INSTALLATION OF WATER PIPES AND ANCILLARY APPLIANCES

UNIT CODE: CON/CU/PL/CR/01/4/A

Relationship to Occupational Standards
This unit addresses the unit of competency: Install water pipes and ancillary appliances

Duration of Unit: 90 hours

Unit Description
This unit covers the competencies required to install water pipes and ancillary appliances in buildings. It involves interpreting working drawings, quantifying piping materials, supplies and ancillary appliances, preparing and assembling pipe works, installing water pipe works, testing the piping system and carrying out housekeeping practices.

Summary of Learning Outcomes

1. Interpret working drawings
2. Quantify piping materials, supplies and ancillary appliances
3. Prepare and assemble pipe work
4. Install water pipe works and ancillary appliances
5. Test water supply system
6. Carryout housekeeping activities

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Interpret working drawings	• Symbols used is plumbing drawings • Conversion of measurements • Sketching piping drawings • Interpreting piping drawings	• Observation • Written tests • Oral questioning • Interviewing • Third party report

2. Quantify piping materials and ancillary appliances	• Piping materials and supplies • Pipe sizes required • Types and number of pipes required • Types and numbers of fittings required • Types and number of valves required • Estimation of quantities	• Observation • Written tests • Oral questioning • Interviewing • Third party report

3. Prepare and assemble pipe work	• Terms and concepts
	• Types of Pipes
	  ○ PVC
	  ○ GI
	  ○ PPR
	• Mild steel
	• Stainless steel
	• Copper
	• CPVC
	• Methods of bending pipes
	• Cutting and threading of galvanized pipes
	• Traps and valves
	• Piping systems
	  ○ Hot water
	  ○ Cold water
	• Pipe jointing and connections
	• Clenching materials
	• Adhesives
	• Pipe fitting
	• Occupational health and safety requirements
		• Observation
		• Written tests
		• Oral questioning
		• Interviewing
		• Third party report

4. Install pipe works and ancillary appliances	• Terms and concepts
	• Types of water supply
	  ○ Direct water supply
	  ○ Indirect water supply
	• Materials and supplies
	• Piping ancillary appliances
	• Types of water supply systems
	  ○ Hot water
	  ○ Cold water
	• Installation of water supply systems procedure
		• Observation
		• Written tests
		• Oral questioning
		• Interviewing
		• Third party report

5. Test water supply system	• Functionality tests
	  ○ Air
	  ○ Water
	  ○ Pressure
	  ○ Smoke
	• Faults in systems
		• Observation
		• Written tests
		• Oral questioning
		• Interviewing
		• Third party report

6. Carryout housekeeping activities	• Meaning and significance of housekeeping activities • Waste management • Care, maintenance and storage of tools and equipment	• Observation • Written tests • Oral questioning • Interviewing • Third party report

Suggested Methods of Instruction:

- Demonstration by trainer
- Practice by the trainee
- Field trips
- Discussions
- Direct instruction

Recommended Resources

Functional Workshop with the following:

Tools and Equipment

- Plumb bob
- Hacksaw
- Measuring tools (Tape measure, infra-red light, rule etc.)
- Power tools
- PPE's
- Sieve
- Mason's Square
- Die stock
- Threading machine
- PPR fusion machine
- Pipe wrench
- Bench vice
- Pipe stand vice
- Pipe bending machine
- Blow lamp
- Welding machine
- Reamers
- Files
- Pipe and tube cutters
- Pipe inspection equipment
- Pipe extractors
- Mason's hammer
- Chisel
- Trowels (Brick, pointing, window, corner and finishing trowels)
- Spirit level
- Bolster
- Cold chisel
- Hawk (Hand board)
- Sandpaper/Sponge
- Jointing knife/rod
- Stepping ladder

- Mason's line

Supplies and Materials

- Adhesive
- Pipes
- Pipe fittings
- Valves
- Taps
- Water filters
- Water pumps