



SECURITIES AND EXCHANGE COMMISSION OF PAKISTAN (SECP)

ADDENDUM NO. 1

Renovation work at 10th Floor SECP Head Office 63 Jinnah Avenue Islamabad

November 06, 2023

Response to Queries

With reference to the queries received from perspective bidders, the Bidders shall note and take into consideration the following additions, deletions, clarifications and amendments to the Invitation for Bid ((IFD), while preparing the bids.

These additions, deletions, clarifications and amendments form an integral part of the bidding document. Bidders are required to acknowledge receipt of this addendum to the Employer. The original addendum shall be attached to the original invitation.

S/No.	Query	Decision
1.	In reference to your bidding document for tender "Renovation works at 10th floor SECP head office, 63 Jinnah Avenue Islamabad" a clarification is required on the qualification criteria of bidding documents for In-hand projects (Sr. No.2). 10 numbers are for 5 or more projects and 20 numbers are for less than 5 projects. Can you please clarify this point?	It is clarified that the same be amended as under: Qualification criteria of bidding documents for In-hand projects (Sr. No.2). shall be as follow; 1. 5 or more projects 20 Marks 2. For less than 5 projects, 4 marks will be assigned per project.
2.	The Specifications of electrical and telecommunication works as referred to in the BOQ are missing in the bidding documents.	It is clarified that the specifications of electrical and telecommunication work have been attached.
3.	The list of approved manufacturers is missing.	The manufacturer list has been attached.
4.	Since the completion period is just 25 days, therefore, payment should be made in 7 days promptly, and secured advance payment against the delivery of material at the site should be allowed.	It is clarified that the same payment terms shall be followed as mentioned in the bidding documents.
5.	Electrical and telecommunication works drawings and layouts may be provided to seek competitive and realistic bids.	The layout design of the floor has already been provided along with tender documents. However, for a better understanding of electrical and telecommunication work site may be visited. No drawings are available. Identification of cable routes shall be identified upon mutual consent at the time of installation.
6.	Make/brand of the tiles	Porcelain tiles of master/oreal/RAK/createsoul brand or equivalent brand.

For any further clarification, the undersigned may be contacted.

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SPECIFICATIONS

SECTION - 8001

GENERAL SPECIFICATIONS FOR ELECTRICAL WORKS

1.0 SCOPE OF WORK

The works related to the electrical system are included in the Scope of this Contract as shown on the Drawings, stated in the Specifications and Bill of Quantities and explained in these Specifications. The works shall broadly include but not limited to the following:

- General Specifications for Electrical Works
- LT Distribution Boards
- Light Fixtures
- Low Tension Cables
- Wiring Accessories
- Conduits and Pipes
- Earthing
- Miscellaneous Items
- Structured Cabling Network
- Intelligent Addressable Fire Alarm System
- Closed Circuit Television System
- Cable Antenna TV System

The Contractor shall also be responsible to supply any other equipment not specifically mentioned in these Documents but which is necessary for proper operation of the works/system included in the scope of this Contract. The Contractor shall solely be responsible for ensuring proper functional requirements of different equipment. He shall also be responsible for furnishing any additional piece of equipment and for making modification in the equipment as desired and/or approved by the Engineer to achieve proper co-ordination with various equipment offered in the bid and also with those installed by others.

2.0 RULES & REGULATIONS

The entire electrical installation/work shall be carried out by licensed Contractor, authorised to undertake such work under the provisions of the Electricity Act 1910 and The Electricity Rules 1937 as adopted and modified upto date by the Government of Pakistan.

All works shall be carried out in accordance with the latest edition of the Regulations of the Electrical Equipment of Buildings issued by the Institute of Electrical Engineers-London, the Contract Documents, The Electricity Rules 1937 and bye-laws that are in force from time to time. Any discrepancy between these Specifications and any other rules and regulations shall be brought to the notice of Engineer for his instructions and the discussion of the accepting/controlling shall be final and conclusive.

The Contractor shall be responsible for completing all formalities and submitting the test certificates as per prevailing rules and regulations, and shall have the installation passed by the Government Electric Inspector of that region. All requirements of the Electric Inspector and the KE (Karachi Electric) shall be complied with.

3.0 AMBIENT CONDITIONS

All material and equipment supplied and installed shall be designed, manufactured and tested to meet the following ambient conditions unless specifically stated otherwise for any material/ equipment.

Location	:	Lahore
Maximum indoors ambient temperature	:	50-Degree Celsius
Minimum indoors ambient temperature	:	Zero Degrees Celsius
Maximum outdoors-ambient temperature	:	50-Degree Celsius
Minimum outdoors-ambient temperature	:	Zero Degrees Celsius
Maximum Relative humidity	:	100 Percent
Maximum Altitude of project	:	520 meters above the mean sea level.

The atmospheric conditions are tropical and highly humid.

4.0 STANDARDS

The latest standards and codes of reputable organisations shall be applicable for the material and equipment specified herein and for installation work. Such organisations to be BSS, IEC, VDE, NFPA 99, NEC Article 517 etc. In case the Specifications laid down herein differ from those given in the standards, then the equivalent or better specifications shall govern. Wherever applicable the equipment shall also conform to the requirements of Pakistan Standard Institution (PSI).

Contractor shall maintain at the site office one copy of the standards / codes applicable to the works.

5.0 SYSTEM DATA

Unless otherwise specified elsewhere, all equipment and material shall be designed to operate satisfactorily with the following minimum requirements without any de-rating.

- a) Voltage rating of equipment : HT : 11 kV, 3 phase, +/- 10%
LT : 415 V, 3 phase, +/- 10%
240 V, 1 phase, +/- 10%
- b) Frequency : 50Hz + 2Hz

In general, the electrical colour coding of switchgear cubicles, control panels, desks etc., shall be in accordance with the respective IEC Recommendations. Live parts of electrical connections shall be colour coded according to IEC 446 as follows:

Conductor Designation	Coding Alphanumeric	Colour
A.C. Network Phase 1	L 1	red
Phase 2	L 2	yellow
Phase 3	L 3	blue

	Neutral	N	black
D.C. Network	Positive	L+	white
	Negative	L-	black
Earthing	Protective Earth	PE	green/yellow
	Earth	E	green/yellow

The colour coding for the secondary circuits of isolated power panel board is as follows:

Orange-Isolated Phase Conductor
Brown- Isolated Neutral Conductor
Green-Isolated Ground Conductor

Conductor insulation of secondary circuits of isolated power panel board shall be XLPE and PVC sheathed.

Control Cables

The Control Cables shall be manufactured according to specifications for L.T. Cables. The Control Cables shall be of multi-core, PVC insulated type withstanding without deterioration the conditions prevailing at the place of installation. The cross section of cable shall be as per the requirement of the system.

All the cores should be numbered and/or colour coded or otherwise properly identified. At-least 20% spare cores shall be provided in all Control Cables.

No separate payment is admissible for supplying, installing, testing and commissioning of control cables and is deemed to have been included in the BOQ rates of the respective equipment.

Distance in between power, communication and control cables shall be kept as per requirements laid down by EN50174-2, NEC800 and NFPA 70.

6.0 EQUIPMENT

6.1 IP Degree of Protection

The equipment shall have IP degree of protection as follows, unless mentioned other wise:

- IP 42 for indoor areas
- IP 54 for indoor damp areas
- IP 65 for outdoor areas

If properly rated equipment is not available, the Contractor shall provide field enclosures to attain the required IP degree of protection. If necessary cooling/exhaust fans and / or anti condensate heaters shall also be provided. No separate payment shall be made to attain the required IP degree of protection.

6.2 Identification & Labelling

All devices, meters, cabling, wiring and auxiliaries shall be properly labeled for identification. Labeling of equipment shall be done by means of flameproof material using indelible ink/markings. The labeling shall be such as to ensure uniformity and shall facilitate study of control diagrams/ drawings during operation and maintenance.

All labeling shall be of suitable size to be visible from the operating conditions/positions at site.

6.3 Lamp Test Facility

All equipment / switchboards, etc. shall be provided with common lamp test facility.

7.0 DRAWINGS AND DATA TO BE FURNISHED BY THE CONTRACTOR

For each electrical equipment shop drawings, as-built drawings and/or technical data are to be furnished by the Contractor. LT cable distribution layouts & shall include, but not limited to the following:

- (a) Structural drawings showing foundations, RCC details dimensional plans, elevation and sections on a suitable scale.
- (b) Electrical drawings showing:
 - Line diagrams of Switchboards, Motor Control Centres, distribution boards and isolated power panels with detailed wiring diagrams, elevations/internal component layout and other standard details.
 - LT Cabling, Grounding/Earthing including all cable routing and support details.
 - Necessary execution details such as no. of cable/wires, size of conduits, cable routes, cable trays and cable trenches, etc.
 - Substation and Generator Room Equipment installation details.
 - Manhole/Duct works.
- (c) Layouts of all LT cable routes with coordinates and levels.
- (d) Technical literature and manufacturer's characteristic data with the description of materials and weights of all equipment as instructed by the Engineer.

At least three (3) copies of the shop drawings and/or technical data of the equipment shall be submitted to the Engineer for checking and approval.

8.0 MANUFACTURER'S INSTRUCTIONS

The Contractor shall supply to the Engineer in properly bound form six (6) copies of manufacturer's instruction manuals for installation, testing, commissioning, operation and maintenance of the specified equipment including manuals of spare parts and tools of the equipment. At least two copies of the documents shall be submitted in original. The installation instructions shall be submitted 2

weeks prior to commencement of installation of each equipment, and operation and maintenance instruction at the time of commissioning. If the Contractor fails to provide the documents the Engineer shall withhold issuance of requisite certificates and deduct suitable amount from the payments to the Contractor.

9.0 GUARANTEE

The Contractor shall furnish written guarantee of the manufacturer or supplier with respect to satisfactory performance of each equipment. Guarantee shall be given for replacement and repair of part or whole of the equipment, which may be found defective in material or workmanship. The guarantee shall cover the duration of Maintenance Period as defined in the Conditions of Contract. This guarantee shall not relieve the Contractor of his obligations and he will be fully responsible for the repair or replacement of any defective material in time, so as not to cause any undue delay in carrying out the repairs and/or replacements.

10.0 DANGER BOARDS WITH SIGNS, DESIGNATION AND SHOCK / FIRST AID CHARTS AND FIRE FIGHTING EQUIPMENT

Danger Boards having signs and designation of the room shall be installed on the external door of HT, LT, Power transformer, Low Voltage DG Set Rooms. Shock/First Aid Charts shall be installed in H.T, L.T and Low Voltage DG Set Rooms.

Potable fire fighting extinguisher suitable to control electrical fire shall be provided in H.T, L.T, Power Transformer and Low Voltage DG Set Rooms.

All the above items shall also be provided, wherever required to comply the requirements of the Pakistan Electricity Rules/Electric Inspector.

Laminated single line and adequate detail drawings on proper boards highlighting the main system features shall be displayed/ fixed in respective electrical and communication rooms.

11.0 ASSOCIATED CIVIL WORKS

Except where separately stated in the Bill of Quantities the cost of all civil works associated with any BOQ item of electrical works, such as excavation and back filling of earth, compaction of the earth, foundation pads, chiselling, making openings, etc. shall be included in the price quoted against respective items. No separate payment for such works will be made. Such works will also include repair of any damage to civil works caused by the Contractor during electrical installation.

12.0 INSTALLATION INSTRUCTIONS - GENERAL

The Contractor shall furnish all labour, materials, tools and equipment required to install, connect, test and commission all electrical equipment specified herein, whether or not such equipment is furnished by him or by others.

For all equipment to be installed by the Contractor, the Contractor shall supply and install all erection materials such as foundation bolts, washers, nuts, etc. as required and without any additional costs.

The Contractor shall set out the works himself as per Specifications and Drawings and shall properly position the equipment on specified

foundation/location. In general, the manufacturer's instructions for installation shall be followed. Any defect or faulty operation of equipment due to the Contractor not following the manufacturer's instructions shall be corrected and repaired by the Contractor at his own cost.

For any deviation from the working drawings or specification that are deemed necessary by the Contractor due to site conditions, he shall submit the details and obtain the Engineer approval before starting such works.

13.0 FACTORY TESTS

All type and routine tests on Low Voltage D.G Set, Power Transformer, H.T Switchboards, LT Switchboards, Motor Control Centre, H.T Cables, LT Cables, and all other equipment shall be performed at the manufacturer's works in the presence of the Engineer or his Representative. Type tests may be waived off in case test certificates are submitted as certified by an Engineer approved standard laboratory of international repute; but merely producing the test type certificates will not relieve the manufacturer to carry out the required standard/routine tests.

The Contractor shall inform the Engineer about the date and time of test of each equipment at least two weeks in advance. This shall, however, be done after the Contractor has got the test procedures duly approved by the Engineer. The witnessing of test by the Engineer and the Employer shall not absolve the Contractor from his responsibility for the proper functioning of the equipment, and for furnishing the guarantees referred to in clause 9.0. All test results shall be supplied in quadruplicate. All expenses for carrying out the tests as incurred by the Engineer and the Employer to witness it shall be borne by the Contractor and deemed to have been included in the bid. Provision for at least two person's visit for Factory Acceptance Tests shall be made to include one representative each from the Employer and the Consultant/Engineer. The contractor shall undertake all formalities as may be required for the Engineer or his representative to enable him make the visit.

14.0 TESTING

14.1 Scope

Upon completion of the installation, the Contractor shall perform field tests on all equipment, materials and systems. All tests shall be conducted in the presence of the Engineer for the purpose of demonstrating equipment or system compliance with Specifications. The Contractor shall submit for Engineer's approval complete details of tests to be performed describing the procedure, test observations and expected results.

The Contractor shall furnish all tools, instruments, test equipment, materials, etc., and all qualified personnel required for the testing, setting and adjustment of all electrical equipment and material including putting the same into operation.

All tests shall be made with proper regard for the protection of the personnel and equipment and the Contractor shall be responsible for adequate protection of all personnel and equipment during such tests. The cost of any damages or rectification work due to any accident during the tests shall be the sole responsibility of Contractor.

The Contractor shall record all test values of the tests made by him on all equipment. Four (4) copies of all test data and results certified by the Engineer shall be given to the Engineer for record purposes. These shall also include details of testing method, testing equipment, diagrams, etc.

The witnessing of any tests by the Engineer does not relieve the Contractor of his guarantees for materials, equipment and workmanship, or as any other obligations of Contract.

14.2 Low Voltage D.G. Set

Prior to the tests, the contractor shall submit manufacturer's recommended detailed description of the test procedures to be conducted for Engineer's approval.

The Contractor shall carry out full site load and no load tests in accordance with IEC, ISO or BS Specifications for site commissioning. The inspection and tests shall include but not be limited to:

Basic Tests:	Insulation Resistance Earth Continuity Earth Loop Impedance Polarity Phase Rotation Voltage and Frequency Starting System Protection Equipment
Battery:	Nominal Voltage Discharge Voltage Specific Gravity of Electrolyte Level of Electrolyte Charging System
Lubrication:	Check as required by manufacturer
Operational Check at Start-up	Oil Pressure Fuel Oil Leaks Operation of Safety Devices Operational Speed Automatic Control Instrument Check Exhaust Check Undue Vibration
Operational Check After one hour's run:	Oil Pressure Oil Leaks Cooling System Oil Temperature
Commissioning Test:	25% of full load 0.5 hrs. 50% of full load 0.5 hrs. 75% of full load 1 hrs. 100% of full load 1 hrs. 110% of full load 1 hr.

All commissioning and test results shall be recorded and compared with design data. A retest/commissioning shall take place if results are not satisfactory. All the tools, labour, POL, required for the testing and commissioning shall be provided by the Contractor at no extra cost. If required load is not available at site for testing the generators, the Contractor shall provide dummy load at site at no extra cost to the Employer. The correct functioning of the control equipment shall also be proved.

Battery Charger

Battery charger shall be static type and shall provide for both trickle and boost charging of the batteries when the engine is not in operation. The charger shall be of suitable capacity to fully recharge the completely discharged batteries within four hours at boost charge.

Control Panel

The Control Panel shall provide all the necessary control and monitoring devices of the Diesel Generating Sets. All the control and monitoring of the safety devices, alarms, protections, meters, lamps, etc. as mentioned in this Specifications and required as per good engineering practices for such an installation shall be provided in the Control Panel.

14.3 Transformer Tests

In addition to the insulation resistance test of the transformer, a polarity and phase rotation test shall also be made. Buchholz relay shall be tested for proper operation. Di-electric test shall be carried out on transformer oil prior to putting the same in operation.

14.4 HT / LT Switchboards

Each circuit breaker shall be operated electrically and mechanically. All interlocks and control circuits shall be checked for proper connections in accordance with the wiring diagrams given by the manufacturer.

The Contractor shall properly identify the phases of all switchgear and cables for connections to give proper phase sequence.

Trip circuits shall be checked for correct operation and rating of equipment served. The correct size and function of fuses, disconnect switches, number of interlocks, indicating lights, alarms and remote control devices shall be in accordance with approved manufacturer drawings. Nameplates shall be checked for proper designation of equipment served. Protective relays shall be tested and set at site prior to commissioning of the equipment.

14.6 Insulation Resistance Test

Insulation resistance test shall be made on all electrical equipment by using a meggar of 500 volts for circuits upto 250 volts and 1000 volt for circuits between 250 and 500 volts. For testing of 11 kV circuits, upto 5

kV meggar shall be used; the exact voltage shall be as advised by the equipment manufacturer unless otherwise advised by the Engineer.

The insulation resistance values of cables, transformer, switchgears, etc., shall be as per BSS, IEEE, NEC, ICEA and Pakistan Electricity Rules.

Before making connections at the ends of each cable run or joint between cables, the insulation resistance test of each cable section shall be made. H.T. cables shall be subjected to high voltage test as per recommendations of standard to which the cable is manufactured. Each conductor of a multi-core cable shall be tested individually with each of the other conductor of the group and also with earth. If insulation resistance test readings are found to be less than the specified minimum in any conductor, the entire cable shall be replaced and tests repeated on new cable. If cable joint is provided, then each cable section shall be tested, and joint made only after the tests have been made satisfactorily. Finally the completed cable length including the joints shall be tested.

The transformer and switchgears shall be given an insulation resistance measurement test after installation, but before any wiring is connected. Insulation tests shall be made between open contacts of circuit breakers, switches and between each phase and earth.

If the insulation resistance of the circuit under test is less than the specified value, the cause of the low reading shall be determined and removed. Corrective measures shall include dry-out procedure by means of heaters, if equipment is found to contain moisture. Where corrective measures are carried out, the insulation resistance readings shall be taken after the correction has been made and repeated twice at 12 hours interval. The maximum range for each reading in the three successive tests shall not exceed 20% of the average value. After all tests have been made, the equipment shall be reconnected as required. Polarity test shall be made on single pole switching devices.

14.7 Earth Resistance Test

The Contractor shall make Earth resistance tests on the Earthing system, separating and reconnecting each earth connection.

If it is indicated that soil treatment or other corrective measures are required to lower the ground resistance values, the Engineer will determine the extent of such corrective measures.

The electrical resistance of the ECC together with the resistance of the Earthing leads measured from the connection with earth electrode to any other position in the complete installation shall not exceed one ohm.

Earth resistance test shall be performed as per Electrical Inspector's requirements. Where more than one earth electrodes are installed, the earth resistance test of each electrode shall be measured by means of resistance bridge instrument.

The complete lightning protection system shall be tested for continuity and earth resistance. The combined earth resistance at any point in the lightning protection system shall not exceed 10 ohms.

14.8 Completed Tests

After any equipment has been tested, checked for operation, etc., and is accepted by the Engineer the Contractor shall be responsible for the proper protection of that equipment so that subsequent testing of other equipment do not cause any damage to the already tested equipment.

14.9 Expenses

All expenses, i.e., daily allowance (as per NESPAK rules & policy), travelling, boarding and lodging for carrying out the tests and witnessing by the Engineer shall be borne by the Contractor and are deemed to have been included in the BOQ rates of the respective equipment(s) by the Contractor.

14.10 Spare Parts

Contractor shall provide necessary spare parts as per manufacturer's recommendation. The cost of each spare parts shall be carried over to relevant BOQ item and no extra payment shall be admissible in this regard.

14.11 Special Tools

Contractor shall provide special tools and instruments as may be deemed essential for assembly, adjustment, dismantling, installation and maintenance reasons. No separate payment shall be made for any special tools and instruments, and cost shall be deemed to be included in the cost of the Contract.

15.0 APPENDICES TO BE FILLED IN BY THE BIDDER

The details regarding equipment manufacturers, deviations, etc., are to be furnished in the attached form of Bids.

16.0 PAYMENT

No separate payment shall be made for work involved within the scope of this section unless specifically stated in the Bill of Quantities or herein.

*** End of Section 8001 ***

Volume-I

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LIST OF APPROVED MANUFACTURERS AND BRANDS OF MATERIALS/EQUIPMENT

This list of approved manufacturer's or brands of different materials or equipments is provided in order to establish a standard level of performance and do not indicate any preference for a particular manufacture or material or brand. The Contractor is bound to provide and fix the material or equipments of superior quality approved by the Engineer from the list. However, the material provided from the list of approved manufacturer's shall meet the requirements of the BoQ, relevant specifications come under specification section 8001 of the bidding documents. The contractor shall directly procure material from factory source or the authorized dealers. The Contractor shall provide in support the delivery challan from factory or from supplier including letter of authorization for dealership, sole agent, distributor from the principal, for ensuring the quality, warranty and guarantee of purchased equipment.

SR. NO.	MATERIALS	MANUFACTURER/BRANDS OF MATERIALS/EQUIPMENT
	CABLES & ACCESSORIES	
1.	LV Wiring Cables (300 / 500 Volts)	Fast Cables, Pakistan Cables
2.	LV Power Cables (600 / 1000 Volts)	Fast Cables, Pakistan Cables
3.	High Voltage Cables(15 kV)	Fast Cables, Pakistan Cables
4.	MV Termination/Straight Jointing kit (Hot/Cold Termination)	Raychem, 3M
5.	CAT Cables	Corning
6.	Fire Resistant Cables	Belden, Prismian, Cavicel
7.	Glands, Lugs, Ferrules, Connectors	Cembre, Gewiss
8.	Cable Tagging/Labelling System	Cembre, Hellermannntyton
	PVC AND STEEL CONDUIT	
9.	Electrical PVC Conduit & Accessories	Dadex, Dura Flow
10.	Steel Conduit & Accessories	IIL,
	ELECTRICAL COMPONENTS	
11.	LV Circuit Breakers (MCB, MCCB, ELCB, ACB) (Schneider, ABB

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12.	LV Magnetic Contactor, Starters & Thermal Overload Relay	Schneider, ABB
13.	Power Factor Capacitor	Schneider, ABB, Nokian, RTR, Shizuki
14.	LV Capacitor	Amber Capacitor, Entes, Nokian, Ducati, Schneider Electric
15.	PF Controller	Schneider, ABB, Shizuki
16.	Series Reactor	Nokian, Schneider Electric, ABB, GE, Shizuki
17.	Timer	GE, National / Panasonic, Finder, Fuji, Hanyong
18.	Push buttons and indication lights	GE, Maruyasu, Lovato, Fuji, Hanyong
19.	Current Transformer/Voltage Transformer	Entes, Revalco, Circutor, Sacci, Frer, FICO
20.	Measuring Instrument	Entes, Revalco, Circutor, Lovato, Schneider Electric, Hanyong
21.	Programmable Logic Controllers	Siemens, ABB, Schneider Electric
22.	VSS/ASS	Kraus & Naimer, Fuji, Hanyong
23.	HRC Fuses	Siba, ETI, Voltran
	TRANSFORMER	
24.	Oil Type Transformers (11/0.415 kV)	PEL
25.	Dry Type Transformers (11/0.415 kV)	PEL-IMEFY, Schneider, ABB
26.	LV Panel	Hussian & Co, Karimi Electromech, or Approved PARCO manufacturer's
27.	11 kV Panels	Siemens, PEL, Schneider Electric, ABB
28.	MV Surge Arrester	Siemens, PEL Schneider Electric, ABB
	LIGHTING FIXTURE & COMPONENTS	Note: 3 rd Party Test Report(s) shall be submitted from IEC accredited laboratories for verification of Quality of Light Fixtures submitted by the Contractor and minimum 3 years warranty shall be provided. This clause is applicable to items from Serial No. 28 to 36.

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29.	Surface/recessed office luminaries	Philips (Signify), NVC, EAE, Ledvance, Oppl
30.	Battens	Philips (Signify), NVC, EAE, Ledvance, Oppl
31.	Downlights	Philips (Signify), NVC, EAE, Ledvance, Oppl
32.	Exit Emergency Light Fixture	Hochiki, NVC, EAE, Ledvance, Escalux
33.	Lamps/LED chips	Source as approved by the "Engineer"
34.	Control gear/LED drivers	Source as approved by the "Engineer"
35.	Connectors/holders	Source as approved by the "Engineer"
36.	Solar Light Standalone/System	Leadsun, Gewiss
37.	Street Light	Philips (Signify), NVC, EAE, Ledvance
	SWITCHES & SOCKETS	
38.	Switches	MK, Schneider Electric, ABB, Legrand, Philips (Signify)
39.	Sockets	MK, Schneider Electric, ABB, Legrand, Philips (Signify)
40.	Dimmer / Fan Speed Controller	MK, Schneider Electric, ABB, Legrand, Philips (Signify)
41.	Connection Unit	MK, Schneider Electric, ABB, Legrand, Philips (Signify)
42.	Voice/TV/Data Outlets	MK, Schneider Electric, ABB, Legrand, Philips (Signify)
43.	Back Boxes	MK, Schneider Electric, ABB, Legrand, Philips (Signify)
44.	High Current Switches	MK, Schneider Electric, ABB, Legrand, Philips (Signify)
45.	Industrial Switches, Plugs and Sockets	Walther, GARO, Schneider, Gewiss
	DIESEL GENERATOR SET	Note: The Diesel Generator Suppliers shall have minimum 10 years of proven experience in selling and providing after sales services. The supplier shall show sizable frequency of DG set sales for a period of last 10 years for approval. This Clause is applicable to Serial No. 46.

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46.	Couplers	Caterpillar, CPG (Cummins), Onis Visa, SDMO, FG-Wilson, Synergy (The set shall be from above brands and is subject to approval of verification of import source and proper documentation. The engine and alternator shall not be old than 12 months from the date of purchase. Principal warranty of 3 years/3000 hours shall be provided. Load Testing shall be performed as per specifications.
47.	Engines from 10 kVA upto 500 kVA ratings	Caterpillar, Cummins, Perkins, Volvo
48.	Engines from 500 kVA upto 2500 kVA	Caterpillar, Cummins, MTU, Mitsubishi, Kohler
49.	Alternator	Caterpillar, Stamford, Leroy Somer, Mecc Alte, Kohler
50.	Generator Module	Deepsea Electronics, Caterpillar, Cummins, Kohler
51.	ATS/AMF, Generator Panels	Refer to heading Electrical Panels in the List of Approved Manufacturer's.
	ELECTRONICS/COMPUTER EQUIPMENT	
52.	UPS	APC, Eaton, Vertiv
53.	Fire Alarm/Fighting System	Coordinate with Building Maintenance Department
54.	Public Address System	TOA, Bosch, Honeywell
55.	Burglar Alarm System	DSC, Texicom, Bosch, Honeywell
56.	CCTV System (Ultra / Top Range Series is acceptable)	Pelco, Bosch, Axis Communication, Infinova
57.	CATV	WISI, Scientific Atlanta
58.	Lightning Protection, Earthing System & Surge Protection (European Origin)	Wallis, Furse
59.	PABX	Panasonic
60.	Access Control System	Cavdax Gallaghev, Viridi, Salto
	COMPUTER NETWORK SYSTEM/COMPONENTS	
61.	Structured Cabling	Corning
62.	Ethernet Switches (Channelized Components + Smart Support with 2 years	CISCO or as mentioned in BoQ

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	principal warranty)	
	MISC MATERIALS	
63.	Construction Chemicals	Vandex, FEB, SIKA, Fosroc
64.	Cable Tray with accessories	Ashraf Industries, Electroline
65.	Street Lighting Poles	Jamal Pipes
66.	Power Supplies/Convertors	Siemens, ABB, PULS GmbH
67.	Industrial Plugs & Sockets	Walther, GARO, Schneider, Gewiss
68.	Junction Boxes (Polycarbonate DB)	HENSEL, Gewiss
69.	High Mast (up to 40 m)	Petit Jean, Metelogalva
70.	Ring Main Unit, MV Panels (Fixed Type Circuit Breaker)	Lucy Electric, Schneider Electric
71.	Ceiling Fan/Bracket Fan	Pak Fan, GFC, Royal, Yunas
72.	False Ceiling Fan	Voldam

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