

PERFORM PVC SHEATHED CABLING, CONDUITING, TRUNKING AND CABLE TRAYS LAYING

UNIT CODE: ENG/OS/EI/BC/01/3/A

UNIT DESCRIPTION

This unit covers the competencies on the performance of basic metal works, installation of PVC sheathed cables, PVC conduits, metallic conduits, wire ways, mounting of trunking and laying of cable trays. It also involves competencies to install consumer units, distribution boards and auxiliary components frames.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace functions.	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. Perform basic metal works	1.1 Correct PPE are identified and selected in line with safety requirements. 1.2 Tools and equipment are selected as per job requirements. 1.3 Perform measuring, marking, cutting, filling, drilling, threading, cutting and folding of metals as per the required standards.
2. Install PVC Sheathed cables	2.1 Correct PPE are identified and selected in line with safety requirements. 2.2 Tools and equipment are selected as per job requirements. 2.3 Perform the installation of lighting and power using PVC sheathed cable in line with the IEE regulations.
3. Install PVC and metallic conduits	3.1 Correct PPE are identified and selected in line with safety requirements. 3.2 Drawings are interpreted based on job requirements. 3.3 Sizes and quantities of conduits, fittings and accessories are determined as per job requirements. 3.4 Tools and equipment are selected as per job requirements. 3.5 Conduit is assembled ensuring that fittings are fully inserted and tightened as per job requirements 3.6 Conduit is bent as per job requirements and IEE regulations. 3.7 Conduit couplings and elbows are installed as per job requirements and IEE regulations. 3.8 Conduit is threaded in line with job requirements and IEE regulations. 3.9 Conduit is terminated to the fitting in line with job requirements and IEE regulations.

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make up workplace functions.	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>
	3.10 Safety procedures are followed in line with standard operating procedures (SOPs).
4. Install wire ways, trunking and cable trays	4.1 Drawings are interpreted based on job requirements. 4.2 Sizes and quantities of materials are selected as per job requirements. 4.3 Tools and equipment are selected as per job requirements. 4.4 Wire ways, trunkings and cable trays are installed as per job requirements. 4.5 Safety procedures are followed in line with SOPs
5. Install distribution board, consumer control unit and auxiliary components	4.1 Drawings are interpreted as per job requirements. 4.2 Correct quantities of materials are selected as per job requirements. 4.3 Tools and equipment are selected as per job requirements. 4.4 Distribution board, consumer control unit and auxiliary components are installed as per job requirements. 4.5 Safety procedures are followed in line with SOPs.
6. Complete performance of conduiting, trunking and cable tray works	4.1 Final checks are made to ensure that work conforms with instructions and job requirements. 4.2 Supervisor is notified upon completion of work. 4.3 Tools, equipment and any surplus resources and materials are, where appropriate, cleaned, checked and returned to storage in accordance with established procedures 4.4 Wire ways are secured with draw wires and against blockage, moisture and water. 4.5 Work area is cleaned up and made safe according to OSH regulations. 4.6 Reports are prepared in accordance with work place procedures.

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.

Variable	Range
1. Personal Protective Equipment (PPE) include but not limited:	<ul style="list-style-type: none"> ● Working gloves ● Overalls ● Safety shoes ● Helmet

Variable	Range
	<ul style="list-style-type: none"> • Safety harness
2. Metallic conduits/non-metallic conduits include but not limited to:	<ul style="list-style-type: none"> • Metallic Heavy and light gauge • Polyvinyl Chloride Pipe (PVC) • Heavy and light gauge • Flexible
3. Fittings include but not limited to:	<ul style="list-style-type: none"> • Couplers • Lock nut and bushing • Bends • Saddles and clips
4. Tools and equipment include but not limited to:	<ul style="list-style-type: none"> • Spirit level, hack saw, plumb bob and line, steel files, stock and die, metal pipe bender, bending springs, electric drill, chisels, mason's hammer • Electrical power tools • Power drills • Portable grinder
5. Auxiliary components include but not limited to:	<ul style="list-style-type: none"> • Draw boxes • Inspection boxes • Cable glands

REQUIRED KNOWLEDGE AND UNDERSTANDING

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

<ul style="list-style-type: none"> • Interpretation of electrical installation diagrams and architectural drawings • Types of electrical conduits • Proper uses and installation of conduits • Techniques in installing and bending of conduits and fittings • Proper Installation for maintenance accessibility 	<ul style="list-style-type: none"> • Use of materials, tools and equipment • Proper uses and installation of wire ways and cable trays • Proper procedure in installation of distribution boards and auxiliary components • Good housekeeping • Safe use of adhesives • Proper use of safety harness (PPE)
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FOUNDATION SKILLS

The individual needs to demonstrate the following foundation skills:

<ul style="list-style-type: none"> • Reading skills required to interpret work drawing and instructions • Preparation, handling and storage of materials, tools and equipment • Laying out of conduits, trunkings and cable trays • Bending of conduits 	<ul style="list-style-type: none"> • Effective communication skills • Effective use of measuring devices • Installing different types of distribution boards • Report writing and record keeping • Cutting skills
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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 Observed safety precautions 1.2 Interpreted drawings. 1.3 Prepared list of materials, tools and equipment. 1.4 Installed electrical metallic/ non- metallic (PVC conduit). 1.5 Installed wire ways and cable trays. 1.6 Installed distribution boards and auxiliary components. 1.7 Secured wire ways. 1.8 Prepared work report and kept records.
2. Resource Implications.	Resources relevant to this unit of competence. This includes; <ul style="list-style-type: none">• Workplace location• Tools and equipment appropriate to conduiting, trunking and cable tray laying• Materials relevant to the proposed activity• Drawings and specifications relevant to the task
3. Methods of Assessment.	Competency may be assessed through: 3.1 Observation 3.2 Oral questioning 3.3 Written test 3.4 Portfolio of Evidence 3.5 Interview 3.6 Third party report
4. Context of Assessment.	Competency may be assessed in an off and on the job setting. Assessment shall also be done while the tasks are being undertaken either individually or as part of a team under limited supervision
5. Guidance information for assessment.	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.