

Electrical Machinery Regulations, 2011

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1. Definitions

Key definitions include:

- "accreditation authority" - South African National Accreditation System (SANAS)
- "circuit" - arrangement of conductors for carrying electrical energy
- "conductor" - electrical conductor connected to a source of electrical energy
- "confined space" - enclosed, restricted or limited space with potential hazards
- "dead" - at or about zero potential and isolated from any live system
- "earthed" - connected to the general mass of earth for safe discharge of electrical energy
- "electric fence" - electrified barrier of bare conductors
- "electric fence energiser" - electrical machinery delivering periodic non-lethal electrical energy to an electric fence
- "insulated" - covered with insulating material to prevent flow of electrical energy
- "live" or "alive" - electrically charged
- "miniature substation" - a substation that a person cannot enter
- "portable electric tool" - electrically operated implement with flexible cord designed for hand use
- "registered person" - person registered as an electric fence system installer
- "supplier" - any person who supplies or contracts to supply electricity

2. Scope of application

(1) These Regulations apply to designers, manufacturers, installers, sellers, users, employers and suppliers of electrical machinery. (2) They apply to users who generate, transmit or distribute electricity to the point of supply.

3. Personal protective equipment



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Employers or users shall provide and maintain free of charge protective equipment for persons working on or near live or potentially live electrical machinery.

4. Work on disconnected electrical machinery

Employers or users shall ensure precautions are taken to discharge electrical energy and prevent machinery from becoming charged while persons are working on disconnected electrical machinery.

5. Notice

Employers or users shall display notices at premises with generating plant and transforming, switching or linking apparatus that: (a) Prohibit unauthorized persons from entering (b) Prohibit unauthorized handling of electrical machinery (c) Contain fire procedure directions (d) Contain directions for resuscitating persons suffering from electric shock

This requirement doesn't apply to miniature substations and distribution boxes if they can be locked and only authorized persons can open them.

6. Switchgear and transformer premises

(1) Employers or users shall ensure premises housing switchgear and transformers: (a) Provide clear working space (b) Are sufficiently ventilated (c) Are proof against rodents, leakage, seepage and flooding (d) Have adequate lighting (e) Have doors opening outwards (f) Have suitable fire extinguishing appliances (g) Prevent persons from touching bare conductors or live parts

(2) Only authorized persons may enter premises housing switchgear or transformers unless live conductors are insulated or screened off.

7. Electrical control gear

(1) Employers or users shall provide controlling apparatus and protective devices capable of isolating power supply during faults. (2) Switches, circuit breakers or fuses in neutral conductors must be arranged to isolate all phase conductors and neutral conductor simultaneously. (3) Switchgear should have interlocking devices preventing door opening unless switch is off. (4) Control apparatus must be permanently marked to identify the system or part controlled. (5) Warning notices must be posted at switchgear that has been switched off for work on electrical machinery. (6) No person shall act contrary to such warnings.

8. Switchboards

(1) Employers or users shall provide unobstructed space at switchboards, with the back kept closed and locked except for inspection, alteration or repair, with exceptions for: (a) Switchboards without uninsulated conductors accessible from back (b) Totally enclosed



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switchgear (c) Switchboards accessible only through locked openings (d) Switchboards maintainable solely from front

(2) Switchboards must be selected, designed, manufactured, installed and maintained according to sound engineering practice.

9. Electrical machinery in hazardous locations

(1) Employers or users shall identify and classify hazardous locations according to relevant health and safety standards. (2) Electrical machinery in locations with fire/explosion danger must meet safety standards for such locations. (3) Certificates from approved inspection authorities must confirm that electrical machinery meets safety standards. (4) Systems of electrical machinery must maintain safety when used together. (5) Equipment must only be used under prescribed conditions. (6) No repairs or adjustments on electrical machinery in hazardous areas unless machinery is dead. (7) Static electricity prevention measures required where possible. (8) Visual inspection and testing of electrical machinery in hazardous locations required at intervals not exceeding two years. (9) Inspection results must be recorded.

10. Portable electric tools

(1) No person shall use portable electric tools exceeding 50V to earth unless: (a) Connected to earth leakage protection device (b) Connected through double-wound isolating transformer (c) Connected to high frequency generator used solely for such tool (d) Clearly marked as double or reinforced insulated

(2) Double or reinforced insulated tools must be: (a) Clearly marked as such (b) Constructed according to relevant safety standards

(3) Tools must have switches for easy and safe starting/stopping. (4) Tools, flexible cords and plugs must be maintained in good working order.

11. Portable electric lights

(1) No portable light exceeding 50V may be used unless: (a) Fitted with substantial non-hygroscopic, non-conducting handle (b) Live parts are protected against accidental contact (c) Lamp is protected by substantial guard fixed to handle (d) Cable can withstand rough use

(2) In wet/damp conditions, confined spaces, or when in contact with large metal masses, lights must: (a) Connect to earth leakage protection device, or (b) Operate at voltage not exceeding 50V with transformer having separate windings

12. Electric fences



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(1) Design, manufacture, sale, installation and use of electric fences must comply with relevant safety standards. (2) Sellers, importers and manufacturers must prove compliance with SANS 60335-2-76. (3) Battery-charged energisers must have double-wound isolation construction. (4) Users/lessors require electric fence system certificates. (5) Pre-existing electric fence systems are exempt from certification unless altered or ownership changes after October 1, 2012.

13. Issuing of electric fence system certificate

(1) Only registered persons may issue certificates after confirming compliance. (2) Certificate must be refused if faults are detected. (3) Installers must ensure certificates are issued. (4) No amendments to certificates permitted.

14. Application for registration as registered person

(1) Applications made to chief inspector with prescribed fee. (2) Persons with sufficient knowledge of safety standards may be registered. (3) The chief inspector shall provide certificates of registration and record in database. (4) Registered persons must produce certificates when requested.

15. Withdrawal of registration and approval

(1) Chief inspector may withdraw registration if person no longer complies with conditions or is convicted of an offense. (2) Withdrawal requires due process including notice and opportunity to respond. (3) Written reasons must be provided for decisions. (4) Appeals can be made to Director-General. (5) Appeals must be lodged within 60 days and state grounds. (6) Director-General shall review and confirm, set aside or amend the decision.

16. Substitution of lost, damaged or destroyed certificate of registration

(1) Registered persons may apply for duplicates of lost, damaged or destroyed certificates. (2) Applications must include prescribed fee. (3) Duplicate certificates will be marked "duplicate".

17. Inspection authorities

(1) Chief inspector may approve accredited organizations as inspection authorities. (2) Applications require accreditation certificates and prescribed fees.

18. Earthing

(1) Employers or users shall cause: (a) Roofs, gutters, downpipes and waste pipes to be earthed with exceptions (b) Accessible metallic parts of electrical machinery not part of an



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electrical circuit to be protected or earthed with resistance not exceeding 0.2 ohm, with several exceptions

(2) If testing reveals inadequate earthing, owner/occupier must complete required earthing within 30 days or risk disconnection.

19. Overhead power lines

(1) Supports, clearances, insulators, fittings and conductors must meet safety standards. (2) Distance from explosives magazines must comply with Explosives Act. (3) Clearance over water must meet requirements for lines outside townships. (4) Construction under or near power lines must not encroach on minimum clearances. (5) No encroachment on safety clearances permitted. (6) Vegetation control required to maintain clearances. (7) Lattice supports must be protected against unauthorized climbing.

20. Service connections

(1) Overhead service connections must connect to supplier's conductors at points of support. (2) Connections to premises must use compliant conductors and safe connections.

21. Overhead line crossings

(1) Where power lines cross roads, railways, tramways or communication lines: (a) Supporting structures must withstand loads during conductor breakage (b) Structures should be located to avoid striking crossed service (c) One structure should be close to crossing point (d) Clearance must be at least 4.5m for broken conductors (e) Protection devices required on structures near crossings (f) Crossings must be agreed between service providers

(2) Overhead service connections crossing communication lines require minimum 0.5m clearance.

22. Bare conductors on premises

Bare conductors on premises must be placed to prevent accidental contact, with prominent warning notices.

23. Fees payable

Application fees for registration or duplicate certificates: R120.

24. Offences and penalties

Violations of regulations may result in fines or imprisonment up to 12 months, with additional penalties for continuous offenses.



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25. Repeal of regulations

The Electrical Machinery Regulations, 1988 are repealed.

26. Short title

These Regulations are called the Electrical Machinery Regulations, 2011, effective July 1, 2011 (regulation 12(4) effective October 1, 2012).