

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 6: Use hand and power tools to prepare distribution and control boards for installation			Total Hours:	16	
Requisite learning areas/projects to be in place (Pre-requisite and co-requisite):		<ul style="list-style-type: none"> • LA 1 (LP1, 2, 3, 7, 9, 12) • LA 2 (LP 2) 			
Learning project description: Use hand and power tools to prepare distribution and control boards incl. face panels (Steel & PVC) for installation (USE) e.g. manufacturing of distribution board, face plate (DB Cover - meters). Activities including: drilling, punching, cutting, tapping and filing					
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	KM-02-KT01	WM: None		
Planning/Preparation	<p>Provide access to (Given): Distribution and control boards incl. face panels, drawings and instructions, applicable hand, power tools and materials</p> <p>Apprentices must be able to do/perform the following (hard and soft) skills:</p> <p>Prepare for distribution and control board assembly and customisation</p> <ul style="list-style-type: none"> • Read drawings and/or instructions of work task • Perform risk assessment on the task • Determine safe working procedure and tool operation 	<p>Knowledge of:</p> <ul style="list-style-type: none"> • Different types of hand and power tools and their uses applicable to the task • Materials and their properties applicable to the task • Safety precautions regarding the use of applicable hand and power tools • Methods of risk assessment on the use of applicable hand and power tools • Work procedures and work documents related to the use of applicable hand and power tools • Types, sizes and materials of 	<p>Under supervision:</p> <ul style="list-style-type: none"> • Be actively involved in work processes where apprentices install distribution and control boards • Perform risk assessment on the use of hand- and power tools • Assemble and customise different types of distribution boards for installation 	<ul style="list-style-type: none"> • Research /Desk study • Case studies /scenarios • Technical discussions • Lecture/ instructions • Presentations • Textbook work • Group work 	<p>Print materials, electronic files, software applications incl.:</p> <ul style="list-style-type: none"> • OHS Act • Text books • Training manuals for trainers and apprentices incl. multimedia software • Worksheets for preparation of DB/control board projects • Set of presentation aids (videos, slides) for overhead or LED/LCD projectors

	<ul style="list-style-type: none"> Identify and plan the correct hand and/or power tools and materials to be used Inspect tools for damages and report any faults to appropriate personnel Select equipment needed to hold or support tool application Select and wear personal protective equipment (PPE) 	<p>distribution and control boards</p> <ul style="list-style-type: none"> Mechanical assembly systems and mounting fixtures for distribution and control boards Measuring and marking out techniques 			<p>Stationary machinery, incl.:</p> <ul style="list-style-type: none"> Pedestal/table grinding machine Pedestal drilling machine <p>Hand- & power tools and PPE incl.:</p> <ul style="list-style-type: none"> Electrician's tool box with standard tool set Workbench/workshop store tool set including: <ul style="list-style-type: none"> Hacksaw, jig saw Drilling machine and drill bit and tap set Assorted files Chassis punch Hole saw Scriber Centre punch Ballpeen Hammer <p>Measuring and testing instruments incl.:</p> <ul style="list-style-type: none"> Steel ruler Measuring tape Engineering square <p>Training workshop and laboratory equipment incl.:</p> <ul style="list-style-type: none"> Workbenches for practical exercises
Implementation Execution	<p>Assemble and customise DB/control boards for installation</p> <ul style="list-style-type: none"> Correctly use appropriate personal protective equipment (PPE) Acquire the materials and tools required to complete the work task Locate and hold in place material needed for hand- and power tool application Safely locate hand- and power tools when not in immediate use Measure and mark areas for hand and power tool application Cut sections in face plate, door or enclosure sides for the mounting of instruments, control gear and accessories Cut holes/sections into the distribution board side panels for inlets/outlets Prepare (cutting, drilling, 				

	<p>threading) mechanical assembly system components to be fitted into the board enclosure onto mounting plates or board frames</p> <ul style="list-style-type: none"> • Install assembly system components in respective board enclosure mounting frame/plate sections • Install completed board frames, mounting and face plate(s), door and any enclosure locking mechanisms • Continuously inspect work progress and compliance with given measurements/ tolerances in accordance with technical drawings and instructions 				<ul style="list-style-type: none"> • Table/ pedestal marking/ inspection table • Distribution boards or simulations
Evaluation/ Documentation / Housekeeping	<p>Evaluate the work result and conduct housekeeping activities</p> <ul style="list-style-type: none"> • Evaluate the correctness of completed task according to drawings and/or instructions • Clean up work area • Inspect and clean hand- and power tools • Store and secure tools, DB/ control board and materials • Complete applicable work documentation 				
Total	Hours: 16				
Specialisation additions					

Assessment guidance

- **Self assessment**
- **Group assessment**
- **Theory test**

Criteria for assessment:

- Completing task in accordance with drawings and / or instructions
- Using of correct PPE
- Safe using of hand and power tools
- Identifying and selecting correct tools in accordance with requirements
- Inspecting tools and identifying and reporting unsafe or defective equipment in accordance to worksite procedures
- Caring and storing of equipment in accordance with manufacturers recommendations and worksite procedures

Work in progress