

NOCC-A21 Electrician: Competence Package

Relevant Occupation/trade title: Electrician			SAQA ID: 91761		
Learning Area 5: Install wiring systems and accessories (low voltage) in domestic buildings and premises (incl. earthing and bonding)			Total Hours:		128
Learning Project 1: Install and design wire ways and enclosures			Total Hours:		40
Requisite learning areas/projects to be in place (Pre-requisite and co-requisite):		<ul style="list-style-type: none">• LA 1 (LP 1, 2, 3, 6, 7, 9, 12)• LA 2 (LP 1, 2, 5, 6, 7)• LA 4 (LP 1, 2)			
Learning project description: Design, chase and install wire ways/trunking (concealed & surface mounted, wall, ceiling & floor) and surface and flush mounted enclosures in domestic buildings and premises					
Activity phase	Practical Skills Modules Content	Underpinning Knowledge Module Content	Work Experience Module Content (Exposure to be given)	Didactical- methodological advice	Learning materials/Tools and Equipment
Reference to QCTO Curriculum	PM04-PS01, PM04-PS02, PM04-PS03 PM-05-PS01, PM-05-PS02 PM-05-PS06, PM-08-PS01-05	KM-05-KT01 KM-05-KT02 KM-05-KT03	WM-01-WE01-03 WM-02-WE01-03		
Planning/ Preparation	<p>Provide access to (Given): <u>Work tasks/job requests requiring the installation and design of wireways and enclosures as well as materials and equipment as per last column</u></p> <p>Apprentices must be able to do/perform the following (hard and soft) skills:</p> <p>Plan and prepare for wire way installation:</p> <ul style="list-style-type: none">• Identify work requirements from job request/work orders or equivalent• Clarify/ confirm work task with appropriate parties or by site inspection	<p>Knowledge of:</p> <ul style="list-style-type: none">• Different types of wireways and their uses e.g. PVC and Bosal conduits, cable trays, Unistrat, PVC/metal trunking• Wire way installation methods and techniques• Tools for wireway installations• Earthing and Bonding methods• Safety precautions regarding wireway installations• PPE for the installation	<p>Under supervision:</p> <ul style="list-style-type: none">• Perform risk assessments for installing wireways and enclosures• Select the correct wireways and enclosures for the work task at hand• Install wire ways and enclosures• Record and report any defects on wireways and enclosures• Conduct final inspections of installation• Conduct housekeeping activities related to installation of wireways	<ul style="list-style-type: none">• Lecture, presentations• DVDs, audio-visual• Role play• Group work	<p>Print materials, electronic files, software applications incl.:</p> <ul style="list-style-type: none">• OHS Act• SANS 10142-1• Text books• Training manuals for trainers and apprentices incl. multimedia software• Set of presentation aids (videos, slides) for overhead or LED/LCD projectors <p>Access equipment incl.:</p> <ul style="list-style-type: none">• Ladders and scaffolds

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	<ul style="list-style-type: none"> Identify applicable Occupational Health and Safety standards, statutory requirements, relevant SANS standards, codes of practice, manufacturers' specifications, environmental requirements and enterprise procedures Conduct risk assessment by identifying potential hazards and select prevention and/or control measures Installation of wire ways is prepared in consultation with other parties affected by the work and sequenced appropriately Plan wire ways within the constraints of the building structure Determine and obtain correct size, type and quantity of materials/ components and inspect for compliance with the job specifications Compile tool list required for installation Obtain tools, equipment, materials and measuring devices needed to carry out the installation work Identify the teams and individuals roles and responsibilities within the team where appropriate <p>Plan and prepare to install enclosures:</p>	<p>of wireways</p> <ul style="list-style-type: none"> Manufacturer specifications for different wireways OHS Act SANS codes and standards - 10142-1 Work procedures and work documents related to design and installing of wireways Different types of enclosures associated accessories and their uses Enclosure installation methods and techniques Safety precautions regarding enclosure installation Specialised PPE in the use of enclosures How to complete a risk assessment on enclosures Work procedures and work documents related to design and installing enclosures 	<p>and enclosures</p>		<p>Hand- & power tools incl.:</p> <ul style="list-style-type: none"> Conduit benders Pipe cutter Hacksaw Holesaw Chassis punch Hammers Set of chisels Chalk line Screw drivers Spanners Electrical drilling machine/hammer with set of drill bits and chisels Electrical grinder Electrical wall chaser <p>PPE incl:</p> <ul style="list-style-type: none"> Hand gloves Protective goggles Hearing protection Safety clothing Safety boots <p>Measuring and testing instruments incl.:</p> <ul style="list-style-type: none"> Measuring tape Steel ruler Steel square Combination square Spirit level <p>Training workshop</p>
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	<ul style="list-style-type: none"> Identify, obtain and understand OHSA procedures for a given work area Identify health and safety risks and follow established risk control measures in preparation for the work Identify the correct way of installing different types of DBs (e.g. correct sizes embedded/flush and surface mount, metal/PVC, external/internal installation) Determine the size/capacity of the DB according to the number or required circuits Plan the location(s) and position of enclosures within the limits of the building structure and applicable regulations List material needed for the installation work and check against job requirements Prepare installation of enclosures in consultation with others affected by the work, and sequence appropriately List tools, equipment and measuring devices needed to for the installation work and check for correct operation and safety 				incl.: <ul style="list-style-type: none"> Installation wall/cubicles/panels (i.e. potentially covering wall, ceiling and under floor installations) Set of reusable concealed and surface mounted standard enclosures incl. distribution boards, switch boards, panels, junction boxes and related accessories Set of consumables consisting of various types of enclosures and fittings e.g. PVC and metal conduits, cable trays, PVC/metal trunking and ducts, Pipe tube and conduit clamps, power skirting, box connectors, couplings etc.
Implementation/Execution	Install the wireways: <ul style="list-style-type: none"> Prepare work area Confirm required isolations where appropriate Mark out and chase/cut 				

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	<p>wireways or otherwise prepare appropriately</p> <ul style="list-style-type: none"> • Assemble/position and secure wireways, and, support systems • Install wireways and accessories to comply with manufacturer's specifications in conjunction with other parties involved • Earth and bond metal conductive parts • Inspect wireways and support systems for compliance with the work plan and manufacturer specifications • Rectify all identified defects and damages • Carry out installation in an effective way without unnecessary waste of materials or damage to the surrounding environment <p>Install enclosures and related accessories</p> <ul style="list-style-type: none"> • Follow OHSA risk control measures and procedures for carrying out the work • Install enclosures and associated equipment in compliance with manufacturer's specifications given instruction • Earth and bond metal conductive parts • Inspect enclosures and accessories for compliance with the work plan and manufacturer specifications • Rectify all identified defects and 				
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	damages <ul style="list-style-type: none"> • Carry out enclosure installation in an effective way without unnecessary waste of materials or damage to the surrounding environment 				
Evaluation/ Documentation	Complete the installation work and conduct housekeeping <ul style="list-style-type: none"> • Complete final job inspection in accordance with the work plan • Clear, clean and restore work area of waste • Maintain and store tools and equipment • Finalise work completion documentation 				
Total	Hours: 40				
Specialisation additions					
Assessment guidance					
Criteria for assessment: <ul style="list-style-type: none"> • Safe working loads and correct slinging methods are determined. • Wire ways are identified and selected in accordance with load (number of cables to in wire way) requirements • Installation of wire ways is inspected and unsafe or defective wire ways are identified and reported in accordance to worksite procedures. 					