Construction Industry Development Board

DEVELOPMENT THROUGH PARTNERSHIP

Practice note #38

MAY 2026
Version 1

Applying the Register of Contractors to Electrical Engineering works.

cidb's Inform Practice notes provide guidance and clarity in achieving client objectives in construction procurement and delivery. Practice notes inform clients and practitioners on how to embrace best practice and how to deal with issues that may arise. They are aligned with, but do not replace regulation.

Synopsis:

The Construction Industry Development Board Act 38 of 2000 defines construction works and requires that the register of contractors be applied in all construction works contracts. This practice note seeks to provide guidance to organs of state when choosing appropriate class of construction works for electrical engineering works (Infrastructure or Buildings)..

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1. Introduction

Electrical engineering works in Infrastructure is defined as construction works that are primarily concerned with development, extension, installation, removal, renovation, alteration or dismantling of engineering infrastructure relating to the generation, transmission and distribution of electricity while electrical engineering in buildings is defined as construction works that are primarily concerned with the installation, extension, modification or repair of electrical installations in or on any premises used for the transmission of electricity from a point of control to a point of consumption, including any article forming part of such an installation.

Inform practice note #3 (Applying the register of contractors in construction works), identifies which contractors need to register, describes the categories of registration and the cidb contractor grading designations and establishes a step by step procedure to satisfy the requirements of the Regulations in relation to quotations, tenders and expressions of interest.

Regulation 25(3)(a) requires an organ of state to select the class of construction works best describing the works contract for which tender offers or expressions of interest is invited, or the broad technical capabilities required of the contractor, provided that if more than one class of works equally describes the construction work for which tender offers are invited, then an alternative class of work may also be selected in terms of this subparagraph, but not more than two classes of work may be so selected.

Table 1: Classes of construction works

Description	Designation	Definition	Work types	Example
Electrical engineering works (Infrastructure)	**EP**	Construction works that are primarily concerned with development, extension, installation, removal, renovation, alteration or dismantling of engineering infrastructure: a) relating to the generation, transmission and distribution of electricity; or b) which cannot be classified as EB.	Electrical power generation, transmission, control and distribution equipment and systems.	Power generation Street and area lighting Substations and protection systems Township reticulationsTransmission Lines Supervisory control and data acquisition systems
Electrical engineering works (buildings)	**EB**	Construction works that are primarily concerned with the installation, extension, modification or repair of electrical installations in or on any premises used for the transmission of electricity from a point of control to a point of consumption, including any article forming part of such an installation	All electrical equipment forming an integral and permanent part of buildings and/or structures, including any wiring, cable jointing and laying and electrical overhead line construction	Electrical installations in buildings Electrical reticulations within a plot of land (erf) or building site. Standby plant and uninterrupted power Verification and certification of electrical installations on premises
Mechanical engineering works	**ME**	Construction works that are primarily concerned with the development, extension, installation, removal, alteration, renewal of engineering infrastructure for gas transmission and distribution, solid waste disposal, heating, ventilation and cooling, chemical works, metallurgical works, manufacturing, food processing and, materials handling	Machine systems including those relating to the environment of building interiors: (a) gas transmission and (b)pipelines installations (c)solid waste disposal (d)materials handling, lifting machinery, heating, ventilation and cooling, pumps, (e) continuous process systems (f) chemical works, metallurgical works, manufacturing, food processing such as that in concentrator machinery and apparatus, oil and gas wells, smelters, cyanide plants, acid plants, metallurgical machinery, equipment and apparatus and works necessary for the, beneficiation of metals, minerals, rocks, petroleum and organic substances or other chemical processes.	Air-conditioning and mechanical ventilation. Boiler installations and steam distribution. Central heating Centralised hot water generation. Cranes and hoists distribution systems Dust and sawdust extraction Compressed air, gas and vacuum installations Conveyor and materials handling installations Cont inu chemical works, metallurgical works, oil and gas machinery, equipment and apparatus, and works n metals, minerals, rocks, petroleum and organic processes Kitchen equipment, Laundry equipment Lift installations and escalators Refrigeration and cold rooms Waste handling system

2. Identifying the appropriate class of construction works

• A standby plant is a back-up electrical system that operates automatically. Within seconds of a utility outage an automatic transfer switch senses the power loss, commands the generator to start and then transfers the electrical load to the generator. The standby generator begins supplying power to the circuits. After utility power returns, the automatic transfer switch transfers the electrical load back to the utility and signals the standby generator to shut off. It then returns to standby mode where it awaits the next stage.

• Standby plant and UPS systems are often integrated into building. The distinction might be drawn to emphasise the installation and integration aspects within building (EB) rather than the broader electrical power generation or transmission aspects (EP).

• A standby plant and UPS not integrated into a building would likely be classified under EP, reason being since the generator is not integrated into a building, its primary function is likely standalone power generation, which aligns with the EP class.

3. Typical examples of standby plant and UPS systems not integrated into buildings include:

• Backup power for remote site: generators or UPS systems powering remote communications towers, road signs, or monitoring equipment.

• Industrial processes: standby power systems ensuring continuous operation in industries like manufacturing, mining, oil and gas.

• The primary purpose of these systems is to provide reliable, uninterrupted power in situations where the main power supply is unavailable or unreliable.

• A standby generator is normally installed to provide power only where there is a mains power failure or when the supplier switches off the power to do maintenance work.

• An uninterrupted power supply, or battery backup power supply, is an electrical apparatus that provides emergency power to a load when the input source, typically mains power, fails. A UPS differs from auxiliary or emergency power system or standby generator in that it will provide near-instantaneous protection from input power interruptions, by supplying energy stored in batteries.

• A UPS provides temporary power when the main power source, usually the electrical grid, is interrupted. This allows connected devices to either continue operating for a limited time or to shut down gracefully, preventing data loss or equipment damage.

• A hybrid solar and battery storage system, often called a "solar-plus-storage" system, combines solar panels with a battery to store excess energy generated during the day and use it when solar production is low or during grid outages. This system allows for increased energy independence and backup power.

Table 1 clearly illustrate the difference between the EB, EP and ME classes of construction works, in that:

1) For EB class, an employer requirement(s) may be for the supply, delivery, installation and commissioning of standby plant and/or uninterrupted power supply;

2) For EP class, an employer requirement(s) may be for the supply, delivery, installation and commission of a Hybrid Solar and Battery Storage System;

3) For ME or EB class, an employer requirement(s) may be the maintenance of an existing standby plant and/or uninterrupted power supply integrated into a building.

4) As a general rule, a single class of construction works must be used when applying the register to electrical engineering work. The EP class of construction works applies to electrical power generation, transmission, control and distribution equipment and systems while the EB class of construction works applies to all electrical equipment forming an integral and permanent part of buildings and/or structures, including any wiring, cable jointing and laying and electrical overhead line construction.

Depending on the services required, standby plant and uninterrupted power supply could fall into one of three classes of construction works, namely:

- Electrical Engineering Works (Buildings)
- Electrical Engineering Works (Infrastructure)
- Mechanical Engineering Works

There are cases where the specification of an envisaged project may be for the supply, delivery, installation and commissioning of standby plant and uninterrupted power supply, there is also a separate and related requirement of maintaining the existing plant that is already connected and supplying power to a premise.

Maintenance of a back-up generator that is already connected and supplying power to a premise should be classified under Mechanical Engineering (ME) or Electrical Engineering (EB) class of construction works, whereas supply, delivery, installation, and commissioning of standby plant integrated into a building should be classified under EB class.

This practice notes provides practical guidance on the identification of an appropriate class of construction works to apply the register of contractors, therefore, it is imperative for organs of state to understand the scope of works, so that they don't unfairly prejudice contractors who are most suitable and perfectly capable of doing such works.

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