Supply and install a building for the Security department in MOI complex

Electrical Specifications

Introduction:

The ministry of information invites specialized contractors to participate in this project which involves supplying, installing testing and commissioning electrical systems for the national guard building. The scope of work includes ensuring compliance with relevant international standards (IEC, BS, MEW) and regulations. All electrical systems implemented shall support operational requirements, safety and reliability necessary for a facility of this secure and critical nature.

1. General Conditions:

1.1. The work should involve, but not be limited to the following items mentioned in these specifications. As the successful tenderer shall do all work necessary to complete the project satisfactorily even if it is not mentioned in the specifications or BOQ and if contractor does not mention the extra work in BOQ , contractor is obliged to achieve work with out any charges.

1.2. The entire works shall be carried out in strict accordance with the latest issues of the rules and regulations of the electrical installation works issued by the Ministry of Electricity and Water, IEC and BS.

1.3. All electrical installations are to be supervised by a licensed electrical supervisor and carried out by an approved electrical contractor authorized by CTC.

1.4. The contractor's established company shall have a storage to ensure the availability of any electrical material upon the urgent requirement.

1.5. The electrical subcontractor is permitted to be of CTC grade 4, but with a 10 experience in relevant projects.

1.6. Contractor shall submit a compliance sheet with the technical and financial offer.

1.7. Upon submitting the technical and financial offer, the contractor shall submit a breakdown bill of quantity for all materials included in the offer.

1.8. The contractor shall ensure that all staff are registered under one general trading and contracting company.

1.9. All electrical installation materials should be the best of their kinds in terms of technology and quality including : socket outlets, power track light fittings, switches, wires, PVC pipes red sign and all accessories. Samples of all materials are to be submitted for approval before commencing the work.

1.10. Shop drawings for power, lighting, cables, DB layouts are to submitted for approval before commencing the work.

1.11. All lux calculations are to be calculated and submitted using DILUX program and shall be approved by MOI engineer.

1.12. If found any additional either electrical works or materials are required to complete the works satisfactorily but not mentioned in the specifications or in BOQ , the electrical contractor shall be responsible to supply and execute the additional works without extra time and money .

1.13. All materials submitted shall have an attached certificate letter from the manufacturer confirming that the materials comply with standards mentioned below (see ii. Codes and Standards).

1.14. Any damages made by the contractor to any equipment, material, cable, DB, wirings, etc shall be immediately replaced by the contractor without any extra charges and with no delays.

1.15. All staff operating in the work site shall wear a safety helmet provided by the contractor and shall be wearing a uniform to identify them.

1.16. All existing materials shall be dismantled by the contractor and transported back to MOI stores in al Shuwaikh.

1.17. 3 Years warranty for all works.

End of section

2. **Scope of Work:**

2.1. Submittals:

- The contractor shall submit the following:
  a. Initial Single Line diagram
  b. Cable and wiring sizes, lengths and routes.
  c. Sockets distribution
  d. Sample for all materials
  e. As built (3 copies) presented in a book

2.2. Dismantling:

- The contractor shall dismantle all existing materials and transport them back to MOI stores as instructed by MOI engineer.

2.3. Lights:

- The contractor shall supply, install, test and commission lights as follows:
  a. 60 x 60 LED panel lights.
  b. Exit Emergency Lights.
  c. Exterior LED floodlights for entrance, exit and bridge side.

2.4. Socket Outlets and light switches :

- The contractor shall supply and install 13 A , in addition to light switches.

2.5. Cable and wirings:

- The contractor shall supply and install all cables and wirings relevant to feeding the building and its appliances from an existing DB.

2.6. Conduits, trays and cable works:

- The contractor shall supply and install all conduits, trays, cable works for all the cables relevant to the project.

2.7. Earthing:

- The contractor shall carry out all earthing works relevant to the project.

3. **Technical Specifications:**

3.1. Lights:

3.1.1. All Lights and installations shall be carried out strictly in accordance with the following standards:

- IEC/BS EN 60598-2-1 Luminaires. Part 2-1: Particular requirements - Fixed general purpose luminaires
- IESNA TM-21-11 projecting Long Term Lumen Maintenance of LED Light Sources

3.1.2. Contractor is to submit a fully detailed technical manufacturing catalogue showing all details ; type of LED fitting proposed, overall dimensions, photometric data, rated voltage, insulation class, degree of protection, maximum working temperature and size of internal wiring.

3.1.3. Sample of each type of the proposed lighting fitting and lighting system components.

3.1.4. An initial design shall be submitted to MOI engineer for approval Initial Layout for lights and light fixtures including all power points and breakers and switches relevant to lights and initial layout must be approved by MOI engineer.

3.1.5. The contractor shall supply and install 60 x 60 panel lights for the intended national guard / security building.

3.1.6. The 60x60 lights shall be distributed to achieve 500 lux.

3.1.7. The 60x60 lights shall be not less than 6 watts

3.1.8. All 60x60 Lights shall be 4000 k with CRI < 80

3.1.9. The 60 x 60 Lights shall be not less 50,000 hours

3.1.10. All lights shall be no glare type

3.1.11. Lights shall have an IP of 65

3.1.12. 60x60 Lights shall be from one of the following brands:

a. Philips
b. Osram
c. Panasonic

3.1.13. LED chip shall be creed / vs from:

a. Philips
b. Osram
c. LG
d. Samsung

3.1.14. Lights shall tolerate and operate at -10 degree Celsius and maximum 50+ degree Celsius.

3.1.15. All bodies and reflectors shall be Aluminum.

3.1.16. Lights voltage shall operate at 220 – 240 v and frequency of 60 Hz and pf 0.9.

3.1.17. All lights shall be overheating protected and shall be evenly distributed to achieve the targeted lux and lumens.

3.1.18. Drivers shall be of a highly reliable quality and shall have a guarantee of life time of minimum 10 years if operated in no more than 45 degree Celsius.

3.1.19. Drivers shall have minimum efficiency of 85%.

3.1.20. Driver shall have an over-heat thermal protection in the form of automatic dimming or stepping down when operating in high temperatures, thermal cut-outs are not acceptable.

3.2. The driver's output current must be fully tested and must be compatible with the exact LED engine luminaire

1.2 LED drivers shall be EU tested and shall be from the following:

- Philips
- Osram
- Tridonic
- TCI

3.2.1. All light fittings shall have earthing terminals and the contractor shall ensure proper earthing.

3.2.2. All lights shall be class 1 insulated and shall be of lens type.

3.2.3. The contractor shall supply and install floodlights on the buildings outer structure.

3.2.4. All floodlights shall range between 4000k-5000k .

3.2.5. All floodlights shall be not less than 50,000 hours

3.2.6. CRI for all floodlights shall be <80+

3.2.7. Floodlights shall have a slim body and easy to install or dismantle.

3.2.8. Floodlights shall be <50 W +

3.2.9. All floodlights shall be LED and shall be no glare type.

3.2.10. Floodlights shall be lens type and shall have an optical cover (body and reflector) polycarbonate or Aluminum.

3.2.11. Floodlights shall be one o the following :

a. Philips
b. Osram
c. Panasonic

End of section

4. Sockets and Switches:

4.1.1. Switches for lights shall be brass finished matt chrome.

4.1.2. The contractor shall follow IEC 60309: Sockets and switches for commercial and industrial locations.

4.1.3. Light switches shall be push to make and push to break type.

4.1.4. Light switches shall range between 5 to 15 A and shall the grids shall have earthing terminals.

4.1.5. General purpose sockets shall be 13 A and shall be satin chrome type.

4.1.6. General purpose sockets shall be anti fingerprint.

4.1.7. General purpose sockets shall be one of the following brands:

a. Legrand

b. MK

c. ABB

4.1.8. All sockets / switches shall have earthing terminals and the contractor shall ensure proper earthing.

4.1.9. All sockets be installed professionally to ensure to loose parts or screws.

4.1.10. **In case of any A/C related works, the contractor is responsible for providing the appropriate rated SWITCH whether it would be industrial or general purpose socket and shall state this upon submitting the technical / financial breakdown BOQ.**

End of section

5. Cables and Cable works:

5.1.1. All conductors shall be 99% pure annealed copper.

5.1.2. The contractor shall follow the standards of IEC 60228:2023

5.1.3. All cables shall be PVC insulated and shall be armored type or flexible chord type.

5.1.4. All wirings shall be 99%copper and shall have heat shrinkable sleeves and shall have color phase indication (Blue, Red, Yellow for all 3 phases), (Black for neutral) and (Green for earthing).

5.1.5. Wires shall be continuous from outlet to outlet and no splice shall be made except within outlet and junction boxes. A separate neutral wire shall be provided for each circuit wires shall be left sufficiently long enough to permit making final connections.

5.1.6. All cables and wirings shall have all necessary wiring accessorize , conduits, pipes , etc.

5.1.7. Conduits shall be either metallic or non metallic and shall withstand mechanical stress, environmental impacts and chemical exposures and shall withstand harsh weather conditions.

5.1.8. Conduits shall be fire-resistant, impact resistant and shall have an IP of not less than 65.

End of section

6. Notes:

6.1. <u>The contractor shall bare in mind that specifications stated above are the minimum requirement to accomplish this project professionally. The contractor shall adhere to MOI's electrical engineer's strict instructions.</u>

6.2. <u>The contractor shall take into consideration All air conditioning works which might require changes in the existing breakers inside the existing DB, if required (requirement shall be determined by MOI engineer) , the contractor is obliged to change the breakers to a higher rate and carry out all necessary works without extra expenses.</u>

end of section