

Proj: <b>Presidential Palace</b>	Date: 25-Sep-25	Proj. Type: Presidential Palace
Job: <b>ELECTRICAL WORKS</b>	Sheet: BL03	Activity Type: Design Build
Scp: <b>Bill of Quantities</b>	Rev: 01	Location: Baabda
Div:  <b>BILL NO. 01</b>	Phase: Tender	Built-up Area:

Div.	Item	Description	Unit	Quantity	Unit Cost (USD)	Total Cost (USD)
	-	<p><b>PREAMBLES - ELECTRICAL</b></p> <p>A <u>Electrical work generally is deemed to include:</u></p> <p>1 Supply, installation, testing, commissioning, putting into satisfactory operation and handing over complete systems</p> <p>2 Provision of maintenance and operation manuals and spare parts lists and submitting required number of copies</p> <p>3 Coordination with other trades including minor approved modifications and additions to ensure compatibility</p> <p>4 Items and accessories required for normal operation and maintenance and mentioned in the tender documents</p> <p>5 Marking the positions of, and cutting or forming holes, mortaring, chases and the like in any surface and making good all work disturbed</p> <p>6 Assembling and jointing together component parts of composite units and providing any necessary jointing materials</p> <p>7 Corrosion protective treatments and coatings to fixings, hangers, brackets and supporting materials</p> <p>8 Sleeves through walls, ceilings and floors including cover plates</p> <p>9 Fire sealant</p> <p>10 Temporary works and removing and making good after</p> <p>11 Loose keys, tools and spares and the like, except where required to be given separately</p> <p>12 Plates, labels and tags for the identification of plant, equipment, cables, switches and the like</p> <p>13 Temporarily operating each installation, including attendants, special insurance and providing power supply, cutting and pinning ends of supports for equipment, ancillaries, fittings, trunking, trays and the like</p> <p>14 Builder's work in connection, except where required to be measured separately</p>				

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Div.	Item	Description	Unit	Quantity	Unit Cost (USD)	Total Cost (USD)
	15	Training Employer's personnel in operation and maintenance of systems.				
	16	Spares, tools and instruments are deemed to include normally supplied replaceable items including fuses, cords, connectors, LEDs and emergency stock to keep the system operating for at least two years, and testers, test and adjusting kits.				
	B	<p><b>Main Distribution Panels And Final Branch Circuit Panels:</b> Each kind of distribution board is given separately, stating the reference of equipment.</p> <p>Work is deemed to include:</p> <ol style="list-style-type: none"> <li>1 Termination of incoming and outgoing cables to equipment including cable glands, termination and accessories</li> <li>2 Fixing and support structures and materials required for installation of wall or floor mounted equipment as indicated</li> <li>3 Civil work required for proper erection and maintenance</li> <li>4 Related auxiliaries and switchgear for interlocking with BACS</li> <li>5 Tagging and labeling</li> </ol> <p><b>C Wires and Cables:</b> Wires and cables are given in meters. Wires and cables are deemed to include:</p> <ol style="list-style-type: none"> <li>1 Conduits, outlets and fittings, draw wires and the like (except where conduit work is required to be measured separately in the BOQ)</li> <li>2 Cable connectors and cable joints (where permitted) including joint boxes, sealing boxes, shrouds and the like and materials and heat for making the joints,</li> </ol> <p><b>D Wires and Cables:</b></p> <ol style="list-style-type: none"> <li>1 Allowance in cable length for cables entering fittings and accessories, equipment or control gear,</li> <li>2 Necessary components and accessories for fixing cables on walls, ceilings and on cable trays/ladders.</li> </ol> <p>Branch Circuits:</p>				

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		<p>3 Each kind of conduit is included with other items (unless otherwise indicated in the BOQ), stating the type, size and method of installation.</p> <p>4 Each kind of trunking, cable tray, cable ladder and the like is given separately (except within shops' shafts is to be included with cabling items), stating the type and dimensions.</p> <p>E Cable trays, cable trunking and the like are deemed to include:</p> <p>1 Mounting fittings, including cutting and jointing thereto, jointing between sections, bends, tees, etc.,</p> <p>2 Components for ground continuity, adapters and connections between trunking and items of equipment or control gear requiring the use of flanges and/or the forming of apertures,</p> <p>3 Supports including fixing.</p> <p>4 Corrosion protective material to be applied on raceways</p> <p>F Grounding System: Grounding system is given as an item.</p> <p>1 Work is deemed to include a complete system, excluding protective grounding conductors run with branch circuit wiring and protective grounding cables run with main and sub-feeders which are required to be measured separately or included with other items.</p> <p>G Lighting Installation: Each kind of lighting fixture is given separately, stating the type. Work is deemed to include:</p> <p>1 Outlets,</p> <p>2 Wires including protective grounding conductors, conduits, trunking and other raceways and fittings from outlet back to upstream outlet or to final branch circuit panelboard,</p> <p>3 Lamps and control gear,</p> <p>4 Fixing and supporting material and suspension rods or chain.</p>				

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	H	<p>Wiring Devices &amp; Miscellaneous Equipment</p> <p>Wiring devices including socket outlets, electrical outlets, switches, disconnecting switches and the like are enumerated.</p> <p>Wiring devices, excluding disconnecting switches, are deemed to include:</p> <ol style="list-style-type: none"> <li>1 Outlets,</li> <li>2 Wires including protective grounding conductors, conduits, trunking and other raceways and fittings from outlet back to upstream outlet or controlled circuit (for switches etc.) or to final</li> <li>3 Fixing and supporting material.</li> </ol> <p>Disconnecting switches are deemed to include:</p> <ol style="list-style-type: none"> <li>4 Outlets,</li> <li>5 Conduits, trunking and other raceways and fittings from outlet to panelboard excluding cables,</li> <li>6 Fixing and supporting material.</li> </ol>				
	I	<p>Telephone System</p> <p>Equipment of the following types with related interlocks for connection to existing network, for an operational system as specified are each given separately:</p> <ol style="list-style-type: none"> <li>1 Telephone distribution cabinets and boxes (stating capacity),</li> <li>2 Telephone outlets (stating type),</li> <li>3 Each type of telephone cable is given separately, stating the type, size and method of installation. Telephone cables are given in meters.</li> </ol> <p>Work for, telephone distribution boxes and cabinets is deemed to include:</p> <ol style="list-style-type: none"> <li>4 Mounting with necessary fixing materials and supports,</li> <li>5 Cable termination with all necessary cable termination accessories,</li> </ol>				

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	6	Termination of conduits with all necessary conduit fittings etc.  Telephone outlets are deemed to include:				
	7	Outlet box and wiring device, wires and/or cables, conduits, trunking (except where required to be measured separately) or other raceways, from location of outlet back to distribution box / cabinet				
	J	Builder's Work:				
	1	Bases/foundations and supports (where not forming an integral part of the building structure) are deemed to be included with the equipment.				
<b>TOTAL PREAMBLES - ELECTRICAL</b>						

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Div: <b>26</b>	Phase: Tender	Built-up Area:
<b> BILL NO. 03: BILL OF QUANTITIES - DIVISION 26</b>		

Div.	Item No	Description of Material	Unit	Quantity	Unit Cost (USD)	Total Cost (USD)
		<b><u>Section 260519 - Low-Voltage Electrical Power Conductors and Cables</u></b> <b><u>Cu/PVC/PVC</u></b>  Supply, install and connect cables, including PVC insulated, PVC sheathed and of Copper conductors, complete including accessories, connectors, lugs, supports, clamps as specified for all mechanical chillers and pumps. Cross sectional area of these cables should be calculated based on the breakers rated current and taken into consideration the voltage drop not exceeding 5% on the chillers and pumps and not exceeding 3.5% at the MCC	Item	1		
		<b><u>Earth Wires</u></b> Supply, install and connect earth cables PVC, sheathed, Copper conductors, complete including accessories, connectors, lugs, supports, clamps as specified.	Item	1		
		<b><u>Section 260526 - Grounding And Bonding For Electrical Systems</u></b> Contractor to test the earthing system used in the technical area. Earthing resistance measured in normal condition shall be below 5 ohms. In case the test fails, a new earthing system shall be installed in accordance with the following criteria: TNS earthing system shall be made by enhancing the existing earthing system by connecting extra earth rods as needed or by creating a new one installed according to the site constraints; either by a closed circuit cable 120sqmm bare copper conductor and earth rods, or triangle configuration. Both to be installed with earth pits for testing and as needed or through . Main earth bar shall be provided in addition to test links. All these shall be supplied installed, connected and tested complete with all the equipment and accessories, to ensure a resistance less than 5 ohms for power and 1ohm for low current systems, bonding of all exposed metallic objects, mechanical room protection as specified .	Item	1		
		<b><u>Section 260533 - Raceways And Boxes For Electrical Systems</u></b> Supply install, and connect, the electrical metallic cabinets, boxes, and fittings, complete including cabling, rigid galvanized steel conduits, wires works back to respective panelboards and all related accessories, as specified.	Item	1		

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Div.	Item No	Description of Material	Unit	Quantity	Unit Cost (USD)	Total Cost (USD)
		<p><b>Light Point</b></p> <p>Supply install, and connect, the complete lighting points materials, including cabling exposed rigid galvanized steel conduits and boxes, wires, conduit accessories and supports, junction, derivation and outlet boxes, conductors, connectors, relays and drivers where required, and all related accessories, as specified.</p>	Item	1		
		<p><b>Section 260536 - Cable Tray For Electrical Systems</b></p> <p>Supply, install, and connect, cable trays made of perforated hot dip galvanized steel after perforation, including all the supports, covers where indicated and all related accessories, as specified. All accessories shall be from the same manufacturer's standard production. No site made accessories is acceptable.</p>	Item	1		
		<p><b>Section 262416 - Panelboards</b></p> <p>Supply install, connect, test and commission the following complete final distribution panelboards including isolating switches, surge arresters, protective devices, molded case circuit breakers, minature circuit breakers, RCCBs, modular contactors, measuring devices, digital metering, interfaces with BMS auxiliaries and all related accessories, as specified.</p>	No	1		
		ULP to feed DDC and BMS sockets and outlets	No	1		
		LP to feed lighting, sockets in the technical area	No	1		

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		<p><b>Section 262419 - Motor Control Centers</b></p> <p>Supply, install and connect Motor Control Centers to feed new water cooled chillers and respective pumps, 3φ, 50Hz, 400V, complete including all connections, protective devices, all needed devices and accessories, interface with BMS, measuring devices, contactors, motor starters including VFDs, selector switches, LED pilot lamps, DDCs, surge arresters, screwless terminals, auxiliaries, and all related accessories as specified.</p> <p>MCC shall have the necessary components to feed, protect and control all the equipments and services that were already fed from the old MCC</p> <p>MCC-1B shall be directly connected to the existing bubar trunking system.</p> <p>MCC-ROOF to feed the cooling towers</p> <p>MCC-1B to feed the water cooled chillers, pumps and the previously fed equipment</p>	Item	1		
		<p><b>Section 262726 - Wiring Devices</b></p> <p>As specified, supply install, connect, test and commission, the necessary surface mounted wiring devices (weather proof normal and UPS sockets, three phase sockets, industrial sockets, lighting switches... as needed), floor boxes complete including wiring, exposed rigid galvanized steel conduits back to respective panelboards and all related accessories</p>	Item	1		
		<p><b>Section 262816 - Enclosed Switches and Circuit Breakers</b></p> <p>Supply install, connect, test and commission, isolating switches (disconnects) for mechanical equipment complete including cabling, Rigid metallic conduits back to respective panelboards and all related accessories, as specified</p>	Item	1		
		<p><b>Section 263353 - Static Uninterruptible Power Supply</b></p> <p>Supply, install and connect a UPS unit complete including protective devices, back-up batteries, SNMP card, interface with BMS and all related interfaces and accessories as specified. UPS capacity shall be based on the demand load while loaded at 60%. Autonomy shall be 10 minutes at 75% load. UPS to be installed in the cooled electrical room located in the upper floor</p>	Item	1		

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		<p><b>Section 264113- Lightning Protection System</b>  <u>Contractor to make sure a functioning lightning protection system is provided at roof protecting the cooling towers and electrical panels. Otherwise, contractor shall provide an adequate one.</u></p> <p><b>Section 265119 - Led Interior Lighting</b>  <u>Supply, install, connect, test and commission LED lighting fixtures, complete including drivers, emergency autonomous blocks where required, supports, mounting, brackets and all related accessories, as specified. LED shall be of the high efficiency, 4000K, fixture to be from Philips or equivalent with stainless steel brackets and accessories. IP55 as minimum. Emergency self-contained autonomous blocks shall be provided in order to avoid panic in case of power failure. Self-contained exit signs shall be provided at every change of direction and near exit doors</u>  <u>A level of 500 lux with a uniformity of minimum 0.4 shall be obtained at floor level.</u>  <u>Emergency lighting shall be provided to ensure an average of 11 lux at the means of egress with min/max lux level less than 40.</u></p> <p><b>Preperation Works</b>  <b>Contractor shall price the following:</b>  <u>Provide temporary power supply to chillers, pumps and other equipment that are fed from the existing panel (MCC) and other equipment that may be affected by the works to be done during this phase</u>  <u>Dismantle the existing MCC and move it to a specific location to be specified by the Palace team</u>  <u>dismantle the old lighting fixtures and wiring devices and move to a specific location to be specified by the Palace team</u>  <u>Contractor to cater for the connection of the existing Canalis busway to the new MCC. This may include new components, connections...</u>  <u>Contractor to do the necessary civil works needed for the installation of the new MCCs</u></p>	Item	1		
		<b>Total</b>				

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<b><span style="color: #808000;">BILL NO. 03: BILL OF QUANTITIES - DIVISION 27</span></b>		

Div.	Item No	Description of Material	Unit	Quantity	Unit Cost (USD)	Total Cost (USD)
		<p><b>Section 272100 - Data Communications</b></p> <p>Supply, install, connect and test, and commission a complete working data network and ICT systems including Data cabinets, Access Point, Data outlets for BMS and DDC, Hardware, software, license, cable data management units/organizers, power distribution units, Copper and Fiber patch panels, copper and fiber optics cabling, connectors, conduits, boxes, junction derivation and outlet boxes, connectors, plates, surge arresters and all related accessories components, as specified.</p>	Item	1		
		<b>Total</b>				

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Div.	Item No	Description of Material	Unit	Quantity	Unit Cost (USD)	Total Cost (USD)
		<p><b>Section 284621.11 - Fire Alarm</b></p> <p>Supply, install, connect and test, complete working system including power supply, batteries, surge arresters, rigid galvanized metallic conduits, boxes, special conductors, junction, derivation and outlet boxes, connectors, addressable fire alarm devices (smoke, heat, combined detectors, bells, bells with strobe lights, break glass, Fire Alarm Control Panel) all from Hochiki, with all fittings, interface with BMS and existing fire alarm panel and all related accessories, as specified.</p>	Item	1		
		<b>Total</b>				