

# ELECTRICAL WIRING REGULATIONS, 2011

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## **SCHEDULE**

**ELECTRICAL WIRING REGULATIONS, 2011**

IN exercise of the power conferred on the Minister responsible for Energy by section 56

(1) of the Energy Commission Act, 1997 (Act 541) these Regulations are made this 19th day of December, 2011.

*Purpose and application***Purpose**

1. The purpose of these Regulations is to
  - (a) establish the requirements, procedures and practices to ensure the enforcement of minimum standards of electrical wiring on premises; and
  - (b) ensure the safety of persons, livestock and other property from hazards that arise from the presence, distribution and use of electrical energy.

**Application**

2. (1) These Regulations apply to
  - (a) electrical installations where the nominal voltages do not exceed
    - (i) 1000 Volts a.c. and 1500 Volts d.c. between conductors;
    - (ii) 600 Volts a.c. and 900 Volts d.c. between conductors and earth; and
    - (iii) 50 Volts a.c. or 120 Volts ripple free d.c. whether between conductors or to earth; and
  - (b) an overhead interconnection between two or more buildings on the same premises.
- (2) These Regulations do not apply to
  - (a) an overhead distribution installation located outside the premises;
  - (b) the internal wiring of a manufactured apparatus which is not wired on site;
  - (c) a part of or the whole of a telecommunication appliance, fire alarm, emergency lighting circuit or electrical equipment which is not fed directly from an electrical distribution network; or
  - (d) an installation in a mine, quarry, mobile offshore facility and fixed offshore facility which is provided for under an enactment.

**ELECTRICAL WIRING REGULATIONS, 2011***Standards and requirements for electrical wiring***General principles**

3. (1) A person who is required to undertake electrical wiring on premises shall do so in accordance with the general principles referred to in sub-regulation (2) to (9).

- (2) A conductor or equipment used for electrical wiring on premises shall be
- (a) of a suitable construction and size to prevent excessive temperature rise while in use;
  - (b) installed and protected to prevent danger to persons, and property; and
  - (c) in a state capable of being maintained.

(3) Each live conductor including a conductor that forms part of an apparatus shall be suitably placed, protected and safeguarded to prevent danger.

(4) An enclosure or support capable of conducting electrical energy or metal work of an electrical equipment other than a current-carrying conductor, shall be connected to earth, to prevent danger.

(5) A circuit shall be protected against the persistence of excessive current which is likely to cause danger by the use of an appropriate circuit breaker or fuse.

(6) A protective device or switch shall not be connected in an earthed neutral conductor or in a protective earthed circuit.

(7) An effective means for isolation of supply of electricity, suitably placed for ready operation shall be used to facilitate the disconnection of electricity supply from each part of an electrical equipment to prevent danger.

(8) Each piece of electrical equipment which requires operation or attention in normal use shall be installed to ensure adequate means of access and working space.

(9) Each piece of electrical equipment which is exposed to the weather, corrosive atmosphere or other adverse condition shall be

- (a) constructed or protected in the manner necessary to prevent danger; and

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- (b) protected by a flame proof enclosure of appropriate construction to prevent danger where the conditions include exposure to inflammable surroundings or an explosive environment.

**Quality of materials for electrical wiring**

- 4. A person shall not use a material for electrical wiring unless that material is
  - (a) capable of maintaining the integrity of an electrical equipment or installation under environmental conditions stipulated by the manufacturer of the material for electrical wiring; and
  - (b) approved by the Standards Authority.

**Ghana Standard for electrical wiring**

- 5. (1) The Ghana Standards for electrical wiring set out in the Schedule, consists of the following matters:
  - (a) requirements for control and distribution of electricity on premises;
  - (b) protective measures for safety;
  - (c) selection and erection of equipment;
  - (d) special installations, locations and structures; and
  - (e) inspection and testing.

and shall be construed in accordance with the provisions of these Regulations

- (2) A person shall not undertake electrical wiring on premises unless the wiring is carried out in accordance with the requirements provided in the Schedule.

**Approval and notification for electrical wiring**

- 6. (1) A person who intends to
  - (a) undertake a temporary or permanent alteration in respect of electrical wiring; or
  - (c) mount an installation of additional fixed electrical equipment which will require an alteration in respect of electrical wiring;shall obtain approval in writing from an electricity distribution utility for the purpose.

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(2) Subregulations (1) does not apply to premises which have not been connected to the electrical distribution network of the electricity distribution utility.

(3) A person responsible for the alteration or the installation of additional fixed electrical equipment shall

- (a) submit to the electricity distribution utility in writing, notice of the commencement and completion in respect of the alteration or installation intended for connection to the electricity distribution network; and
- (b) afford an authorised employee of the electricity distribution utility the opportunity for inspection and testing of the works for the alteration or the installation during and on completion of the works.

*Qualification of electricians***Qualified persons to undertake electrical wiring**

7. A person shall not undertake electrical wiring on premises unless that person is certified by

- (a) a licensed electricity distribution utility; or
- (b) a recognised person appointed by the Energy Commission

**Guidelines for certification of electricians**

8. The Energy Commission shall issue guidelines for the certification of electricians within six months after the commencement of these Regulations.

**Register of electrical contractors**

9. The Energy Commission shall keep and maintain a register of electrical contractors and persons certified to undertake electrical wiring.

*Compliance requirements***Connection of electricity supply to premises**

10. (1) An electricity distribution utility shall not supply electricity to premises unless the requirements of these Regulations have been complied with and the electrical wiring or installation has been undertaken by a certified electrician as required under regulation 7.

(2) An electricity distribution utility shall disconnect electricity supply to premises where regulation 4 to 7 have not been complied with.

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(3) Where the electricity supply to the premises of a person has been disconnected due to a contravention by that person of regulation 4 to 7, that person

- (a) may apply to the electricity distribution utility for a reconnection of electricity supply to the premises; and
- (b) shall obtain the written approval of the electricity distribution utility for the reconnection only if the defective wiring has been rectified.

(4) For the purposes of subregulations (3) (b), the electricity distribution utility or a person authorised by the electricity distribution utility may reconnect electricity supply to the premises.

**Inspection and testing**

11. (1) A person who is authorised by an electricity distribution utility to carry out an inspection and test of an installation shall

- (a) inspect and test that installation before use and carry out another inspection and test where an addition or alteration is made to the fixed wiring of the existing installation.
- (b) take precautions during the inspection and testing to avoid causing danger to persons and damage to property including installed equipment;
- (c) complete and sign the relevant Electrical Installation Certificate and the schedule of inspection and test results; and
- (d) submit the documents referred to in paragraph (c) to the person who requested for the inspection and test if the inspection and test are satisfactory.

(2) A distribution utility that authorises an inspection and test of an installation shall ensure that a periodic inspection and test is carried out at the intervals indicated in subsection (3), taking into consideration the type of installation, its use, maintenance schedule and environmental influences.

(3) Periodic inspection and testing shall be carried out in accordance with the following schedule:

- (a) ten years after the initial installation and use;
- (b) every three to five years after ten years of the initial installation and use but before the expiration of thirty years; and
- (c) every two years after thirty years of service.

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### **Powers of an inspector**

12. (1) Pursuant to section 52 of the Energy Commission Act, 1997 ( Act 541) an inspector may at any reasonable time enter any premises and inspect and examine the electrical wiring on the premises to establish that the electrical wiring was undertaken in accordance with these Regulations.

(2) A person who obstructs an inspector in the performance of official functions commits an offence and is liable on summary conviction to a fine of not more than one hundred penalty units and in the case of a continuing offence to a further fine of ten penalty units for each day during which the offence continues after written notice has been served on the offender by the inspector.

### **Offences and penalties**

13. A person who contravenes a provision of these Regulations for which a penalty is not provided, commits an offence and is liable on summary conviction to a fine of not more than two hundred and fifty penalty units or to a term of imprisonment of not more than two years or to both and in addition, the supply of electricity may be disconnected from the premises on which the electrical wiring was undertaken.

### **Interpretation**

14. In these Regulations, unless the context otherwise requires,

“a.c” means alternating electric current that reverses its direction of flow at periodic intervals, of fifty times per second;

“apparatus” means an electrical equipment designed to serve a specific function;

“circuit” means an unbroken path of a conductor along which an electric current exists or is intended or able to flow;

“conductor” means a material usually in the form of a wire or a bus-bar that permits electric current to flows easily;

“d.c” means direct electric current that flows continuously in one direction only, without substantial variation in magnitude;

“earth” means the conductive mass of the earth, whose electric potential at any point is conventionally taken as zero;

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- “electrical distribution network” means a system consisting of electricity lines, transformers, switchgear and other ancilliary equipment interconnected for the supply of electricity;
- “electrical equipment” means an item used for the purposes of generation, conversion, transmission, distribution or utilisation of electrical energy, like a machine, transformer, apparatus, measuring instrument, protective device, wiring system, accessory, appliance and luminary;
- “electricity distribution utility” means a person licensed under the Act to distribute and sell electricity without discrimination to consumers in an area or zone designated by the Energy Commission;
- “emergency lighting circuit” means the lighting provided for use on premises when the supply from the normal electrical distribution network fails;
- “electrical wiring” means an electrical installation composed of an assembly of cabling systems, protective devices and accessories to supply electricity on premises;
- “fixed electrical equipment” means electrical equipment that is fixed to a support or device;
- “fixed offshore facility” includes a drilling rig, production platform and processing facility;
- “flame proof enclosure” means an enclosure resistant to fire or unable to catch fire or be damaged by fire;
- “Ghana Standards” means the standards (GS FDGS 1009) prescribed by the Standards Authority in respect of these Regulations;
- “metal work” means any item that is made of metal;
- “mobile offshore facility” includes a ship, yacht, trawler and other maritime vessels;
- “overhead interconnection” means a distribution system which carries electrical energy from one point to another point;
- “premises” means land together with any building, structure or other installation like a residence, factory, construction site, kiosk, temporary installation; recreational ground, institutional building, commercial building and public access building;



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“property” means movable or immovable property;

“protective device” means a particular type of equipment used in an electric power system to detect abnormal conditions and to initiate appropriate corrective action;

“ripple free d.c” means the small unwanted residual periodic variation of the direct current output of a power supply which has been derived from an alternating current source; and

“voltage nominal” means the voltage by which an installation or part of an installation is designated in accordance with the following ranges of nominal voltage:

(a) extra-low, which is normally not exceeding 50 V a.c. or 120 V ripple-free d.c., whether between conductors or to earth; and

(b) low, which is normally exceeding extra-low voltage but not exceeding 1000 V a.c. or 1500 V d.c. between conductors, or 600 V a.c. or 900 V d.c. between conductors and earth.