

NOCC-A21 Electrician: Competence Package

Relevant Occupation/trade title: Electrician			SAQA ID: 91761		
Learning Area 2: Identify, care and use of basic, trade-specific hand- & power tools and equipment			Total Hours:	192	
Learning Project 7: Use hand and power tools to prepare wire ways (Steel & PVC) for installation			Total Hours:	16	
Requisite learning areas/projects to be in place (Pre-requisite and co-requisite):		<ul style="list-style-type: none"> <li>• LA 1 (LP 3, 7, 9, 12)</li> <li>• LA 2 (LP 2)</li> </ul>			
Learning project description: Use hand and power tools to prepare wire ways (Steel & PVC) for installation including cutting, bending, glueing					
Activity phase	Practical Skills Modules Content	Underpinning Knowledge Module Content	Work Experience Module Content	Didactical-methodological advice	Learning materials/Tools and Equipment
Reference to QCTO Curriculum	PM01-PS01 PM-01-PS02 PM04-PS01	KM02-KT01 KM05-KT01	WM:01		
Planning/Preparation	<p><b>Provide access to (Given):</b> Applicable hand and power tools for the preparation of the installation of wire ways, drawings and instructions, and applicable materials</p> <p><b>Apprentices must be able to do/perform the following (hard and soft) skills:</b></p> <p><b>Arrange for wire way preparation work</b></p> <ul style="list-style-type: none"> <li>• Read drawings and/or instructions of task</li> <li>• Perform risk assessment on the task and determine safe working procedure</li> <li>• Identify and plan the correct hand or power tools</li> </ul>	<p><b>Knowledge of:</b></p> <ul style="list-style-type: none"> <li>• Applicable hand and power tools for the preparation of wire ways</li> <li>• Safety precautions regarding the use of applicable hand and power tools</li> <li>• Methods of risk assessment on the use of applicable hand and power tools</li> <li>• Material used in preparation of wire ways</li> <li>• Standard operating procedures in preparation of wire ways</li> <li>• SANS 10142-1</li> <li>• Relevant work site procedures and practices</li> <li>• Types of specialised tools</li> </ul>	<p><b>Under supervision:</b></p> <ul style="list-style-type: none"> <li>• Prepare wire ways by cutting, bending and glueing</li> <li>• Perform risk assessment prior to preparation of wire ways</li> <li>• Inspect equipment and complete registers</li> <li>• Prepare and assemble different types of wire ways for installation</li> <li>• Store hand and power tools, record and report any defects</li> <li>• Engage in regular housekeeping activities, tool and equipment maintenance</li> </ul>	<ul style="list-style-type: none"> <li>• Research /Desk study</li> <li>• Case studies /scenarios</li> <li>• Technical discussions</li> <li>• Group work</li> <li>• Lecture/ instructions</li> <li>• Presentations</li> <li>• Textbook work</li> </ul>	<p><b>Print materials, electronic files, software applications incl.:</b></p> <ul style="list-style-type: none"> <li>• OHS Act</li> <li>• SANS 10142-1</li> <li>• Text books</li> <li>• Training manuals for trainers and apprentices incl. multimedia software</li> <li>• Worksheets for preparation of wire ways projects</li> <li>• Set of presentation aids (videos, slides) for overhead or LED/LCD projectors</li> <li>• Manufacturer</li> </ul>

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	<p>to be used</p> <ul style="list-style-type: none"> <li>Inspect tools for serviceability and report damages to appropriate personnel</li> <li>Interpret work assignment/instructions and determine sequence of operation</li> <li>Identify appropriate wire ways and materials needed according to given work assignment/instructions</li> <li>Identify and fit applicable PPE</li> </ul>	<p>used for installing wire ways</p> <ul style="list-style-type: none"> <li>Types of wire ways and their application</li> <li>Installation methods for wire ways</li> <li>Techniques of preparing and assembling wire ways</li> </ul> <p><b><u>Types of wire ways refer to:</u></b> Conduit-flexible, metal or polyvinyl chloride (PVC), ducting-metal or PVC, power skirting-cable trays or bus bar trunking channels and racks</p>	<ul style="list-style-type: none"> <li>Provide work documentation, verbal and written reports as required by the company</li> </ul>		<p>catalogues</p> <p><b>Hand- &amp; power tools and PPE incl.:</b></p> <ul style="list-style-type: none"> <li>Electrician's tool box with standard tool set</li> <li>Bending springs</li> <li>Pipe cutter</li> <li>Workbench/workshop store tool set including:</li> <li>Hacksaw, jig saw</li> <li>Drilling machine and drill bit and tap set</li> <li>Assorted files</li> <li>Pliers</li> <li>Side Cutters</li> <li>Chassis punch</li> <li>Hole saw</li> <li>Scriber</li> <li>Centre punch</li> <li>Tin snips</li> <li>Ballpeen Hammer</li> </ul> <p><b>Measuring and testing instruments incl.:</b></p> <ul style="list-style-type: none"> <li>Steel ruler</li> <li>Measuring tape</li> <li>Engineering square</li> </ul> <p><b>Training workshop and laboratory equipment incl.:</b></p> <ul style="list-style-type: none"> <li>Workbenches for practical exercises</li> </ul>
<p><b>Implementation/ Execution</b></p>	<p><b>Prepare wire ways for installation</b></p> <ul style="list-style-type: none"> <li>Correctly use appropriate personal protective equipment (PPE)</li> <li>Acquire the materials and tools required to complete the work assignment</li> <li>Locate and hold in place material needed for hand- and power tool application</li> <li>Operate hand- and power tools appropriately in accordance with work requirements</li> <li>Safely locate hand- and power tools when not in immediate use</li> <li>Measure, mark and cut wire ways to designed/planned requirements</li> <li>Form and bend wire ways to designed/planned</li> </ul>	<p>Applicable statutory requirements</p> <p><b><u>Assembling and preparation techniques of wire ways refers to:</u></b> Connecting of inspection boxes, extensions pieces, termination boxes, extension box; joining through gluing, screwing, clipping</p> <ul style="list-style-type: none"> <li>Reporting requirements and work documents related to the preparation of wire ways for installation</li> <li>Housekeeping procedures</li> </ul>			

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	<p>requirements and the environmental/building structure</p> <ul style="list-style-type: none"> <li>• Finish and deburr all wire way ends</li> <li>• Fit and tighten wire way end connections</li> <li>• Assemble and join wire ways using appropriate techniques and fittings/ components</li> </ul>				<p>with hardwood top, metal under frame and lockable set of drawers incl. power supply unit and parallel vice (125mm)</p> <ul style="list-style-type: none"> <li>• Pedestal/table grinding machine</li> <li>• Pedestal drilling machine</li> <li>• Table/ pedestal marking/ inspection table</li> <li>• Set of consumables consisting of various types of wireways e.g. rigid PVC and metal conduit, flexible conduit, metal and PVC trunking, cable tray , busbar trunking</li> <li>• Set of metal and PVC accessories (e.g. couplings, elbows, 90/45 bends)</li> </ul>
<p><b>Evaluation/ Documentation</b></p>	<p><b>Evaluate wire way preparation work and conduct housekeeping activities</b></p> <ul style="list-style-type: none"> <li>• Evaluate the correct completion of the work assignment according to drawings and / or work instructions</li> <li>• Report work progress/completion to appropriate personnel</li> <li>• Clean up work area</li> <li>• Inspect and clean hand- and power tools</li> <li>• Store and secure tools and finished products appropriately in designated areas</li> <li>• Dispose of waste materials following work site and environmental requirements</li> <li>• Complete applicable work documentation</li> </ul>				

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<b>Total</b>	Hours: 16			
<b>Specialisation additions</b>	Mining: Stay wires Equipment that requires authorisation			
<b>Assessment guidance</b>				
<ul style="list-style-type: none"> <li>• <b>Self assessment</b></li> <li>• <b>Group assessment</b></li> <li>• <b>Theory test</b></li> </ul> <p><b>Criteria for assessment:</b></p> <ul style="list-style-type: none"> <li>• Safe use of hand tools</li> <li>• Using PPE appropriately</li> <li>• Identifying and selecting correct tools in accordance with requirements</li> <li>• Inspecting tools and identifying and reporting unsafe or defective equipment in accordance to worksite procedures. .</li> <li>• Completing task in accordance with drawings and / or instructions</li> <li>• Equipment is cared for and stored in accordance with manufacturer’s recommendations and worksite procedures.</li> </ul>				

Work in progress