent (DWV) 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	1.1 Interpreted the working drawing correctly. 1.2 Used piping tools and equipment appropriately. 1.3 Quantified required supplies and materials accurately. 1.4 Fitted pipes are based on drawing specifications. 1.5 Produced functional pipe work.
2. Resource Implications	The following resources must be provided: 2.1 A functional workshop with basic plumbing tools, 2.2 equipment, materials and supplies. 2.3 References and manuals including construction working drawings 2.4 Personal protective equipment
3. Methods of Assessment	Competency may be assessed through: 3.1 Observation. 3.2 Written test 3.3 Interview 3.4 Oral questioning 3.5 Project
4. Context of Assessment	Assessment may be done: 4.1 On-the –job 4.2 Off-the –job 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