



ANNEX D - ELECTRICAL DESIGN PARAMETERS & SPECIFICATIONS

I. Codes and Standards

The Electrical System Design Parameters shall be in accordance with the following Codes and Standards.

- **Codes:**
 1. Philippine Electrical Code
 2. National Electrical Code
 3. Fire Code of the Philippines
 4. National Building Code of the Philippines and Its New IRR
 5. Existing Local Codes and Ordinances
- **Standards:**
 1. Bureau of Product Standards (BPS)
 2. Underwriters Laboratory (UL)
 3. National Fire Protection Association
 4. International Electro technical Commission (IEC)
 5. Illumination Engineering Society (IES)
 6. National Electrical Manufacturer's Association (NEMA)

II. Site Works

Based on the Master Site Development of the Proposed Academic Building, the Site Works Drawings shall provide complete Electrical layout of the following:

1. KVA rating and other specifications of Transformer.
2. Switchgear requirements
3. Panelboard Layout
4. Electrical Metering Devices
5. Service Conductors and Conduit Layout
6. Grounding System
7. Street and Perimeter Lighting System

III. Building Facilities Electrical System

1. Lighting System
 - Provide and install adequate normal branch circuits for Lighting System to all areas using the standard Lighting Design Analysis. Utilize the standard Illumination requirements per area of concern using the preferred particular type of luminaires.
2. Power System
 - Provide and install adequate normal branch circuits for the Power System.

V. Provide Details of the following:

1. Lighting Fixtures/Luminaires
2. Panel board and Circuit Breakers
3. Electrical and Equipment outlet
4. Loading schedule and computations
5. Others as may be required.



V. Summary of Materials

1. General Lighting Luminaires: Fixtures type shall be as indicated on the Lighting Layout Plan.
 - Fluorescent Lamp shall be Linear, circular or self ballasted compact fluorescent lamps.
 - Fluorescent Fixture housing shall be steel sheet with high reflectance powder coat paint finish.
 - Down lights and Pin lights shall be of heavy gauge spun aluminum equipped with lamp as indicated on the drawings.
 - Other Special Lighting requirements shall be as approved by the implementing agency.
2. Wiring Devices: Wiring devices shall be non-automatic control devices, the contact is guaranteed by the pressure of the special spiral springs.
 - Switches shall be of 15A, 250V or 300V except as otherwise noted and approved. Terminals shall be screw-type or quick-connected type.
 - General use receptacle shall be 15A, 240V grounding type unless otherwise indicated on the drawings.
 - Special purpose receptacles shall be as called for on the drawings. Matching plugs shall be supplied.
3. Panelboards and Circuit Breakers: The Panelboard and Circuit Breakers shall be equipped with molded-case circuit breakers and shall be the type as indicated in the panel board schedule and details.
 - Provide molded-case circuit breakers of frame, trip rating and interrupting capacity as shown on the drawings. The circuit breakers shall be quick-make, quick break, thermal-magnetic, trip-indicating and shall have common trip on all multiple breakers with internal trip mechanism.
 - All current-carrying parts of the panel boards shall be plated. Provide solid neutral (S/N) assembly when required. The assembly shall be isolated from the enclosure.
4. Electrical Conduits, Boxes and Fittings:
All conduits, boxes and fittings shall be standard rigid steel, zinc coated or galvanized.
 - Rigid Steel Conduits (RSC)
 - Rigid Metal Conduits (RMC)
 - Intermediate Metal Conduits (IMC)
 - Electrical Metallic Tubing (EMT)
 - Unplasticized Polyvinyl Chloride (uPVC) if required shall be schedule 40.
5. Conductors: Wires and cables shall be of the approved type and unless specified or indicated otherwise, all power and lighting conductors shall be insulated for 600 volts.
 - The conductors used in the wiring system shall be of soft-annealed copper having a conductivity of not less than 98% of that of pure copper and insulated for 60 °C Temperatures.
 - All conduits of convenience outlets and wireways for lighting branch circuit homeruns shall be wired with a minimum of 3.5 mm square in size.

I. Drawing Requirements: See attached KSU Checklist based on Revised IRR of the National Building Code of the Philippines (PD 1096)