GUIDELINES FOR THE PREPARATION OF ELECTRICAL PLANS

1. **Sheet Size.** Electrical plans and drawing shall be drawn on sheets of the following standard sizes:

   - 760 mm x 1000 mm
   - 600 mm x 900 mm
   - 500 mm x 760 mm

2. **Drawing Scale.** Appropriate metric drawing scales shall be used.

3. **Plan Requirements**

   3.1 **Location and Site Plans.** Location and site plans, with proposed structure(s) and site drawn to appropriate scale shall show:

      3.1.1 Bordering areas showing public or well-known streets, landmarks and/or structures which need not be drawn to scale unless they extend into the area concerned.
      3.1.2 Location of service drop, service equipment and nearest pole of the utility company furnishing electrical energy; location of the meters as well as sizes of service entrance wires, conduits and service equipment; and
      3.1.3 Clearance of the path or run of service drops and entrance wires to adjacent existing and/or proposed structures.

   3.2 **Legend or Symbols.** Refer to Appendix A (Philippine Electrical Code) – Electrical Symbols.

   3.3 **General Notes and/or Specification.** General Notes and/or Specification, written on the plans or submitted on separate standard size sheets shall show:

      3.3.1 Nature of electrical service, including number of phases, number of wires, voltage and frequency;
      3.3.2 Type of wiring:
         3.3.2.1 Service entrance,
         3.3.2.2 Feeders, sub-feeders and branch circuit wires for lighting and/or power load,
         3.3.2.3 Fire alarm system, if required by law,
         3.3.2.4 Signaling and communication.
      3.3.3 Special equipment to be installed, indicating ratings and classification of service or duty cycle of:
         3.3.3.1 Rectifiers,
         3.3.3.2 Heaters,
         3.3.3.3 X-ray apparatus,
         3.3.3.4 Electric welding equipment,
         3.3.3.5 Others.
      3.3.4 System method of grounding;
      3.3.5 Type and rating of main disconnecting means, overcurrent protection (OCP) and branch circuit wiring;
      3.3.6 Clearances of service drop, burial depth for service lateral, mounting height and clearance for service equipment, mounting heights and clearance for kWh meter.

   3.4 **Electrical Layout.** Floor plan showing location of equipment and devices, and their interconnection wiring:

      3.4.1 **Plan for Power.** Layout and wiring plans for power on the floor plans drawn to scale, shall show:
3.4.1.1 Sizes and location of service entrance conductors, raceways, metering equipment, main switchboard, layout of feeders and distribution panels or switches and their sizes, types and ratings;
3.4.1.2 Complete circuits of motors and other electrical equipment, their controlling devices, their locations and ratings;
3.4.1.3 Complete wiring of emergency power system, if any;
3.4.1.4 Nature of processes/activities carried out in each room or area.

3.4.2 Plan for Lighting and Receptacle Outlets. Layout and wiring plans for general lighting and convenience outlets on floor plans drawn to scale, shall show:

3.4.2.1 Location, type and rating of lighting fixtures, indication illumination in lux in each room or area. In residences, hotels, apartment, houses, and churches, the illumination level in each room or area need not be shown nor computed;
3.4.2.2 Location of switches for each fixtures or group of fixtures;
3.4.2.3 Location of receptacle outlets and appliances to be served and their ratings;
3.4.2.4 Complete circuits of the lighting and convenience outlets;
3.4.2.5 Complete wiring of emergency lighting and convenience outlets;
3.4.2.6 A separate drawing showing layout of receptacle outlets may be made at the discretion of the design engineer.

3.4.3 Plan for Fire Detection and Alarm Circuits. Layout and wiring plans of fire alarm manual stations, fire alarm bells, fire alarm control panels, and other alarm devices shall show:

3.4.3.1 Location of outlets, equipment and/or apparatus and controls;
3.4.3.2 Complete circuit showing no. and size of raceway and wire.

3.5 Schedule of Loads. Schedule of load in tabulated form shall indicate:

3.5.1 Motor Loads;

3.5.1.1 Motors as numbered or identified in power layout,
3.5.1.2 Type of motor,
3.5.1.3 Horsepower/kilowatt/kilovolt ampere rating,
3.5.1.4 Voltage rating,
3.5.1.5 Full-load current rating,,
3.5.1.6 Frequency rating other than 60 hertz
3.5.1.7 Number of phases,
3.5.1.8 Type and size of wiring,
3.5.1.9 Protective device rating.

3.5.2 Lighting and Convenience Receptacle Loads;

3.5.2.1 Panel as numbered in the feeder diagram,
3.5.2.2 Circuit designation number,
3.5.2.3 Number of lighting outlets in each circuit,
3.5.2.4 Number of switches in each circuit,
3.5.2.5 Number of receptacles (convenience outlets),
3.5.2.6 Voltage of circuit,
3.5.2.7 Type and size of wiring,
3.5.2.8 Protective device rating.

3.5.3 **Other Loads;**

3.5.3.1 Designation number on plan,
3.5.3.2 Description of load,
3.5.3.3 Classification of service duty, if required,
3.5.3.4 Rating of kilovolt-ampere or kilowatt,
3.5.3.5 Phase loading indicating full load line current,
3.5.3.6 Voltage rating,
3.5.3.7 Type and size of wiring,
3.5.3.8 Protective device rating.

3.5.4 **Design Analysis.** Design analysis shall be included on the drawing or shall be submitted on separate sheets of standard size, and shall show:

3.5.4.1 Branch circuit, sub-feeders, busways, and service entrance;
3.5.4.2 Types, ratings, and trip settings of overload protective device;
3.5.4.3 Calculation of short circuit current for determining the interrupting capacity of overcurrent protection device;
3.5.4.4 Calculation of voltage drops.

3.5.5 **One Line Diagram.** One line diagram shall indicate:

3.5.5.1 **Lighting and Receptacle Outlet Loads;**

3.5.5.1.1 Single line or schematics diagram of lighting and receptacles panelboard showing mains and branch circuit rating;
3.5.5.1.2 Size of conductors for feeders.

3.5.5.2 **Motor Loads;**

3.5.5.2.1 Rating in kilowatts/horsepower/kilovolt ampere,
3.5.5.2.2 Full load current,
3.5.5.2.3 Locked rotor current,
3.5.5.2.4 Phase connection for 1-phase motor on a 3-phase system,
3.5.5.2.5 Rated voltage,
3.5.5.2.6 Type and size of wiring, indicating load in amperes,
3.5.5.2.7 Electric motors shall be numbered consecutively to correspond to their numbers in the layout.

3.5.5.3 **Feeders and subfeeders;**

3.5.5.3.1 Identification and/or labeling of feeders and subfeeders,
3.5.5.3.2 Size and type of wires and raceways,
3.5.5.3.3 Protective devices and controls,
3.5.5.3.4 The allowable ampacity of the conductor over the designed load current in amperes expressed as a ratio and indicated along side the conductor.
3.5.5.4 **Load Center.**

3.5.5.4.1 Identification and/or labeling of load center showing type and rating of transformer, switches, circuit breaker and other related devices,

3.5.5.4.2 Equipment grounding.

4. **Title Block.** Title block or nameplate of plans and drawing shall be a standard strip of 40 mm high at the bottom of the sheet. It shall contain the following:

4.1 Name and location of installation or project;
4.2 Name, signature and seal of Professional Electrical Engineer together with Professional Regulation Commission professional license number and validity, Professional Tax Receipt Number, and Tax Identification Number;
4.3 Scale used, date drawn; and
4.4 Sheet number.

5. **Other Detail.**

5.1 Exposed conductors shall show:
   5.1.1 Means of support and types of insulators; and
   5.1.2 Spacing and clearances.

5.2 Auxiliary gutters, wireways, busways, cabinets, boxes, metallic raceways, underground installation, other than specified in the Code shall show:
   5.2.1 Installation details;
   5.2.2 Conductor supports, separators, and attachments where required by this Code; and
   5.2.3 Dimensions and description or specification.

5.3 Private pole installations shall show:
   5.3.1 Construction and installation details and dimensions;
   5.3.2 Pole top wiring details including line hardware; and
   5.3.3 Guying details.

5.4 Low energy power and low power installation shall show:
   5.4.1 Details of battery installation and/or other source of low voltage or low energy power.
   5.4.2 Equipment, wiring actuating mechanism and protective devices; and
   5.4.3 Ventilation details whenever necessary.