



مجلس أبوظبي للجودة والمطابقة
ABU DHABI QUALITY & CONFORMITY COUNCIL

ABU DHABI OCCUPATIONAL TERMS

Senior Electrical Engineer



25 JULY 2017
FIRST EDITION



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About the Abu Dhabi Quality & Conformity Council

The Abu Dhabi Quality and Conformity Council (QCC) was established by law No. 3 of 2009, issued by His Highness Sheikh Khalifa Bin Zayed Al Nahyan, President of the UAE. QCC is responsible for the development of Abu Dhabi Emirate's Quality Infrastructure, which enables industry and regulators to ensure that products, systems and personnel can be tested and certified to UAE and International Standards.

Products and services certified by QCC receive the Abu Dhabi Trustmark. The Trustmark is designed to communicate that a product or system conforms to various safety and performance standards that are set by Abu Dhabi regulators.

Foreword

The QCC, along with relative stakeholders, had developed occupational terms for 21 unique occupations in the construction sector. This was required because of a high dependence on migrant labor to fill key technical roles in the skilled trades and concerns about the productivity of the industry where skills investment is inconsistent.

The occupational terms are professional standards that personnel must meet in order to perform the jobs they are assigned to produce quality outcomes. In addition, it is required that any person working on the design, construction, installation, operation or maintenance of Electrical Installations in the Emirate of Abu Dhabi must work in accordance with the requirements of the Electricity Wiring Regulation and others any related regulations issued by the Department of Energy .

The Government of Abu Dhabi, under the leadership of His Highness Sheikh Khalifa bin Zayed Al Nahyan, President of the UAE and Ruler of Abu Dhabi, and His Highness Sheikh Mohamed bin Zayed Al Nahyan, Crown Prince of Abu Dhabi, Deputy Supreme Commander of the UAE Armed Forces and Chairman of the Abu Dhabi Executive Council, has invested heavily, and at high levels of professionalism and safety, in the Infrastructure of Abu Dhabi. Therefore, it is crucial and obligatory to encourage the presence of skilled workmanship to maintain the quality infrastructure value in the Emirate of Abu Dhabi in particular and the United Arab Emirates in general.

Acknowledgments

The QCC would like to thank the members of the working group listed below:

Sr.	Name	Entity
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Occupational Terms

No.	Field	Details																						
1.	Occupation (Standard Unit)	Senior Electrical Engineer																						
2.	Description	This standard specifies the outcome required to handle job responsibilities, schedules and ensuring performance of work are being followed																						
3.	Unit type	<input type="checkbox"/> Knowledge and Skills OR <input checked="" type="checkbox"/> Application																						
4.	Elements	<table border="1"> <thead> <tr> <th>No.</th> <th>Element</th> </tr> </thead> <tbody> <tr> <td>E1</td> <td>Ability to analyze and define the engineering requirements through inspection and theoretical analysis.</td> </tr> <tr> <td>E2</td> <td>Ability to apply engineering methods in order to resolve any technical issues and propose solutions.</td> </tr> <tr> <td>E3</td> <td>Confirm the compliance with all project requirements and specifications from project initiation and up to projection handing over.</td> </tr> <tr> <td>E4</td> <td>Ability to properly communicate all required information to the concerned project team members to take the proper actions.</td> </tr> <tr> <td>E5</td> <td>Ability to collect and evaluate project related information and data in order to generate different types of engineering reports.</td> </tr> <tr> <td>E6</td> <td>Evaluating the quality of site work by applying quality assurance techniques and proposing any required changes.</td> </tr> <tr> <td>E7</td> <td>Confirm the adherence to health and safety requirements by all project team members.</td> </tr> <tr> <td>E8</td> <td>Ability to prepare and obtain Distribution Company's approval for electrical wiring and installation drawings in accordance with the Electricity Wiring Regulations before the commencement of any Electrical Installation Work</td> </tr> <tr> <td>E9</td> <td>Ability to implement all Electrical Installation Work in accordance with the Electricity Wiring Regulations, and any specifications and requirements issued by the Distribution Company and endorsed or approved by the DoE</td> </tr> <tr> <td>E10</td> <td>Ability to operate computer-assisted engineering and design software and equipment to perform engineering tasks.</td> </tr> </tbody> </table>	No.	Element	E1	Ability to analyze and define the engineering requirements through inspection and theoretical analysis.	E2	Ability to apply engineering methods in order to resolve any technical issues and propose solutions.	E3	Confirm the compliance with all project requirements and specifications from project initiation and up to projection handing over.	E4	Ability to properly communicate all required information to the concerned project team members to take the proper actions.	E5	Ability to collect and evaluate project related information and data in order to generate different types of engineering reports.	E6	Evaluating the quality of site work by applying quality assurance techniques and proposing any required changes.	E7	Confirm the adherence to health and safety requirements by all project team members.	E8	Ability to prepare and obtain Distribution Company's approval for electrical wiring and installation drawings in accordance with the Electricity Wiring Regulations before the commencement of any Electrical Installation Work	E9	Ability to implement all Electrical Installation Work in accordance with the Electricity Wiring Regulations, and any specifications and requirements issued by the Distribution Company and endorsed or approved by the DoE	E10	Ability to operate computer-assisted engineering and design software and equipment to perform engineering tasks.
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5.	QF Emirates level	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input checked="" type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10																						

No.	Field	Details	
6.	Function	<input type="checkbox"/> Policy and strategy QF 9-10 <input type="checkbox"/> Managing QF 7-8 <input type="checkbox"/> Specifying QF 6-7 <input type="checkbox"/> Controlling QF 6 <input checked="" type="checkbox"/> Maintaining capability QF 4-6 <input type="checkbox"/> Performing/carry out QF 1-4	
7.	Entry information and prerequisites	<ul style="list-style-type: none"> Bachelor of Electrical Engineering Certificate or Equivalent Engineering Degree <p>Note: Equivalent qualifications may include but not limited to the following areas: Electromechanical, Electronics, Control, Mechatronic, Power and Communication.</p>	
8.	Grading	Application unit: <i>Competent/Not Yet Competent</i>	
9.	Industry sector	Construction , Energy, Electrical Works (internal wiring) & Maintenance	
10.	Developed by	Government Entities	Abu Dhabi Quality & Conformity Council, , National Qualification Authority, Abu Dhabi Distribution Company, Al Ain Distribution Company
11.	Endorsement date	TBD	
12.	Frequency of review	2 Years	
13.	Version No.	1	
14.	ISCO-08	International Standard Classification Of Occupations It is considering as reference see reference page Minor Group 741 – Electrical Equipment Installers and Repairers Unit Group 7411 – Building and Related Electricians	
15.	Years of Experience	<ul style="list-style-type: none"> 7 Years or 5 Years of UAE Practical Experience in Electrical Installation Work 	

Key terms

Term	Description
Health & Safety Regulations	Applicable health and safety regulations and standards including OSHAD-SF and Good knowledge of health and safety requirements, To make sure that the project team members are fulfilling the safety requirements.
Low Voltage	An a.c. voltage below 1000V between phases or below 600V between any phase and earth or, a d.c. voltage below 1500V between conductors, or below 900V between any conductor and earth.
High Voltage	An a.c. voltage greater than Low Voltage and less than 36 KV between phases or 21 KV between any phase and earth
Live Electrical Lines	Cables or wires, which connected to the source of power and the power is on.
Permit to Work	System is a formal recorded process used to control work which is identified as potentially hazardous and allows central control and ongoing monitoring of higher risk activities to ensure the activities are authorized, carried out by qualified personnel
Lock out /Tag out	Is defined as the introduction of device to isolate energy sources & placement of tag on isolated device to show that equipment is out of service for repair or maintenance work
Earthing	The conductive mass of Earth, whose electrical potential(Voltage) at any conventionally taken as Zero
Risk	Risk is the product of the measure of the likelihood of occurrence of an undesired event and the potential adverse consequences which this event may have upon: · People – injury or harm to physical or psychological health · Environment – water, air, soil, animals, plants and social Risk = frequency x consequences
Personal Protective Equipment (PPE)	Any device, appliance or equipment (including clothing or sunscreen affording protection against the weather) designed to be worn or held by an individual for protection against one or more health and safety hazards, or minimize their exposure to workplace risks. It includes, but is not limited to, items such as facemasks and respirators, eye protection, high visibility clothing, coveralls, goggles, helmets, safety harnesses, gloves and footwear.
Building diagram	A technical drawing of a structure or building that is drawn in a scale that is proportionate to its real-world dimensions. Building drawings include site plans, floor plans, elevations and sections. Drawings that provide additional specific/specialist details are known as Coordination Drawings.
Load schedule	Schedule shows the details of the electrical circuit including wire size, protective device rating , connected and diversity load for each circuit .
Cross Section	A section is a type of building drawing. It represents a vertical plane cut through the structure.

Elevation	An elevation is a type of building drawing. It is a drawing of the exterior or interior of a building or structure as seen from a horizontal position - without dimensional perspective.
Floor plan	A floor plan is a building drawing. It is a drawing to scale showing a view from above, of the relationships between rooms, spaces and other physical features at one level of a structure.
Electrical Layout drawing	Is a type of drawing that shows information about power, lighting and communication point's positions in combination with architectural drawings.
Site Plan	A site plan is a type of building drawing that shows a new or existing building's position in relation to the boundaries of the block of land.
Wiring diagram	Is a type of drawing that shows the detail of the connection between the electrical lighting , power and other electrical equipment with its supply
Isolated	Disconnected from all possible sources of electrical energy by opening of switches, opening or withdrawal of circuit- breakers, removal of fuses, links, connections and the like and rendered incapable of being energized unintentionally. Isolation of refrigerant gas lines.
Cord	A cord to conduct power to an electrical appliance.
Terminate	The connection of a cable or cord to any electrical apparatus.
Work instructions	Written or verbal description of the work to be undertaken by an individual or work team.
Electrical Wiring regulations	Rules established by the electrical regulator that govern the design, construction, installation, maintenance and operation of safe and efficient Low Voltage (LV) Electrical Installations in all Premises within the Emirate of Abu Dhabi.
Connected Load	The aggregate load of Appliances and other electrical equipment at a Premise.
Diversified Load	The load at a Distribution Board, at the Electricity Intake or at any other point in an Electrical Installation, calculated using diversity factors.
Connection Point (CP)	The point which defines the boundary between the Owner's Electrical Installation installed at a Premises and the main cable or equipment owned by the Distribution Company.
Distribution Board	An assembly designed for housing isolation switches and Protective Devices and for connecting multiple Circuits, including their associated neutral and Earth Conductors.
Electrical Installation	An Electrical Installation comprises any fixed or temporary cable, switchgear or other electrical equipment or apparatus within a Premises or other place where there is an electricity supply (including outdoor locations). Fixed or portable electrical Appliances are not considered part of the Electrical Installation, although these Regulations do include requirements for the connection of Appliances (e.g. plugs and socket-outlets).
Electrical Installation Certificate	A certificate in the format indicated in these Regulations which is issued by a Licensed Contractor after completion of work on an Electrical Installation and provided to the Customer or Owner of the Premises.
Licensed Contractor	A person, entity or company which has been assessed by the Distribution Company as competent to work on Electrical Installations and issued a Competency Licence by that Distribution Company.
Premises	Any occupied or unoccupied land, structure, building, enclosure or other place. Such locations include, but are not limited to, apartments, villas, offices, shops, warehouses, hotels, commercial complexes, leisure complexes, public buildings, parks, farms, temporary Electrical Installations, entertainment arenas, construction sites, tents, outbuildings, caravans, street lighting and traffic signs.

Performance Criteria

Element: Ability to analyse and define the engineering requirements through inspection and theoretical analysis.

PC 1.1	Analyze the design prepared by the consultant and highlight any comments
PC 1.2	Inspect the physical work executed at site

Element: Ability to apply engineering methods in order to resolve any technical issues and propose solutions.

PC 2.1	Ability to identify/anticipate and site issues that may hinder the progress
PC 2.2	Ability to apply engineering methods and expertise to prepare action plan to avoid/mitigate any related issues

Element: Confirm the compliance with all project requirements and specifications from project initiation and up to projection handing over.

PC 3.1	To be able to identify project milestones and any constraints
PC 3.2	To make sure that all related project objectives and activities are carried out according to the plan

Element: Ability to properly communicate all required information to the concerned project team members to take the proper actions.

PC 4.1	To have good communication skills
PC 4.2	To able to make proper decisions to make sure that work carried is according to the planned schedules and at the same time meeting the requirements

Element: Ability to collect and evaluate project related information and data in order to generate different types of engineering reports.

PC 5.1	Be able to collect progress information
PC 5.2	Prepare snack list and progress report as required

Element: Evaluating the quality of site work by applying quality assurance techniques and proposing any required changes.

PC 6.1	To be aware of basic quality requirements
PC 6.2	To apply quality assurance techniques

Element: Confirm the adherence to health and safety requirements about good knowledge of Emergency preparedness and response requirements by all project team members and applicable health and safety regulations and standards including OSHAD-SF.

PC 7.1	applicable health and safety regulations and standards including OSHAD-SF and Good knowledge of health and safety requirements
PC 7.2	To make sure that the project team members are fulfilling the safety requirements

Element: Ability to prepare and obtain Distribution Company's approval for electrical wiring and installation drawings in accordance with the Electricity Wiring Regulations before the commencement of any Electrical Installation Work

PC 8.1	Ability to prepare all the required documents to get approval from DISCO
PC 8.2	Ability to prepare all drawings and getting the approval as EWR

Element: Ability to implement all Electrical Installation Work in accordance with the Electricity Wiring Regulations, and any specifications and requirements issued by the Distribution Company and endorsed or approved by the DOE

PC 9.1	Ability to execute all activities accordance to EWR
PC 9.2	Following and complying with all DISCO and DOE requirement and specifications

Element: Ability to operate computer-assisted engineering and design software and equipment to perform engineering tasks.

PC 10.1	Ability to work in computer skills and programs
PC 10.2	Ability to help designers in the electrical activities.

References

- <http://www.ukstandards.org.uk>
- www.nsdindia.org/nos
- www.oshad.ae
- <https://qcc.abudhabi.ae/Documents/ADDC%20Electricity%20Sector%20Approval%20Process.pdf>
- **Process for Approval of Licensed Contractors in the Emirate of Abu Dhabi ,
Department of Energy of Abu Dhabi Emirate**
- **The Electricity Wiring Regulations (Third Edition) 2014, Department of Energy of Abu
Dhabi Emirate and EWR**
- http://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_172572.pdf