



**ELECTRICAL TECHNICAL SPECIFICATION FOR SUPPLY, INSTALLATION,  
REPLACEMENT AND GUARANTEE OF RENOVATION WORKS IN THE AL-MAJLIS  
CHANNEL BUILDING FOR THE MINISTRY OF INFORMATION**

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### **1- General Conditions:**

### **1. Responsibilities for Electrical Works:**

- The contractor is obligated to supply, install, replace, and test all electrical systems, including but not limited to components such as sockets and switches.

- All work must strictly follow the latest regulations from the Ministry of Electricity and Water (MEW) and the Kuwait Fire Brigade (KFB).

- 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 without any charges.

### **2. Design and Documentation Submission:**

- The specifications, proposal drawing, and Bill of Quantities (BOQ) are to be treated as a single document. The contractor is responsible for ensuring that all components are included and accounted for across these documents.

- The contractor must submit detailed design plans, which include electrical layouts, material specifications, equipment details, and system diagrams for the approval of the Ministry of Information (MOI).

- Upon project completion, As-Built drawings must be provided in both AutoCAD and PDF formats to ensure proper documentation of any changes made during installation.

### **3. Site Inspections and Assessment:**

- The contractor must conduct a thorough site visit to assess the current conditions and the existing electrical systems before bidding. No claims will be accepted after bid submission due to unfamiliarity with the site.

### **4. Adherence to Specifications:**

- The contractor must ensure that all materials, equipment, and installation methods comply with the Ministry of Electricity and Water standards and the specifications outlined in the tender documents.

- No changes to materials may be made without prior approval from the Ministry of Information. If a proposed material is rejected, alternatives that meet the engineer's requirements must be presented.

### **5. Coordination with Other Contractors:**

- The electrical contractor must collaborate with civil, mechanical, and fire alarm system contractors to prevent conflicts during project execution.

- Any modifications that impact the existing electrical systems must be coordinated with other contractors involved in the project.

## **6. Quality Control and Safety Standards:**

- All outdoor electrical components, such as sockets and disconnection switches, must be weatherproof and have a minimum IP65 rating.

- The contractor is responsible for ensuring that all materials used meet the ministry's quality standards.

- All electrical components must comply with international safety standards such as IEC, UL, or CE.

- Initial functional and load tests must be conducted to ensure operational reliability before final installation.

- Any rejected components must be replaced promptly with approved alternatives at no additional cost to the ministry.

- Personal protective equipment (PPE) must be provided to workers to maintain on-site safety.

## **7. Site Management and Safety:**

- The contractor must maintain a clean and safe work environment, removing waste and excess materials regularly.

- All workers must be equipped with appropriate safety gear, including gloves, helmets, and other necessary protective equipment.

## **8. Approval and Warranty Obligations:**

- Approval of materials and designs does not relieve the contractor of liability if defects or discrepancies arise. The contractor is responsible for fixing any issues at their own expense.

- A 2-year warranty must be provided for all installed electrical systems, covering defects in materials, workmanship, and performance.

- The contractor must ensure availability on-site within 24 hours in the event of an emergency during the warranty period. Failure to respond may result in the ministry taking corrective action, with costs charged to the contractor.

## **9. Spare Parts and Maintenance:**

- The contractor must supply all necessary spare parts for the installed equipment and ensure that these are available for future maintenance requirements.

**10. Worker Safety and Compliance:**

- The contractor is responsible for ensuring that all workers on-site adhere to safety regulations and wear protective gear at all times. The contractor assumes full liability for any accidents or injuries during the project.

- The contractor must ensure that all employees are legally employed under the sponsorship of the contracting company.

**11. Environmental and Climatic Considerations:**

- Considering Kuwait's extreme climate, the contractor must ensure that all electrical materials and equipment are heat and humidity resistant, especially during the summer.

**12. Qualified Supervision:**

- All electrical work must be supervised by a qualified engineer, whose CV must be submitted to the ministry for approval. The supervising engineer must be certified by the Kuwait Society of Engineers.

**13. Labeling and Testing Requirements:**

- All installed equipment, such as cables, must be labeled clearly at both ends.
- Comprehensive testing of all electrical components must be carried out before handover to ensure compliance with MEW standards.

**14. Contractor's Liability for Damages:**

- The contractor assumes full responsibility for any damages or accidents caused to the building, ministry personnel, or their workers.

**15. Approval of Equipment and Samples:**

- The contractor must submit catalogs and samples of all electrical materials for approval by the Ministry of Information. If any item is rejected, the contractor must propose alternatives that meet the ministry's requirements.

**16. Project Completion and Adherence to Timelines:**

- The contractor must ensure that all works are completed according to the project's timeline, including obtaining all required approvals and permits.

**2- Codes and Standards for Electrical Accessories:**

- 1. Earthing Systems:** Follow **IEC 60364-5-54** to ensure protection against electrical shocks.
- 2. Wires:** Use **PVC-insulated copper wires** compliant with **IEC 60227** and MEW regulations.
- 3. Circuit Breakers:** Meet **IEC 60947-2** standards with effective protection for overcurrent and short circuits.
- 4. Industrial Plugs and Sockets:** Comply with **IEC/BS EN 60309**, IP66/67 rating, supporting 16A, 32A, 63A, and 125A.
- 5. Lighting Fixtures:** Comply with **IEC/BS EN 60598-1, 60598-2-1**, with IP44/65 ratings for safety.
- 6. Power Sockets:** Adhere to **BS 1363**, ensuring reliable and safe connections.
- 7. Light Switches:** Must comply with **IEC/BS EN 60669-1, 2** for safe operation.
- 8. Conduits and Trunking:** Follow **IEC 61386** (conduits) and **IEC 61084** (trunking), ensuring proper cable protection.
- 9. General Electrical Accessories:** Meet **BS 5733** to ensure performance and safety.
- 10. Ethernet Points:** Follow **TIA/EIA-568** and **ISO/IEC 11801**, using Cat6 or higher cables.
- 11. Telephone Points:** Comply with **RJ11** or **RJ12** standards, integrating smoothly with Ethernet systems.
- 12. Mounting Boxes:** Follow **BS 546**, ensuring safe installation and operation.
- 13. Earthing Sockets:** Conform to **BS 546**, ensuring enhanced safety and reliable operation with grounding systems.
- 14. Emergency Systems:** Added to cover standards for exit lights, emergency lighting, and smoke detectors in compliance with fire and safety requirements.
- 15. Weatherproof Enclosures:** Included to ensure protection for equipment in outdoor or harsh environments.

**- All electrical components used in the project must comply with the aforementioned standards to ensure the safety and quality of the installation.**

### **3- Scope of Work:**

#### **1. Site Evaluation and Planning:**

- The contractor is required to perform a detailed site survey to identify the precise locations for installing electrical sockets, switches, lighting fixtures, including kitchen and bathroom requirements.

- Detailed electrical layout drawings, specifying the exact placement of sockets and switches, must be submitted for approval to the supervising engineer before commencing installation.

- Provide detailed lux calculations for lighting across all areas to ensure compliance with the specified illumination levels.

## **2. Supply:**

- The contractor must supply all the electrical components, including sockets, light switches, LED lighting fixtures for offices, corridors, bathrooms, and kitchens and Chrome satin sockets and light switches, Ventilation fans and necessary bathroom accessories, and Ethernet and telephone connection points for designated areas and Industrial plugs and sockets with weatherproof enclosures in compliance with MEW standards.

- Exit lights, smoke detectors, and emergency lights must also be supplied and installed as per project requirements, ensuring compliance with local safety and fire protection standards.

- All supplied equipment must be of high quality, sourced from approved manufacturers, and fully compliant with the specifications mentioned.

## **3. Replacement and Removal of Existing Equipment:**

- Safely remove all old sockets and switches, ensuring that existing wiring and connections are not damaged.

- Transport the old equipment to the ministry's designated storage or dispose of it according to safety regulations.

## **4. Installation of New Equipment:**

- Install new sockets, switches, Ethernet points, and telephone points in line with the approved design plans, ensuring compliance with MEW standards for accessibility, functionality, and safety.

- Install an industrial socket in a suitable location determined based on the project's requirements and extend a connection to a weatherproof enclosure housing a plug. The design should ensure IP66/67 protection and compatibility with heavy-duty equipment.

- Certified materials such as PVC-insulated copper wires, plastic conduits, and trunking systems must be used, as per MEW regulations.
- Install exit lights, smoke detectors, and emergency lights at designated locations as per the project's safety requirements.
- Lighting:
  - Perform installation based on the lux calculations for uniform and efficient lighting distribution.
  - Offices: Install recessed LED panels or ceiling-mounted fixtures for uniform illumination.
  - Corridors: Use downlights or linear LED fixtures for consistent lighting.
  - Bathrooms: Install IP65-rated LED fixtures for safety in moist areas.
  - Kitchens: Use sealed LED lights with high efficiency and heat resistance.
- Ventilation Fans:
  - Install exhaust fans in bathrooms to ensure proper ventilation and air quality.
- Earthing:
  - Install an earthing system compliant with IEC standards and MEW regulations. Ensure all metallic components are properly grounded to protect against electrical faults.
  - The contract shall carry out all earthing works relevant to the project.

## **6. Wiring and Connections:**

- Supply and install wiring for LED lighting fixtures and electrical accessories.
- Use PVC-insulated copper wires compliant with IEC and MEW standards for durability and safety.
- Use heavy-duty PVC-insulated copper cables for the industrial connections, ensuring compliance with IEC and MEW standards.
- Ensure all wiring is routed through plastic conduits and trunking systems, securely fixed to comply with safety and organizational standards.

## **7. Equipment Testing:**



- Once installation is complete, the contractor must conduct thorough load and connectivity tests to ensure all devices are functioning properly.

- Verify that all installations meet MEW safety and performance standards.

#### **8. Site Cleanup and Handover:**

- After testing, the contractor must clear the site of any leftover materials and debris.
- The site should be handed over ready for use, accompanied by the necessary operational documentation and compliance certificates.

#### **9. Warranty and Maintenance:**

- Warranty: The contractor must provide a guarantee of at least 2 years for all installed components. This includes:

- A- Coverage for any manufacturing defects or installation errors.

- B- A commitment to repair or replace faulty equipment within the guarantee period.

- Maintenance: Regular maintenance services should be provided to ensure the continued performance and reliability of the systems.

#### **4. Technical Specifications:**

## **A. Electrical Sockets and Industrial Plugs:**

### **1. Socket:**

- **Protection Rating:** IP44, moisture-resistant.
- **Material:** Heat-resistant plastic casing.
- **Cabling:** PVC-insulated copper wires, compliant with MEW current capacity regulations.
- **Rated Current:** 13 amps.

### **2. Industrial Plugs:**

- **Standards:** All industrial plugs and sockets shall comply with **IEC/BS EN 60309** and meet the necessary safety and operational requirements for industrial applications.
- **Protection Rating:** IP66/67 for resistance against dust and water, ensuring reliability in challenging environments.
- **Capacity:**
  - Industrial plugs and sockets shall be available in ratings of **16A, 32A, 63A, and 125A**, designed for high-load industrial applications.
  - Sockets and plugs shall support configurations with **3P+N+E** (three-phase + neutral + earth).
- **Material:** Industrial sockets and plugs shall be constructed from high-impact resistant thermoplastic or metal clad to provide durability and resistance to environmental stresses.
- **Installation:**
  - Industrial sockets shall be surface or panel-mounted, depending on project requirements.
  - Isolators for industrial sockets shall comply with **IEC 60947-3** and feature rotary isolator switches that are padlockable in the off position for enhanced safety.
  - All installations shall include appropriate connectors and isolators to ensure safe and efficient operation.

## **B. Light Switches:**

- **Current Rating:** 10-20A, depending on application.

- **Type:** Mechanical or electronic switches.
- **Material:** Heat and moisture-resistant to ensure durability and safety.
- **Functionality:** Designed to control one or more independent lighting circuits.
- **Safety Features:** Options include full circuit disconnection for enhanced protection.

### **C. Chrome Satin Sockets and switches:**

- **Features:** Fingerprint-resistant finish for enhanced durability and aesthetics.

### **D. Circuit Breakers:**

- **Standards:** IEC 60947-2.
- **Type:** MCCB (Molded Case Circuit Breaker).
- **Capacity:** Circuit breakers shall be rated based on project requirements and provide appropriate breaking capacity to handle overcurrent and short circuits effectively.
- **Performance:** Effective protection against overcurrent and short circuits.

### **E. Weatherproof Enclosures:**

- **Standards:** IEC 60529.
- **Material:** Coated metal or stainless steel to ensure corrosion resistance.
- **Protection Rating:** At least IP66 for environmental protection.
- **Design:**
  - Equipped with cable entry and exit points with sealed gaskets to prevent water ingress.
  - Specifically designed to accommodate industrial sockets and plugs, ensuring compatibility with high-load systems and providing additional sealing for cable connections.

### **F. LED Lighting Fixtures:**

1. **General Requirements:**
  - Lifespan: Minimum 50,000 hours.
  - Lux Calculations:
    - a. Offices: 300–500 lux.
    - b. Corridors: 250 lux.
    - c. Bathrooms: 200–300 lux.
    - d. Kitchens: 500 lux

- Protection Rating: IP44 for offices and corridors; IP65 for bathrooms and kitchens.
  - Operating Temperature: -10°C to 50°C.
  - Power Consumption: Maximum 18.28 W/m<sup>2</sup>.
2. **Corridor Lighting:**
    - Install linear LED fixtures or downlights with glare control and high luminous efficiency.
  3. **Office Lighting:**
    - Use LED panels with even light distribution and a color temperature of 4000K-5000K.
  4. **Bathroom and Kitchen Lighting:**
    - Use IP65-rated LED lights resistant to moisture and heat and a color temperature of 3000K.

#### **G. Earthing:**

- Earthing systems must include:

- Copper rods for grounding.
- Properly insulated grounding wires (PVC insulation).
- Perform ground resistance testing to ensure compliance with MEW-approved levels.

#### **H. Cables and Wires:**

- **Type:** Copper cables insulated with XLPE or PVC, selected based on the specific electrical and environmental requirements of the project and compliant with **IEC** and **MEW** standards.
- **Voltage Rating:** Suitable for various electrical systems, ensuring compatibility with project requirements and operational safety.
- **Current Capacity:** In accordance with MEW-approved cable charts to ensure safe and efficient operation.
- **Sizes:** Appropriately sized cables shall be used based on circuit requirements, including standard power, lighting, and high-load circuits.
- **Industrial Connections:** Heavy-duty PVC-insulated copper cables shall be used for industrial connections, ensuring compliance with **IEC** and **MEW** standards for durability and performance in demanding environments.

#### **Conduits and Trunking:**

- **Standards:** All conduits and trunking shall comply with **IEC 61386** for conduits and **IEC 61084** for trunking systems, ensuring durability and safety.
- **Material:**
  - **PVC conduits and trunking:** For general indoor applications.
  - **GI conduits:** For areas requiring higher mechanical protection or outdoor installations.
- **Protection Rating:** Minimum **IP44** for indoor use and **IP65** for outdoor or damp environments.
- **Installation:**
  - All conduits and trunking shall be securely fixed using approved brackets or supports.
  - Ensure proper sealing at joints and connections to prevent ingress of dust and water.
- **Size and Capacity:** Selected based on the number of cables and their current-carrying capacity, adhering to MEW regulations.

#### **I. Emergency Systems:**

- **Standards:** Comply with **EN 54** for smoke detectors and fire alarm systems.
- **Exit and Emergency Lights:** Must adhere to **IEC 60598-2-22** to ensure safety and functionality during power outages.
- **Installation:** All exit and emergency lights, as well as smoke detectors, must be installed at designated locations as per project safety requirements.

#### **J. Bathroom Ventilation:**

##### **- Exhaust Fans:**

- **Type:** Ceiling-mounted or wall-mounted.
- **Material:** Fire-resistant ABS plastic.
- **Features:** Quiet operation, moisture-resistant design.

#### **K. Networking Points:**

1. **Ethernet Points:**
  - **Category:** Cat6 or higher.
  - **Features:** High-speed data transfer, durable connectors.
2. **Telephone Points:**

- **Standard:** RJ11 connectors.

**L. Manufacturers be one from the following:**

**- Electrical Sockets, Switches, and Breakers:**

- Schneider Electric
- Legrand
- ABB
- MK Electric
- Siemens

**- LED Lighting Fixtures:**

- Philips Lighting
- Osram
- Cree Lighting
- GE Current
- Tridonic