LEBANESE REPUBLIC
GENERAL DIRECTORATE OF THE PRESIDENCY
PRESIDENTIAL PALACE COMPOUND- BAABDA

REHABILITATION OF MAIN ELECTRICAL ROOM/ NEW GENERATORS ROOM IN PRESIDENTIAL PALACE

TENDER DOCUMENTS

VOLUME 3

BILL OF QUANTITIES – R1

L2026-14/2026

Prepared by

October - 2026

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ISO 9001:2000

REHABILITATION OF MAIN ELECTRICAL ROOM / NEW GENERATORS ROOM IN RESIDENTIAL PALACE

VOLUME 3 - BILL OF QUANTITIES

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GENERAL PREAMBLE

SPECIFICATIONS

The Works as shown on the Drawings and described in the Bill of Quantities shall be executed and completed fully in accordance with the provisions and the requirements contained in Volume 2 - Specifications.

DRAWINGS

The Drawings pertaining to the Works are identified and listed hereunder and they are to be read and construed in conjunction with Volume 1 - Conditions of Contract and General Requirements, Volume 2 - Specifications, and this Volume 3 - Bill of Quantities.

The Contractor's attention is drawn to the necessity for all dimensions and elevations shown on the Drawings to be physically checked and co-ordinated on the Site prior to the setting out of works, during the progress of works and prior to ordering, purchasing or manufacturing of installed components and equipment. The Contractor shall be deemed to have made due allowance in his Bid for identifying and resolving any such dimensional discrepancies which may arise.

The Drawings are as numbered and listed on Drawing entitled 'List of Drawings'.

BILL OF QUANTITIES

Symbols and Abbreviations

The following symbols and abbreviations, where used in this Bill of Quantities, have the following meanings:

m	=	linear metre
m2	=	square metre
m3	=	cubic metre
cm	=	centimetre
mm	=	millimetre
Nr or No	=	number
kg	=	kilogramme
T	=	tonne
"	=	inches
Item	=	lump sum amount
%	=	percentage
Qty	=	quantity
Drg or Dwg	=	Drawing

Generally

The Bill of Quantities are to be read in conjunction with Volume 1 - Conditions of Contract and General Requirements, Volume 2 – Specifications, the Drawings, and these Preambles, all of which shall be taken as being mutually explanatory to each other, and construed accordingly.

The Works have been measured in accordance with the descriptions and notes described in the Bill of Quantities, which shall apply equally to both proposed andexecuted Works.

The Contractor shall not rely upon the descriptions, the dimensions therein, nor the quantities given in the Bill of Quantities for the purpose of ordering, purchasing or manufacturing of any materials, components or equipment.

The Contractor is required to provide with his Bid, in accordance with the requirements prescribed in the Bidding Documents, a detailed analysis of all unit rates and prices inserted in the Bills of Quantities. This shall include a break down of each unit rate and price, showing the allocation of cost for labour, materials, plant, equipment and other charges. The Employer or the Engineer shall have the right, and the Contractor shall provide if so requested, a further analysis of any or all unit rates and prices, including a detailed breakdown of "other charges".

Descriptions

The descriptions of the work items as set out in the Bill of Quantities are approximations only and are not necessarily, nor are they to be taken as the precise and complete descriptions of work to be performed by the Contractor in the execution and completion of the Works, and in fulfillment of his obligations under the Contract.

Headings and sub-headings to groups of items in the Bill of Quantities are to be read as part of the descriptions of the items to which the headings and sub-headings apply.

The general and detailed requirements of the Specification are not repeated in the descriptions of the items in the Bill of Quantities, other than cross-referencing for the purposes of identification.

Where work cannot be fully ascertained or accurately described, or where the quantity of work required cannot be determined it is denoted as ‘PROVISIONAL’. Such work is to be carried out only in accordance with the instructions of the Engineer and may, if the Engineer so decides, be omitted entirely.

The term EXTRA means that work so described involves extra cost over the basic work in which it occurs. No deduction of the basic quantity is made in respect of the extra work so described.

Quantities

The quantities set out in the Bill of Quantities are estimated quantities only and they are not to be taken as the actual and correct quantities of work to be performed by the Contractor in the execution and completion of the Works, nor are they intended to limit the amount of work to be performed under the Contract.

The Contractor is deemed to have visited the site, satisfied himself with the existing conditions and to access by the cleint. The contractor is to allow in his tender for all items, materials, workmenship which in his openion make part of the work and are not mentioned in the Bill of Quantities as no extra payment will be allowed on the ground of such claim.

Upon completion, all work will be re-measured in accordance with the Contract, following the descriptions and notes contained in the Bill of Quantities and these Preambles.

Works are measured net as fixed in position except where otherwise stated in a measurement note applicable to the work. Excavation and earthwork in particular, are measured on the basis of net volumes required to accommodate only the Permanent Works as shown on Drawings, without allowance for any additional volume requirements for working space, supporting sides, battering of sides, bulking of volumes and the like, etc.

Quantities as measured are given to the nearest whole unit, except that any quantity less than one unit is given as one unit.

Pricing

The Contractor shall be deemed to have fully checked the descriptions and quantities contained in the Bill of Quantities against the Drawings and Specifications to ensure that the unit rates and prices inserted by him in his Bid, include for the full cost of executing and completing the work described, including for all ancillaries and associated works which are indicated or reasonably inferred from the Drawings and Specifications and necessarily required for the proper and timely execution and completion of the Works in accordance with the Contract.

Unit rates and prices inserted in the Bill of Quantities shall be fixed and, except as provided for in the Contract not subject to adjustment, in respect of any rise or fall in the cost to the Contractor of undertaking, executing and completing the Works.

The cost of any items of work in the Bill of Quantities, for which no unit rate or price has been inserted by the Contractor, shall be deemed to be covered by and included in the other rates and prices inserted in the Bill of Quantities.

Unless otherwise stated, all costs necessarily incurred in complying with the provisions and requirements of the Conditions of Contract and General Requirements are deemed to be included with the works, as applicable. Unit rates and prices inserted by the Contractor against the work items in the Bill of Quantities, shall be deemed to cover for all such costs; including but not necessarily limited to the following, as applicable:

- on-site and off-site supervision and management,
- site administration and security,
- insurances, bonds and guarantees,
- water for the works,
- lighting and power for the works,
- temporary roads, hardstandings, crossings and the like,
- temporary fencing, hoardings, screens, barriers, foot-ways, guardrails and the like,
- giving notices and making applications, including the payment of fees and charges in connection therewith,
- safety, health and welfare of workpeople, and of employees, users and occupants of existing buildings and facilities on the Site,
- compliance with traffic regulations,
- maintenance of public and private roads, services and adjoining property,
- control of noise and pollution, prevention of fire and compliance with all other statutory and general obligations,
- samples of materials and testing of materials, including providing equipment for testing,
- preparation and submittal of drawings, reports, records, certificates, notices, proposals, designs, details, calculations and other information and data required by the Specification,
- compliance with all other requirements, provisions, responsibilities and obligations contained in the Contract Documents.
- Temporary facilities for the Consultant / Engineer including Site offices - Furniture - Equipment.

Unless otherwise stated, all costs necessarily incurred in complying with the provisions and requirements of the Specifications and Drawings are deemed to be included with the work, as applicable. Unit rates and pricesinserted by the Contractor against the work items in the Bill of Quantities, shall be deemed to cover for all such costs; including but not necessarily limited to the following, as applicable:

- mobilisation: including bringing to and providing on Site, all Contractor's Equipment and temporary works; carrying out enabling tasks and providing all temporary services necessary to commence and undertake the Works,

- labour and all costs in connection therewith,

- materials, products, equipment, goods, supplies and consumables, and all costs in connection therewith,

- Contractor's Equipment, including but not limited to: plant, machinery, scaffolding, tools, vehicles and the like, and all costs in connection therewith,

- temporary works and all costs in connection therewith, including but not limited to: designing; preparing and submitting shop drawings; installing, maintaining, adapting, clearing away and making good as necessary,

- work at any location or depth,

- work in small or isolated quantities,

- curved, sloping, raking or battered work,

- cleaning and protection of all work,

- protection of all existing buildings and facilities, structures, utilities, site improvements, trees and vegetation, features, pavements and other facilities on and adjacent to the site, which are to remain upon completion of the work,

- all other enabling tasks, associated and subsidiary components and items of ancillary work, which are indicated or reasonably inferred from the Specifications and/or Drawings, and which are necessary to perform and complete the work described,

- demobilising the Site upon completion of the Works, including but not limited to: removing from Site all Contractor's Equipment and temporary works materials, clearing and removing from the Site all Contractor's rubbish, debris and surplus materials, and reinstating and restoring the Site to its' original condition,

- establishment costs, overhead charges, profit and risk.

- All needed works to execute the items

REHABILITATION OF MAIN ELECTRICAL ROOM / NEW GENERATORS ROOM IN RESIDENTIAL PALACE - PHASE 2

BILL OF QUANTITIES

GENERAL SUMMARY

	PRICE SUMMARY	Amount (U.S $)
Part-1	Civil, Structural and Architectural Works From Summary	0.00
Part-2	Mechanical Engineering Services From Summary	0.00
Part-3	Electrical Engineering Services From Summary	0.00
	Total:	**0.00**

- VAT (When applicable)

GRAND TOTAL PRICE CARRIED TO FORM OF BID: **0.00**

(Total Price in Words) U.S. DOLLARS:

REHABILITATION OF MAIN ELECTRICAL ROOM / NEW GENERATORS ROOM IN RESIDENTIAL PALACE - PHASE 2

PART-1
CIVIL, STRUCTURAL AND ARCHITECTURAL WORKS

Item	Description	Unit	Quantity	Unit Rates US.S	Amount US.$.
	CHAPTER 1 - SITE PREPARATION AND DEMOLITION				
1.1	**SITE PREPARATION**				
	Site Clearance				
1.1.1	Clear and prepare site areas generally, as required to enable and facilitate all new construction, including removal of unwanted trees, planting, ware houses and removal of existing building which is composed of many floors and any structure. etc.	L.S.	1.00		0.00
	Site Protection				
1.1.2	Protect, safeguard and support as necessary existing buildings, structures, facilities, site areas, trees and planting, services and utilities; etc., which are to remain upon completion, from damage due to construction operations and activities	L.S.	1.00		0.00
	Carried To Summary				**0.00**

	CHAPTER 2 - SELECTIVE DISMANTLING AND DEMOLITION AND REPAIRS/EXTERNAL WORKS				
2.1	**Demolition Work** Demolition of hollow concrete blocks works concrets, reinforced concrete & wall share exists including doors, frames etc…... As shown on drawings				
2.1.1	Demolition of existing walls (generator room)	m2	155.00		0.00
2.1.2	Roof (TOT) generator room	m2	125.00		0.00
2.1.3	Demolition of existing walls (electrical room)	m2	27.00		0.00
2.1.3	Demolition of existing tiles in the toilet (control room)	m2	20.00		0.00
2.1.4	All excavation works required to achieve design levels. Excavation below baseline level for foundations, footings, tie beams, retaining walls, etc… and in accordance with soil reports, specifications, drawings, and the engineer's instructions	m3	165.00		0.00
2.2	**DISMANTLING WORK** Excavate to any depth in any type of material, INCLUDING for breaking out any existing walls, paving, footings, underground walls, obstructions, utilities and the like; supporting sides of excavations; shoring, strutting, supporting and protecting existing structures adjacent; dewatering; trimming, compacting and testing; backfilling and filling to final design elevations; removal of surplus excavated material from site; and all other related ancillaries as indicated or required				
2.3	**BACKFILL** Backfill for leveling grading levels under slab on grade complete with all necessary compaction laboratory tests for base sub grade & retain sub grade of CBR is 10% or more, if CBR is less than 10%, replace a 50 cm layer with material of good soil free of deleterious material in layers, each 25 cm thick after rolling and of or CBR of 10% or more.				
2.3.1	Provide and lay sub base 30cm thick each layer. Price to include laying rolling to 95% optimum density after rolling the original ground to 95% optimum density.	m3	63.00		0.00
	Carried To Summary				**0.00**

	CHAPTER 3 - CONCRETE WORKS				
3.1	**CAST IN PLACE CONCRETE** Cast in place concrete and concreting as specified and detailed, installed complete; INCLUDING for formwork and shuttering, including rebates, chamfers, grooves, mortices, block-outs, openings and the like; reglets, ties, water stops and other inserts; expansion, control and construction joints; basic formed finishes and unformed surface finishes; and all other related ancillaries as indicated or required Plain concrete; Class C; ordinary Portland cement (Type I)				
3.1.1	Blinding beds- including isolated, raft, strip footing foundations (10cm) Reinforced concrete; Class A; sulphate resisting cement (Type V) Supply, cast, and vibrate reinforced concrete forms and works to include: formworks, steel reinforcement, watering and curing the concrete, cylinder samples and testing and to satisfy the required strength as specified, and insulation as required. Contractor to submit shop drawings and attain engineer's approval prior to commencement of works	m3	18.00		0.00
3.1.2	Foundations; including bases, footings tie beams isolated, raft, connections, foundations, etc…… (40 cm) Supply, cast, and vibrate reinforced concrete forms and works to include: form works, steel reinforcement, watering and curing the concrete, cylinder samples and testing and to satisfy the required strength as specified, and insulation as required. Contractor to submit shop drawings and attain engineer's approval prior to commencement of works	m3	64.00		0.00
3.1.3	Concrete Columns	m3	14.00		0.00
3.1.4	Parapets Supply, cast, and vibrate reinforced concrete forms and works to include: form works, steel reinforcement, watering and curing the concrete, cylinder samples and testing and to satisfy the required strength as specified, and insulation as required. Contractor to submit shop drawings and attain engineer's approval prior to commencement of works	m3	5.00		0.00
3.1.5	Drop beams and drop panels	m3	7.00		0.00
	Carried To Collection				**0.00**

	From Collection				**0.00**
3.1.6	Suspended SOLID slabs; embedded beams and upstand Supply, cast, and vibrate reinforced concrete forms and works to include: form works, steel reinforcement, watering and curing the concrete, cylinder samples and testing and to satisfy the required strength as specified, and insulation as required. Contractor to submit shop drawings and attain engineer's approval prior to commencement of works				
3.1.6.1	200 mm thick overall	m3	25.00		0.00
3.1.7	Steel bar reinforcement as specified and detailed, installed complete; INCLUDING scheduling; cutting, bending, fabricating, lapping and splicing; chairs, spacers and supports; and all other related ancillaries as indicated or required				
3.1.7.1	High tensile steel bars; all diameters cost is included in cost of reinforce concrete item 3.1.1, 3.1.2, 3.1.3, 3.1.4 and 3.1.5)	Kg	0.00		0.00
3.1.7.2	Mild steel bars; all diameters cost is included in cost of reinforce concrete item 3.1.1, 3.1.2, 3.1.3, 3.1.4 and 3.1.5)	Kg	0.00		0.00
3.1.7.3	Slab on grade (200 mm)	m3	15.00		0.00
3.1.7.4	Tranch (walls + Concrete cover)	m3	10.00		0.00
	Sundries Liquid applied waterproofing to concrete surfaces, as specified; including for substrate preparation, primer, protection, etc; and all other related ancillaries as indicated in the design drawings.				
3.1.8	Bituminous emulsion waterproofing paint to all concrete works in tack with the soil including all details as shown in the design drawings	m2	357.00		0.00
	Carried To Summary				**0.00**

	CHAPTER 4 - MASONRY				
4.1	**UNIT MASONRY**				
	Hollow concrete (light weight) unit masonry as specified and detailed, installed complete; INCLUDING for joint and steel bar reinforcement, grout filled cells, wall ties and anchors; cutting. bonding and forming openings; precast or cast in place concrete lintels and cills; closures, control joints and weepholes; and all other related ancillaries as indicated or required.				
	Walls and partitions:				
4.1.1	100 mm thick	m2	130.00		0.00
4.1.2	150 mm thick	m2	130.00		0.00
	Carried To Summary				**0.00**

	CHAPTER 5 - METALWORK				
5.1	Security Doors and Windows as shown on drawings Steel plate with Transom security door, window panel and fixed louver unit assemblies; fabricated and installed complete; INCLUDING for frames, hardware, operating devices, thresholds, trim and accessories				
5.1.1	Type S01 (300 cm x 280 cm) with upper louver (300 × 100)	No	4.00		0.00
5.1.2	Type S02 (100 cm x 220 cm)	No	2.00		0.00
5.1.3	Type S03 (200 cm x 220 cm)	No	2.00		0.00
5.1.4	Type S04 (180 cm x 220 cm)	No	1.00		0.00
5.1.4	Type S05 (90 cm x 190 cm)	No	1.00		0.00
5.2	**Ladders**				
5.2.1	For top of roof	No	1.00		0.00
	Carried To Summary				**0.00**

	CHAPTER 7 - THERMAL AND MOISTURE PROTECTION				
7.1	**SHEET WATERPROOFING** Sheet waterproofing membranes as specified and detailed, installed complete; INCLUDING for substrate preparation, primers and adhesives; joint laps, coatings, flashings and accessories; and all other related ancillaries as indicated or required				
7.1.1	Polyethylene sheet; vapour barrier, under concrete ground slabs	m2	120.00		0.00
7.2	**POLYURETHANE WATERPROOFING FOR WET AREAS (PU)**				
7.2.1	Polyurethane painting waterproofing (PU); including for all preperation works and related ancillaries. - Cleaning the places - Apply Base coat - Apply two layers of PU paint include 20cm vertical high - The work should be executed by an expert - All needed works as per the Engineer instructions				
	Wet rooms including upstand at floor perimeter, shower rooms, toilets, kitchen, etc..	m2	4.00		0.00
7.3	**MEMBRANE ROOFING** SBS modified bituminous membrane roofing and deck assemblies as specified and detailed, installed in according to manufacturer instructions; INCLUDING for substrate preparation, primers, bonders, beds, fasteners and fixings; jointing and finishing; and all other related ancillaries as indicated or required.				
7.3.1	Roofing comprising: Lightweight concrete roof screed; Single layer modified bituminous membrane; (4mm thick) Protection sheet layer; 7cm graveling	m2	440.00		0.00
7.3.2	Membrane upstand; including cant strip, Aluminum flashing and mastic joint sealant	m	130.00		0.00
	Carried To Summary				**0.00**

	CHAPTER 8 - DOORS AND WINDOWS **METAL DOOR FRAMES**				
8.1	**ALUMINIUM DOORS AND WINDOWS** Aluminium framed door, window, entrance, partition and screen units as specified and detailed, installed complete; INCLUDING for sub-frames, transoms and mullions; glass, glazing and aluminium louvres; supports, anchors, fasteners and fixings; protective coatings and sealants; hardware, ironmongery, accessories and trim; and all other related ancillaries as indicated or required on drawings. - (All aluminum section should be as manifacture by Technal Gx. Fx and all accessories should be stamped TECHNAL 100%) NOTE: All aluminium panels in all typical floors are double glazed. (Refer to drawings) Type:				
8.1.1	W-01 (Similar to the existing)	No	1.00		0.00
	Carried To Summary				**0.00**

	CHAPTER 9 - FINISHES				
9.1	**LATH AND PLASTER**				
	Plaster and plastering as specified and detailed, installed complete; INCLUDING for substrate preparation, bonding and dubbing out; plaster lath, corner beads and other accessories, jointing and finishing; and all other related ancillaries as indicated or required. Refer to drawing.				
	Portland cement plaster, 20mm thick; internal				
9.1.1	General surfaces: walls and ceilings for internal space, including columns with the corner beads, beams, etc; margins, reveals and soffits	m2	420.00		0.00
	Portland cement plaster, 20mm thick; external render				
9.1.2	Walls generally; including margins, reveals and soffits; grooving as indicated	m2	200.00		0.00
9.1.3	Repair existing plaster on the internal and external façade wall installed complete,including for substrate preparation bonding and budding out and other accessories jointing and finishing and other related ancillaries as indicated or required	L.S	1.00		0.00
9.2	**CERAMIC WALL AND FLOOR TILE**				
	Ceramic tiles and tilework as specified and detailed, installed complete; INCLUDING for substrate preparation, cement sand screeds or plaster backing coats; setting, jointing and grouting; tile trim and accessories; sealants; and all other related ancillaries as indicated or required				
	Floors				
9.2.1	Ceramic tile; 400 x 400 mm	m2	300.00		0.00
9.2.1	300x300x8.5mm Non-glazed (Non-Slip) Full mass	m2	2.50		0.00
	Walls				
9.2.3	Glazed ceramic tile	m2	13.00		0.00
	Skirting Tiles				
9.2.2	ceramic tiles (h=150mm)	m2	21.00		0.00
	Carried To Collection				**0.00**

	From Collection				**0.00**
9.3	**PAINTING** Finish paint and painting, complete as specified and detailed; INCLUDING for surface preparation, rubbing and puttying, (Minimum 3 layers putty) primers, undercoats, finish coats; and all other related ancillaries as indicated or required to:				
9.3.1	Interior Surfaces Walls and Ceiling, emulsion finish	m2	880.00		0.00
9.3.2	Exterior surfaces	m2	275.00		0.00
	Carried To Summary				**0.00**

10.1	**TOILET ACCESSORIES** Toilet accessories as specified and detailed, installed complete; INCLUDING for inserts, anchorages, fasteners and fixings; finishes, trim and tools; and all other related ancillaries as indicated or required.				
10.1.1	Toilet paper roll holder	No	1.00		0.00
10.1.2	Soap dispenser	No	1.00		0.00
10.1.3	Paper towel box/dispenser	No	1.00		0.00
10.1.4	Towel rail	No	1.00		0.00
10.1.5	Mirror unit; 800 x 600mm high	No	1.00		0.00
	Carried To Summary				**0.00**

PART 1

CIVIL, STRUCTURAL AND ARCHITECTURAL WORKS

CHAPTE	SUMMARY				
1	SITE PREPARATION				0.00
2	EXTERNAL WORKS				0.00
3	CONCRETE WORK				0.00
4	MASONRY				0.00
5	METALWORK				0.00
7	THERMAL AND MOISTURE PROTECTION				0.00
8	DOORS AND WINDOWS				0.00
9	FINISHES				0.00
10	TOILET ACCESSORIES				0.00
CIVIL, STRUCTURAL AND ARCHITECTURAL WORKS CARRIED TO PRICE SUMMARY					**0.00**

REHABILITATION OF MAIN ELECTRICAL ROOM / NEW GENERATORS ROOM IN RESIDENTIAL PALACE - PHASE 2

PART-2
MECHANICAL ENGINEERING SERVICES

Item	Description	Unit	Quantity	Unit Rates US.S	Amount US.$.
	CHAPTER 1 - GENERAL TECHNICAL REQUIREMENTS				
1.1	All works shall comply with the general technical requirements sections of the specification including: Compliance with applicable laws, regulations, codes & standards General installation requirements Scope regulations and standards. Electrical Services installation. Noise and vibration control. Power and Control of mechanical equipment Spare parts as recommended by the manufacturer Preparation of shop drawings Preparation of as built drawings Inspection testing and commissioning. Handover procedures and documentation. Operation and maintenance manuals Training for client / maintenance staff Warranty and defects liability requirements Maintenance, Responsibility & Acceptance Temporary works and protection				
1.1.1	All above	item	1.00		0.00
	Carried To Collection				**0.00**

	From Collection				**0.00**
1.2	**Dismantling and removal of existing mechanical equipment** Dismantle, disconnect, remove all existing mechanical equipment indicated on the drawings or instructed by the engineer. All equipment shall be handled without damage and delivered to the client's designated storage area or handed over to the client's representative. The contractor shall dispose of only those materials specially approved by the engineer and shall make good any damage resulting from the removal works.				
1.2.1	External louvers	item	1.00		0.00
1.2.2	Fans	item	1.00		0.00
1.2.3	DX split unit	item	1.00		0.00
1.2.4	Electric water heater	item	1.00		0.00
1.2.5	Sanitary fixtures + accessories	item	3.00		0.00
	Carried To Summary				**0.00**

	CHAPTER 3 - SANITARY, LABORATORY, VENT, WASTE AND RAINWATER PIPEWORK INSTALLATION				
3.1	**SANITARY WASTE, RAIN WATER & VENT PIPE WORKS** Supply, install, test and commission sanitary waste, rain water, and vent pipe work complete with all required fittings, supports, openings, sleeves, sealants, cleanouts, and accessories for a fully functional installation in accordance with the specifications, drawings and applicable regulations and standards				
3.1.1	**UPVC pipes & fitting;**				
3.1.1.1	Ø 50mm (MUPVC)	m	15.00		0.00
3.1.1.2	Ø 75mm	m	11.00		0.00
3.1.1.3	Ø 110mm	m	4.00		0.00
3.2	**ROOF VENT CAP** Supply, install, test and commission roof vent cap including fixation with PVC pipe and all required accessories for a fully functional installation in accordance with the specifications, drawings and applicable regulations and standards				
3.2.1	RVC - 01 (Ø50 mm)	No	1.00		0.00
3.3	**AREA DRAINS** Supply, install, test and commission area drains include all necessary supports, flashings, strainers, built-in bad smell barrier, connection with all needed materials and all required accessories for a fully functional installation in accordance with the specifications, drawings and applicable regulations and standards				
3.3.1	**FD-01 (PVC or Stainless Steel Chrome plated Floor Drain Cover)**				
3.3.1.1.	Ø 75 mm Side Outlet (Body + Cover) 200 x 200 mm	No	1.00		0.00
	Carried To Collection				**0.00**

	From Collection				**0.00**
3.3.2	**JB-01(PVC OR STAINLESS-STEEL CHROME PLATED JUNCTION BOX COVER)**				
3.3.2.1	200 x 200 mm PVC + Cover	No	1.00		0.00
3.4	**RAIN WATER AREA DRAINS** Supply, install, test and commission rain water area drains (dome type) including elevated dome strainer, flashing clamp collar, integral gravel guard, outlet connections to rain water gutters/down pipes, fittings and all required accessories for a complete and fully functional installation in accordance with project specifications, drawings and applicable regulations and standards				
3.4.1	RD-Ø75mm	No	2.00		0.00
3.4.2	Rehabilitation & cleaning of the existing roof drains including all required works for a fully functional installation in accordance with the applicable standards and regulations	item	6.00		0.00
	Carried To Summary				**0.00**

4.1	**CHAPTER 4 - PIPED SYSTEMS (LIQUIDS)** **DOMESTIC HOT AND COLD WATER** Supply, install, test and commission domestic hot and cold water, pipework include all fittings bends, tees, elbows, vents and drains well, valves, expansion joints, flexible connections, sleeves, joints, openings, sealants, supports, brackets and hangers and all required accessories for a fully functional installation in accordance with the specifications, drawings, and applicable regulations and standards.				
4.1.1	**Cold/hot water polypropylene PN20/25 SDR-6 confirm to DIN 8077/8078 or approved equal** **Multi-Layer PPR with Fiber (Internal Installations)**				
4.1.1.1	ø 20mm	m	17.00		0.00
4.1.1.2	ø 25mm	m	3.00		0.00
4.1.1.3	ø 32mm	m	2.00		0.00
4.1.2	**ANGLE VALVES** Supply, install, test and commission angle valves, include all required accessories/connections for a fully functional installation in accordance with the specifications, drawings, and applicable regulations and standards				
4.1.2.1	ø 20mm angles valves	No	3.00		0.00
4.2	**ELECTRICAL WATER HEATER** Supply, install, test and commission Electrical Water Heater include pipe work connections, drain connections to the nearest drain, temperature and pressure gauges, controls and power wiring from control panel, controls and high limit control valves, isolation and safety valves, thermal insulation, LED indicator for ON/OFF indication, disconnect switches, and all required accessories for a fully functional installation in accordance with the specifications, drawings, and applicable regulations and standards Electrical water heater degree of protection shall not be less than IP55				
4.2.1	EWH-100 L (1.5 KW @1Ph)	No	1.00		0.00
	Carried To Summary				**0.00**

	CHAPTER 6 - FUEL OIL TANK				
6.1	**FUEL OIL TANK** Supply, install, test and commission, fuel oil storage tank include oil fill points, control wiring, valves, anti-vibration flexible connections, fittings, drain valve, overflow, medium duty cover, level indicator, relief venting, level switch, flame arrestor, and all required accessories and civil works for a fully functional installation in accordance with the specifications, drawings, and applicable regulations and standards. Main black steel tank degree of protection shall not be less than IP 68				
6.1.1	2.4 m x 1.2 m x 2.4 m black steel tank (4mm thickness) chassis at 0.6 m above FFL on steel scaffolding columns	No	1.00		0.00
6.2	**FILL CABINET** Supply, install, test and commission fill oil cabinet, include coupling, valves, check valve, LED level indicator connected to level switch sensor via control wiring and all required accessories for a fully functional installation in accordance with the specifications, drawings, and applicable regulations and standards				
6.2.1	All above	No.	1.00		0.00
6.3	**FUEL OIL PIPEWORKS** Supply, install, test and commission Fuel oil pipeworks; include valves, connections to generators, all pipes double wrapped in protective tape running in trenches or where buried, fittings, hangers, supports and brackets and all required accessories for a fully functional installation in accordance with the specifications, drawings, and applicable regulation and standards				
6.3.1	Ø 25 mm (Seamless black carbon steel)	m	21.00		0.00
6.3.2	Ø 32 mm (Seamless black carbon steel)	m	15.00		0.00
6.3.3	Ø 50 mm (Seamless black carbon steel)	m	51.00		0.00
	Carried To Collection				**0.00**

	From Collection				**0.00**
6.4	**SOLENOID VALVE** Supply, install, test and commission solenoid shut off valve (normally open) interlocked with fire alarm via control module, include pipes connections, fittings, valves, control wiring, and all required accessories for a fully functional installation in accordance with the specifications, drawings, and applicable regulations and standards.				
6.4.1	ø 50 mm Solenoid valve	No	1.00		0.00
	Carried To Summary				**0.00**

	CHAPTER 8 - AIR CONDITIONING AND VENTILATION INSTALLATION				
8.1	**DUCT WORK AND ACCESSORIES**				
8.1.1	**DUCT WORKS**				
	Supply, install, test and commission galvanized steel ducting for ventilation system, include flexible connections, supports, hangers and brackets, opening, sleeves and sealants, fittings, safety and fire-rated installation vibration isolators, anchor bolts, connections to fans and all required accessories for a fully functional installation in accordance with the specifications, drawings, and applicable regulations and standards				
8.1.1.1	G90 confirm to ASTM A653/Z275 confirm to EN 10346 duct works	Kg	100.00		0.00
8.1.1.2	PVC duct Ø150mm	m	5.00		0.00
8.1.2	**MOTORIZED FIRE DAMPERS MFDR**				
	Supply, install, test and commission motorized fire dampers (normally open) interlocked with fire alarm, include supports and brackets, sealing and air-tightness fixation, control module and control wiring, actuation and related connections, safety and fire-rated installation, and all required accessories for a fully functional installation in accordance with the specifications, drawings, and applicable regulations and standards				
8.1.2.1	900 x 1900 mm, MFDR	No	1.00		0.00
8.1.2.2	2000 x 2200 mm, MFDR	No	2.00		0.00
8.1.2.3	2800 x 1000 mm, MFDR	No	4.00		0.00
	Carried To Collection				**0.00**

	From Collection				**0.00**
8.1.3	**EXHAUST PIPES OF GENERATOR** Supply, install, test and commission exhaust seamless black steel pipes confirm to ASTM A53/A106 schedules 40, grade B or approved equal, include connection to generator, fittings, muffler silencer acoustic insulation complete with spark arrestor and flexible connector, Diesel oxidation catalyst filtration unit suitable for 500/725 KVA generator operation, hangers, supports & brackets, cleanout, and all required accessories for a fully functional installation in accordance with the specifications, drawings, and applicable regulations and standards				
8.1.3.1	Ø 250 mm (4mm thickness)	m	24.00		0.00
8.1.3.2	Ø 300 mm (4mm thickness)	m	8.00		0.00
8.2	**AIR OUTLETS** Supply, install, test and commission air outlets, include mounting and supports, sealing and airtightness fixation, safety and fire- rated installation, duct connections, air flow control, finishing and alignment, and all required accessories for a fully functional installation in accordance with the specifications, drawings, and applicable regulations and standards				
8.2.1	**AIR LOUVERS (FAL + Filter)**				
8.2.1.1	900 × 1900 mm	No	1.00		0.00
8.2.1.2	2000 × 2200 mm	No	2.00		0.00
8.2.1.3	2800 × 1000 mm	No	4.00		0.00
	Carried To Collection				**0.00**

	From Collection				**0.00**
8.3	**FANS** Supply, install, test and commission fans include ductwork connections via flexible connectors, isolator switches, power and control wiring to the control panel, temperature sensors & controllers, attenuators, acoustic cladding to duct connections, identification and bonding, hangers, supports and brackets and all required accessories for a fully functional installation in accordance with the specifications, drawings, and applicable regulations and standards				
8.3.1	EXF-75 Cfm @ 30pa (wall mounted)	No	1.00		0.00
8.3.2	EXF-3400 Cfm @ 65pa (floor mounted)	No	1.00		0.00
8.4	**DX SPLIT UNITS** Supply, install, test and commission DX split air conditioning units complete, including indoor and outdoor units, refrigerant piping, insulation, condensate drain pipes connections, control wiring, interconnecting power and control cables, wall brackets and/or supports, vibration isolators, refrigerant gas charging, pressure testing, vacuuming, electrical connections, disconnected switches, thermostat remote, and all required accessories for a fully functional installation in compliance with drawings, specifications and applicable regulations and standards				
8.4.1	IU (DX)/OU (DX) -2.0 (ceiling suspended) 2TR Cooling capacity- Inverter type 850 Cfm air flow	No	2.00		0.00
	Carried To Collection				**0.00**

	From Collection				**0.00**
8.5	**CONDENSATE DRAIN PIPES** Supply, install test & commissioning pressure PVC (PPVC) Condensate drain pipe, including pipes & fittings manufactured in accordance with BS EN 1452 or equivalent approved standard, minimum pressure rating PN10, solvent cement jointing, supports and hangers, sleeves through walls/slabs, proper slope , connection to indoor units and approved discharge point, leakage testing, and all required accessories for a fully functional installation in compliance with drawings, specifications, and applicable standards and regulations				
8.5.1	ϕ32mm	m	2.00		0.00
8.5.2	ϕ50mm	m	6.00		0.00
	Carried To Summary				**0.00**

	CHAPTER 9- FIRE PROTECTION				
9.1	**AUTOMATIC FIRE SUPRESSION FM-200**				
	Supply, install, test and commission for Automatic FM-200 fire suppression system, complete with nozzles, detectors, control panel dedicated for the suppression system, control cables, red light and sound alarm signal, valves, manifold, black steel piping, supports, brackets and hangers and all necessary accessories for a fully functional installation in accordance with the specifications, drawings, and applicable regulations and standards				
9.1.1	3 × 45 Kg Floor mounted cylinders	item	1.00		0.00
9.1.2	7 × 45 Kg Floor mounted cylinders	item	1.00		0.00
9.2	**PORTABLE FIRE EXTINGUISHER**				
	Supply, install, test and commission for Portable Fire Extinguisher complete with supports, brackets, hangers, and all necessary accessories or a fully functional installation in accordance with the specifications, drawings, and applicable regulations and standards				
9.2.1	PFE - 6 Kg ABC dry chemical powder	No	8.00		0.00
9.2.2	PFE - 5 kg (CO_2)	No	6.00		0.00
9.2.3	PFE- 6L (Foam type)	No	1.00		0.00
9.3	**FIRE INTUMESCENT MATERIAL**				
9.3.1	Provide and installation all fire instumescent insulation materials & components as specified, detailed & necessary required, (including but not limited to openings & penetration through fire rated enclosures at mechanical shafts, ducts, sleeves), complete with supports, anchors and fasteners, mastic sealer; and all other related ancillaries as required for complete installations	L.S.	1.00		0.00
	Carried To Summary				**0.00**

	CHAPTER 11 - THERMAL INSULATION AND IDENTIFICATION OF SERVICES Supply, install, test and commission thermal insulations, include adhesive application, mechanical fixings, vapor barriers, and protective or decorative finishes. Works, shall also include proper identifications and labeling of services, sealing of joints, and ensuring all insulation materials meet the required thickness, density, and fire/ safety standards for a fully functional installations in accordance with the specifications, drawings, and applicable regulations and standards				
11.1	**THERMAL INSULATION WITH ALUMINUM JACKETING FOR EXHAUST STEEL OF STEL OF GENERATOR**				
11.1.1	Miniral/Rock Wool insulation 50 mm thickness, 80-120 Kg/m³ density	m	32.00		0.00
11.2	**THERMAL INSULATION FOR HOT WATER PPR PIPES**				
11.2.1	Closed- cell elastomeric rubber type, 13 mm minimum thickness, 45 kg/m³ minimum density	m	9.00		0.00
	Carried To Summary				**0.00**

	CHAPTER 12 - AUTOMATIC CONTROLS AND MONITORING INSTALLATION				
12.1	**MOTOR CONTROL CENTER**				
	(Refer to Electrical BOQ)				
12.2	**CONTROL PANEL**				
	Supply, install, test and commission control panel dedicated for exhaust fans including: - Main circuit breaker: 4×16A - Circuit Breaker: 2×10A for each fan - Contactor + protection for each fan - Selector 3 - positions: manual / off / Auto for each fan - Indication LED light On/Off operation or each fan - Power cable: 2×4 mm² + E = 4 mm² for each fan - Controller + relay + temperature sensor for each fan including control cables.				
12.2.1	CP-01 (included in phase 1)	item	0.00		0.00
	Carried To Summary				**0.00**

	CHAPTER 13 - SANITARY FIXTURES Supply, install test and commission sanitary fixtures manufactured from vitreous China or approved equivalent including mixers, chrome plated traps, pop-up drain, drain connections, cold/hot water connections, flushing system, fixing brackets & supports, sealants, testing for leakage, and all necessary accessories required for a complete & fully functional installation in compliance with drawings, specifications and applicable standards & regulations				
13.1	**LAVATORIES**				
13.1.1	LAV-01 (Semi Pedestal) Estimated dimenisons 55 × 50 cm	item	1.00		0.00
13.2	**WATER CLOSETS**				
13.2.1	EWC-01 (flush tank floor-mounted) complete with flushing hoses Estimated dimenisons 65 × 36 cm	item	1.00		0.00
13.3	**SHOWER** Supply and installation of complete shower set comprising chrome - plated shower head and single - lever mixer, including all necessary fittings and accessories, complete in place				
13.3.1	SH-01	item	1.00		0.00
	Carried To Summary				**0.00**

PART-2	**MECHANICAL ENGINEERING SERVICES**				
Chapter	**SUMMARY**				
1	GENERAL TECHNICAL REQUIREMENTS				0.00
3	SANITARY, LABORATORY, VENT, WASTE AND RAINWATER PIPEWORK INSTALLATION				0.00
4	PIPED SYSTEMS (LIQUIDS)				0.00
6	FUEL OIL TANK				0.00
8	AIR CONDITIONING AND VENTILATION INSTALLATION				0.00
9	FIRE PROTECTION				0.00
11	THERMAL INSULATION AND IDENTIFICATION OF SERVICES				0.00
12	AUTOMATIC CONTROLS AND MONITORING INSTALLATION				0.00
13	SANITARY FIXTURES				0.00
MECHANICAL ENGINEERING SERVICES TOTAL CARRIED TO PRICE SUMMARY					**0.00**

REHABILITATION OF MAIN ELECTRICAL ROOM / NEW GENERATORS ROOM IN RESIDENTIAL PALACE - PHASE 2

PART-3
ELECTRICAL ENGINEERING SERVICES

Item	Description	Unit	Quantity	Unit Rates US.S	Amount US.$.
	CHAPTER 1 - DISTRIBUTION BOARDS AND CIRCUIT BREAKERS				
1.1	**SECONDARY DISTRIBUTION BOARDS** Supply, install, connect and test the following secondary boards in perfect operation conditions as shown on drawings and specified inclusive of enclosure, all bus bars, protective devices, all necessary components and requirements of command and monitoring controls local, and should be interfaced with BMS, and the like as intended to the satisfaction of the engineer Contractor shall submit full shop drawings regarding all below boards including single live diagram, external view, internal connection view, bill of quantities for each panel to satisfaction of Supervisor Engineer.				
1.1.1	R1- panel	No	1.00		0.00
1.1.2	R2- panel	No	1.00		0.00
1.1.3	R3- panel	No	1.00		0.00
1.1.4	R4- panel	No	1.00		0.00
1.1.5	DB-B	No	1.00		0.00
1.1.6	DB-R.3	No	1.00		0.00
1.1.7	DB-G	No	1.00		0.00
1.1.8	Junction Box R3	No	1.00		0.00
1.1.9	Junction Box R4	No	1.00		0.00
1.1.10	Blue Panel (as named on site)	No	1.00		0.00
1.2	**MANUAL TRANSFER SWITCHES** Supply, install and test the manual transfer switches (MTS) in perfect operating conditions as shown in the drawings and the pecific inclusive of enclosure, bus bars, closet all the necessary components and the like to the satisfaction of the engineer, with three position switch (1;0;2), the MTS should be interfaced with BMS				
1.2.1	MTS-EDL/EDL (4×2500A)	No	1.00		0.00
	Carried To Collection				**0.00**

	From Collection				**0.00**
1.3	**AUTOMATIC TRANSFER SWITCHES** Supply, install and test the automatic transfer switches (ATS) in perfect operating conditions as shown in the drawings and the pecific inclusive of enclosure, bus bars, closet all the necessary components and the like to the satisfaction of the engineer, with three position switch (1;0;2), the ATS should be interfaced with BMS				
1.3.1	ATS-1 EDL/GEN (4x2500A)	No	1.00		0.00
	Carried To Summary				**0.00**

	CHAPTER 2 - CABLES AND WIRES **FEEDER CABLES** Supply, install, connect and test the following PVC and XLPE insulated cables, including trenches with covers, pipes, sleeves, cable trays, cable ladders, tagging, glands, terminations and the like for a complete installation as shown on drawings and as intended to the satisfaction of the engineer				
2.1	**CU/XLPE/SWA/PVC CABLES (Multi Core Cables)**				
2.1.1	4C x 240 mm2	m	271.00		0.00
2.1.2	4C x 150 mm2	m	36.00		0.00
2.1.3	4C x 120 mm2	m	24.00		0.00
2.2	**XLPE/PVC/CU CABLES (Multi Core Cables)**				
2.2.1	4C x 25 mm2	m	192.00		0.00
2.2.2	4C x 16 mm2	m	24.00		0.00
2.3	**PVC/CU/PVC CABLES (Multi Core Cables)**				
2.3.1	4C x 6 mm2	m	80.00		0.00
2.4	Provision for cable trays blending and termination kits	L.s	1.00		0.00
2.5	Disconnect the existing cables within the main electrical room, associated with the chillers system, then reinstall and connect them to the designated circuit breaker in the MDB-2 panel including all necessary works in accordance with the instructions of the supervising engineer	L.s	1.00		0.00
	Carried To Summary				**0.00**

	CHAPTER 3 - WIRING DEVICES, SWITCHES, SOCKETS, ETC				
3.1	**DISCONNECTING SWITCHES**				
	Supply, install, connect and test disconnecting switches complete in perfect operating conditions; including conduits; trays, trenches, boxes, wiring, wiring cable (measured separately) and the like to the satisfaction of the engineer				
3.1.1	2x16A 2pole (IP=65)	No	3.00		0.00
3.2	**ELECTRICAL DEVICES/ACCESSORIES**				
	Supply, install, connect and test wiring devices complete in perfect operating conditions, including conduits, trays, trenches, boxes, wiring,(up to panel boards or to nearest wiring device or lighting fixture) for all items listed below and the like to the satisfaction of the engineer				
	Switches				
3.2.1	One way one gang lighting switch, 10A rated	No	2.00		0.00
3.2.2	One way Two gang lighting switch, 10 A. rated	No	2.00		0.00
3.2.3	One way Three gang lighting switch, 10 A. rated waterproof	No	1.00		0.00
3.2.4	Two way Two gang lighting switch, 10 A. rated	No	4.00		0.00
3.3	**Sockets**				
3.3.1	16 AMP SIMPLEX -2P+E	No	7.00		0.00
3.4	**Electrical Outlet**				
3.4.1	Electrical outlet for fan	No	1.00		0.00
	Carried To Summary				**0.00**

	CHAPTER 4 - GROUNDING AND BONDING Supply, install, connect and test, complete in perfect operating conditions, including earth pits, earth test links, earth bar, earth continuity conductor to all panels in compliance with international regulations including interconnection of all earthing systems and to the satisfaction of the Director of works				
4.1	Earthing for generators	L.s.	1.00		0.00
4.2	Earthing for MV switch gear and EDL transformer	L.s.	1.00		0.00
	Carried To Summary				**0.00**

	CHAPTER 6 - LIGHTING INSTALLATION AND FITTINGS				
6.1	**LIGHTING POINTS** Supply and install the following points complete with all necessary wires conduits, boxes and accessories required to provide power to the lighting fittings from LP (lighting panel including earth wire all as described and as shown on drawings).				
6.1.1	Lighting points	No	59.00		0.00
6.2	**LIGHTING FITTINGS** Lighting fittings shall be complete with suspension/ LED rods, tubes, ballast's and accessories. LED fixtures shall have a power factor correction greater than 0.9 Supply and install the following lighting fittings.				
6.2.1	Type D1	No	1.00		0.00
6.2.2	Type F	No	1.00		0.00
6.2.3	Type O	No	5.00		0.00
6.2.4	Type C	No	36.00		0.00
6.2.5	Type C1	No	3.00		0.00
6.2.6	Exit - maintained 3 hours	No	4.00		0.00
6.2.7	Ceiling emergency light maintained 3 hours	No	12.00		0.00
	Carried To Summary				**0.00**

	CHAPTER 9 - FIRE ALARM AND DETECTION				
9.1	**FIRE ALARM SYSTEM** Supply and install all necessary fittings, wires conduits, boxes, plates, relays, bell modules, EOL resistors and accessories as described and as shown on drawings and all necessary connection to the management stations as intended to the satisfaction of the engineer compatible to existing fire alarm system				
9.1.1	Waterproof flasher	No	2.00		0.00
9.1.2	Fire alarm manual break glass station	No	3.00		0.00
9.1.3	Fire alarm bell with strobe light	No	1.00		0.00
9.1.4	Heat detector H	No	4.00		0.00
9.1.5	Combined heat smoke detector SH	No	8.00		0.00
9.1.6	Control module	No	3.00		0.00
9.1.7	Testing and Commisioning for the new and old fire alarm devices and system	L.s.	1.00		0.00
	FIRE INSTUMESCENT MATERIAL Provide and installation all fire instumescent insultation materials & components as specified, detailed & necessary required, (including but not limited to openings & penetration through fire rated enclosures at electrical shafts, ducts, sleeves), complete with supports, anchors and fasteners, mastic sealer; and all other related ancillaries as indicated or required - Generator and mechanical rooms - shafts and electrical rooms. - Shafts and inverter room.	L.s.	1.00		0.00
	Carried To Summary				**0.00**

	CHAPTER 10 - MEDIUM VOLTAGE 11 kV switchgear and Protection System including inspection, dismantling for existing bus bar and switches, cleaning, servicing. The work shall include circuit breaker, current and voltage transformer and protection relays and copper bus bar; the MV switchgear should be interfaced with BMS				
10.1	Switchgear with breakers (11 KV, 630 Amp one input and 3 output refer to dwg E405)	No	1.00		0.00
10.2	MV cable 3 × 70 mm²	L.m	18.00		0.00
	Carried To Summary				**0.00**

	CHAPTER 11 - TRANSFORMER Supply, install, and connect transformer including LV and MV switch gear, including LV cables and all necessary terminations; the transformer should be interfaced with BMS				
11.1	Transformer 1600 KVA 11KV/380V	No	1.00		0.00
11.2	ACB with closet 4 x 2500 A	No	1.00		0.00
	Carried To Summary				**0.00**

	CHAPTER 12 - ENGINE GENERATOR				
12.1	**GENERATOR** Provide emergency generator set complete as described including, breaker, accessories, controls, control panel, with canopy,daily fuel tank, main fuel tank, exhaust, muffler, supply and exhaust air ducts,electric and manual fuel pump and all ancillaries; the generator should be interfaced with BMS				
12.1.1	0.38 KV, 50 Hz, 500 KVA, 1500rpm, P.F=0.8 prime generator	item	3.00		0.00
12.1.2	Generators Totalizing Panel	item	1.00		0.00
	Carried To Summary				**0.00**

	CHAPTER 14- PASSIVE SYSTEM COMMUNICATION Supply, install, connect, test, commission Multi-Service Network as per the drawings and specifications including all necessary equipment accessories, parts and services needed to provide Owner with state of the art network solution that is fully functioning. Horizontal Cabling The Contractor will be supply, install, connect only Infrastructure works Data, Telephone including cable trays, conduits and boxes				
14.1	SINGLE Outlet Including cable, trays, conduits, boxes for RJ45				
14.1.1	Single Data Wall Outlet RJ 45 (complete installation)	No	3.00		0.00
14.1.2	Single data wall outlet RJ45 (second fix)	No	2.00		0.00
14.1.3	Data Rack (9U)	No	1.00		0.00
14.1.4	Data Box	No	1.00		0.00
	Carried To Summary				**0.00**

	CHAPTER 15 - TELEPHONE SYSTEM Supply, install and test telephone system with conduits installations from Telephone Box to the Telephone socket outlets, including pull or draw or junction boxes.				
15.1	Telephone outlet RJ 45 (complete installation)	No	2.00		0.00
15.2	Telephone outlet RJ 45 (second fix)	No	1.00		0.00
	Carried To Summary				**0.00**

	CHAPTER 16-TELEVISION SYSTEM Supply, installm and test television system with conduits installations from TV box to TV outlets, including pull or draw or injuction boxes				
16.1	TV outlet	No	1.00		0.00
16.2	TV box	No	1.00		0.00
	Carried To Summary				**0.00**

	CHAPTER 17-BUILDING MANAGEMENT SYSTEM (BMS) Supply, install, connect, testing and commissiong for a complete Building Management System (BMS) including integration programming. The system BMS used for monitoring and supervising of the main electrical room in the palace including cables, UPS, LCD, controllers, DDC's, power supply, communication devices, accessories and integration with the existing and new panels and all systems as mentioned in the drawings and specifications. The system must be able for future extension as per specifications requirements				
17.1	Complete BMS System	L.s.	1.00		0.00
	Carried To Summary				**0.00**

	CHAPTER 18 - EXTERNAL WORKS				
18.1	Excavation Trench 80x60 including steel cover and all necessary works (refer to drawings E-413)	L.m	40.00		0.00
18.2	Road crossing including 2x5x6 inch PVC conduit for cables from new genset	L.m	7.00		0.00
18.3	Dismantling and removing the existing 2 generators G3 600 KVA and G4 725 KVA	L.S.	1.00		0.00
18.4	During the renovation period G3 should be reinstalled and connected to the load to maintain continuity of service and complete operational functionality including all temporary works required	L.S.	1.00		0.00
18.5	Reinstalling, testing and commissioning for existing generator G4 725 KVA, removing and handlingG3 to the representative of the presidential palace	L.S.	1.00		0.00
18.6	Dismantling and reinstalling of existing panels and cables as required and reconnect all existing circuits and cables to the new panel including testing and commissioning. Removing and handling for all panel and cable not used to the representative of the palace	L.S.	1.00		0.00
18.7	Dismantling and reisntalling of existing transformers and cables as required and reconnected all existing circuit and cables to the new panels, including testing and commissioning. Removing and handling for old transformer not used to the representative of the palace.	L.S.	1.00		0.00
18.8	Unseen works	L.S.	1.00		0.00
	Carried To Summary				**0.00**

	ELECTRICAL ENGINEERING SERVICES				
	SUMMARY				
1	DISTRIBUTION BOARDS AND CIRCUIT BREAKERS				0.00
2	CABLES AND WIRES				0.00
3	WIRING DEVICES, SWITCHES, SOCKETS, ETC				0.00
4	GROUNDING AND BONDING				0.00
6	LIGHTING INSTALLATION AND FITTINGS				0.00
9	FIRE ALARM AND DETECTION				0.00
10	MEDIUM VOLTAGE				0.00
11	TRANSFORMER				0.00
12	GENERATORS				0.00
14	PASSIVE SYSTEM COMMUNICATION				0.00
15	TELEPHONE SYSTEM				0.00
16	TELEVISION SYSTEM				0.00
17	BMS System				0.00
18	EXTERNAL WORKS				0.00
	ELECTRICAL ENGINEERING SERVICES TOTAL CARRIED TO PRICE SUMMARY				**0.00**