

S.I. No. 3/1972 — Factories (Electricity) Regulations, 1972.

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FACTORIES (ELECTRICITY) REGULATIONS, 1972.

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S.I. No. 3 of 1972.

FACTORIES (ELECTRICITY) REGULATIONS, 1972.

I, JOSEPH BRENNAN, Minister for Labour, in exercise of the powers conferred on me by Sections 6 and 71 of the Factories Act, 1955 (No. 10 of 1955) and the Labour (Transfer of Departmental Administration and Ministerial Functions) Order, 1966 (S.I. No. 164 of 1966), after consultation with the Minister for Health, and after due compliance with the provisions of the Third Schedule to that Act, hereby make as special regulations the following Regulations :

PART I. *Preliminary and General.*

1. (1) These Regulations may be cited as the Factories (Electricity) Regulations, 1972.

(2) (a) These Regulations, other than Regulations 16, 21 (2) and 22 (2), shall come into operation on the 1st day of March, 1972.

(b) Regulations 16, 21 (2) and 22 (2) of these Regulations shall come into operation on the 1st day of March, 1974.

2. In these Regulations—

" the Act " means the Factories Act, 1955 (No. 10 of 1955);

" authorised person " means a person who is competent for the particular purpose of these Regulations in relation to which the expression is used and who is also either the occupier, or a contractor who is for the time being under contract with the occupier, or a person employed, appointed or selected by the occupier or such contractor, to carry out work or duties incidental to the generation, transformation, conversion, switching, controlling, regulating, storage, transmission, distribution or use of electrical energy;

" circuit " means an electrical circuit forming a system or branch of a system;

" circuit-breaker " means a mechanical device, including any fuse, capable of making and breaking a circuit under normal and abnormal conditions such as that of short-circuit, and unless otherwise specified, means a circuit-breaker designed to break a current automatically;

" conductor " means an electrical conductor designed to be electrically connected to a system;

" danger " means danger to health or danger to life or limb from shock, burn or other injury to persons employed, or from fire attendant upon the generation, transformation,

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conversion, switching, controlling, regulating, storage, transmission, distribution or use of electrical energy;

" double-insulated tool " means electrically driven apparatus which has double, reinforced or double and reinforced insulation and which has not got provision for earthing and which is one of the following types,

(a) a portable insulation-encased apparatus in which all metal parts (other than a chuck or other tool-holder or a nameplate, screw, rivet or other small part and which is isolated from all other metal parts by reinforced insulation or by insulation no less effective than reinforced insulation) are covered with insulating material in the form of a durable and substantial continuous enclosure, or

(b) a portable metal encased apparatus all the metal-work of which a person may handle is separated from the conductors by double insulation so as to prevent that metal-work from becoming electrically charged or, where, in case the double insulation of any such metal-work is impracticable, that metal-work is so separated for the purpose aforesaid by reinforced insulation;

" dead " means at or about earth potential, and disconnected from any live system;

" earthed " means connected to the general mass of earth in such manner as will at all times ensure an immediate discharge of electrical energy without danger;

" electrical apparatus " includes any conductor or electric cable and any part of any machine, apparatus or appliance, being a part designed for the generation, transformation, conversion, switching, controlling, regulating, storage, transmission, distribution or use of electrical energy;

"flexible cable" means an electric cable which is designed to be movable while in use;

"general register" means the register kept in pursuance of Section 122 of the Act;

"inspector" means an inspector appointed under the Act;

"insulating material" means non-conducting material enclosing, surrounding or supporting a conductor or any part thereof, and which is of such quality and thickness as to prevent danger;

"insulation resistance" means the resistance between two conductors or systems of conductors normally separated by insulation, or, the resistance between any such conductors and earth;

"isolated" means disconnected from the source of electrical energy;

"live" means electrically charged;

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"metallic covering" in relation to any cable means an iron or steel wire covering or a rigid iron, steel or other hard metal conduit pipe or other suitable metallic sheath;

"Minister" means the Minister for Labour.

"overhead line" means any electric line which is placed above ground and suspended in the open air;

"portable apparatus" means apparatus including hand-held portable apparatus which, because of the manner in which it is to be used, requires to be moved while it is working, or which is designed so that it can be moved while it is working;

"portable hand lamp" means an electric lamp for inspection purposes suitable for carrying in the hand and supplied with electrical energy from a circuit by means of a flexible cable;

"public electricity supply" means the supply of electrical energy authorised by an Act of the Oireachtas or by an instrument thereunder;

"substation" means any building, enclosure or other structure or any part thereof which is large enough to enable to person to enter the building, structure or part after the electrical apparatus therein is in position and which contains apparatus for transforming or converting electrical energy either to or from a voltage exceeding 650 volts (not being apparatus for transforming or converting electrical energy solely for the operation of switchgear or instruments), and includes the said apparatus, together with any other apparatus for switching, controlling or otherwise regulating the electrical energy, therein;

"switchboard" means the collection of switches, fuses or conductors and any other apparatus ancillary thereto which is used to control the current or voltage in a system or part of a system;

"system" means an electrical system in which all the conductors and apparatus are electrically connected to a common source of electromotive force;

"transportable apparatus" means apparatus which, because of the purpose for which it is designed to be used, is moved from time to time between the periods during which it is working.

3. (1) Subject to Regulation 4 thereof, these Regulations shall apply to the generation, transformation, conversion, switching, controlling, regulating, storage, transmission, distribution and use of electrical energy in—

(a) any factory within the meaning of the Act, and

(b) any premises or place, or to the carrying on of any process, operation or work or machinery or plant used in such a process, to which the provisions of

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Part V of that Act with respect to special regulations for safety and health are applied by sections 83, 84, 85, 86, 87, 88 and 89 thereof.

(2) It shall be the duty of the occupier to comply with these Regulations.

(3) It shall be the duty of all agents of an occupier, workmen and persons employed in or on any premises, place, process, operation, work, plant or machinery mentioned in paragraph (1) of this regulation to conduct their work in accordance with these Regulations.

4 (1) Any process or electrical apparatus used exclusively for electro-chemical, electro-thermal (other than welding), testing or research purposes shall be worked and the apparatus shall be constructed and protected and such precautions as are necessary shall be taken so as to prevent danger, and, apart from the foregoing, these Regulations shall not apply to such process or apparatus.

(2) These Regulations shall not apply to electrical apparatus, other than portable apparatus and transportable apparatus, forming part of the permanent electrical installation of a ship if the apparatus or the installation of which it forms part is used only

(a) for the lighting of the work in a ship in relation to which the provisions of section 86 (2) or section 87 of the act apply, or

(b) for the supply of electrical energy for the purpose of any such work, and neither Regulation 21 (2), 22 (2) nor 23 (2) of these Regulations shall apply to portable or transportable apparatus connected to such installation.

(3) These Regulations shall not apply to any service lines or electrical apparatus on the supply side of a consumer's terminals, or to any chamber containing such service lines or electrical apparatus where the supply is given from outside under Electricity Supply Board Regulations provided always that no live metal is exposed so that it may be touched.

(4) If the occupier can show, with regard to any requirement of these Regulations, that conditions in his premises are, with regard to the matters to which the requirement relates, such as are adequate to prevent danger, that requirement shall be deemed to be satisfied.

(5) For the purpose of paragraph (4) of this regulation the Minister may certify that special conditions specified in the certificate shall, if complied with, be deemed, for the purposes of all or any of the requirements of these Regulations, to be adequate to prevent danger.

(6) The Minister may by certificate exempt from the operation of all or any of these Regulations any premises to which provisions of any enactment, other than The Act, or an instrument made under such an enactment, and relating to the generation, transformation, conversion, switching, controlling, regulating, storage, transmission, distribution or use of electrical energy apply.

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(7) The Minister may, if he is satisfied that safety is otherwise secured in a practical manner or that exemption from any requirement of these Regulations is necessary because of an emergency or other special circumstances, by certificate exempt any premises, place, process, operation, work, plant or machinery mentioned in Regulation 3 (1) of these Regulations, from the operation of all or any of these Regulations, and every such exemption shall be subject to such conditions as may be specified in the certificate.

(8) The Minister may revoke a certificate granted under this regulation.

5. The Electricity Regulations, 1932 (S.R. & O. No. 7 of 1932) are hereby revoked.

PART II. *General Safety Provisions.*

6. (1) There shall be provided in relation to every circuit, effective means, suitably located, for automatically cutting off the supply of electricity from that circuit if the current therein should be dangerously excessive.

(2) There shall be provided in relation to every circuit—

(a) in which alternating current at a voltage exceeding 650 volts is used, or

(b) which comprises portable apparatus or transportable apparatus and in which alternating current at a voltage exceeding 125 volts is used,

effective means for automatically cutting off the supply of electricity from that circuit if the leakage current to earth should exceed fifteen per cent of the maximum current for which that circuit is designed or 5 amperes, whichever is the greater.

7. (1) Electrical apparatus shall not be used unless it is of sufficient power or capacity to avoid dangerous overloading, and without prejudice to the generality of the foregoing, every circuit-breaker shall be of adequate breaking capacity to operate safely on the occurrence of a short-circuit and shall be of such construction or be so guarded or placed as to prevent danger from over-heating, arcing or the scattering of hot metal or other substance when the circuit-breaker comes into operation.

(2) All electrical apparatus which may at any time be exposed to the weather, or to wet, corrosion, flammable surroundings or explosive atmosphere, or which may at any time be used in any process or for any special purpose other than for lighting or power, shall be constructed or protected, and such special precautions shall be taken so as adequately to prevent danger because of such exposure or use.

(3) All electrical apparatus shall be suitably identified where necessary to prevent danger.

(4) Electrical apparatus other than cables shall display a plate bearing the maker's name together with all ratings, such as horsepower, voltage and current, necessary to show that it is suitable for the purpose for which it is used.

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(5) All electrical apparatus shall be constructed, installed, maintained, protected and worked so as to prevent danger and where such apparatus is found to be defective in any way it shall be forthwith either put in good order or permanently disconnected.

8. (1) Every switch, circuit-breaker or other control device controlling circuits to be isolated shall be constructed so that it cannot with proper care be left in partial contact and unless it is otherwise self-evident, shall be clearly marked to indicate the "ON" and "OFF" positions.

(2) Where practicable, switches shall be connected in a circuit so that the blades will not be live when a switch is open and where this is not practicable permanent warnings shall be provided stating that when the switch is in the open position the blades are live.

(3) Every single pole switch shall be inserted in the live conductor only and any switch so inserted and which is connected with earth shall be a linked switch and shall be arranged so that the live conductor circuit is broken simultaneously.

(4) Where practicable control devices shall be located or arranged so that they will not close by gravity, and where this is not practicable the devices shall be provided with stops which will prevent closing by gravity.

(5) Every electrical motor shall be controlled by an efficient switch or switches for starting and stopping and placed so as to be easily worked by the person in charge of the motor.

(6) In every place in which there are machines driven by an electric motor there shall be means at hand for either switching off the motor or stopping the machine in order to prevent danger.

(7) Switches which are not capable of operating under load shall be—

(a) key interlocked, or

(b) mechanically interlocked, or

(c) electrically interlocked, or

(d) where it is not practicable to comply with sub-paragraph (a), (b) or (c) of this paragraph, clearly and permanently marked to indicate that they are for isolating use only.

9. The general arrangement of switchboards shall be such that—

(a) the course of every conductor may, where necessary, be readily traced,

(b) conductors not designed for connection to the same system are kept apart so that they can, where necessary, be readily distinguished,

(c) all bare conductors are placed or protected so as to prevent danger from any accidental short circuit,

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- (d) all bare conductors which could otherwise be touched are, unless they are located in an area set apart for that purpose, suitably fenced or enclosed,
- (e) all parts which may have to be adjusted or handled are readily accessible,
- (f) all apparatus requiring handling can, so far as is practicable, be operated from the front of the switchboard,
- (g) all measuring instruments and indicators are, as far as practicable, placed so that they can be observed from the front of the switchboard,
- (h) clear working space of not less than 0.91 meters (3 feet) in width is available at the back of a switchboard having exposed live parts less than 2.13 meters (7 feet) above the floor, and
- (i) a ready means of access is provided to all enclosures which must be entered in order to operate or maintain the switch board.

10. (1) In every switchboard for the control of voltages exceeding 650 volts—

- (a) every conductor within reach from the working platform or in any switchboard passage-way shall be placed or protected so as to prevent danger,
- (b) the metal cases of all instruments shall be either earthed or completely enclosed with insulating covers, and
- (c) all metal handles of switches and, where necessary to prevent danger, all metal gear for working the switches shall be earthed.

(2) Subject to paragraph (3) of this regulation, where work has to be done on a switchboard mentioned in paragraph (1) of this regulation—

- (a) the switchboard shall first be made dead, or
- (b) in case the work is to be done on a particular section of the switchboard, if, and only if, the switchboard is arranged so that the conductors in particular sections of the switchboard can be made dead, and every such section is separated by permanent or removable divisions or screens from all adjoining sections in which the conductor are then live, and the work to be done on the section may be carried out without danger, the section on which work has to be done shall first be made dead.

(3) Paragraph (2) of this regulation shall not apply in relation to a switchboard as respects which effective provision has been made (using means other than those specified in sub-paragraph (b) of paragraph (2) of this regulation or means which are not wholly comprised of those so specified) to ensure that work may be carried out thereon, whether in a particular section or part thereof or otherwise, without danger while a conductor in the switchboard is live.

11. (1) Electrical apparatus shall be installed so that, where necessary, adequate protection is provided against falling objects.

(2) All places in which there is electrical apparatus shall, where appropriate, be adequately lighted in order to prevent danger.

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12. (1) Every substation shall be substantially constructed and shall be—

(a) arranged so that no person unless authorised can obtain access thereto otherwise than by the proper entrance,

(b) arranged so that a person cannot interfere with the apparatus or conductors therein from outside the substation, and

(c) if under cover, provided with efficient means of ventilation and kept dry.

(2) Every substation shall be under the control of an authorised person, and none but an authorized person or a person acting under his immediate supervision shall enter any part thereof in which there may be danger.

13. Every electrical joint and connection shall be of proper construction as regards conductance, insulation, mechanical strength and protection.

14. Every flexible cable for portable apparatus or transportable apparatus shall be connected to the apparatus and to the system either by efficient permanent joints or by a properly constructed connector and shall be arranged so that tension in the cable cannot be transmitted through the conductors to the terminals at either end of the cable.

15. (1) Where it is necessary to prevent danger, adequate precautions shall be taken in relation to electrical apparatus either by earthing or by other suitable means to prevent any metal other than a conductor from becoming electrically charged.

(2) Paragraph (1) of this regulation shall not apply to a double-insulated tool, if, but only if, and only for as long as, the following conditions are complied with:

(a) the apparatus is clearly and indelibly marked on the outside so as to indicate—

(i) that it is certified as being apparatus which conforms as to proof of electrical strength, insulation resistance, material or construction of the apparatus' insulation either to the British Standard 2769: 1964, as amended or revised from time to time whether before or after the commencement of these Regulations and applicable to Class II tools in the said standard or to some other standard equivalent thereto, and

(ii) the maker's name, registered trade mark, the relevant makers' model number or type reference, and the name and address or registered trade mark (if any) of the body or other person by whom the apparatus is so certified; and

(b) the insulation of the apparatus is maintained so as to prevent danger;

provided that for the purposes of this paragraph a flexible metallic covering which covers conductors shall not be regarded as forming part of a double-insulated tool.

(3) Every earthing conductor required to be insulated in pursuance of paragraph (1) of this regulation shall have a cross-sectional area of not less than 14 square millimetres,

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provided that this paragraph shall not apply in relation to an earthing conductor which is—

- (a) the metallic covering of a cable, or
- (b) a part of an overhead line, or
- (c) in the case of a multi-core cable, whether a flexible cable or not, one of the conductors in that cable.

(4) No automatic circuit opening device shall be placed in an earthing conductor provided pursuant to this regulation.

(5) Earthing conductors provided pursuant to this regulation and their connections shall be efficiently constructed and maintained.

(6) Whenever earth electrodes are provided they shall be efficiently constructed, installed and maintained.

16. Where (a) an employee employed at or near machinery at rest would be exposed to danger if, without adequate warning the machinery were to be set in motion by the starting of an electric motor by a person at another place, and

(b) the place at which the employee is so employed cannot be seen by a person while at the other place

there shall be available for use by the employee efficient means, which may be a device for locking a switch by which the employee can prevent the electric motor being started without his consent.

17. (1) Every conductor forming part of a system, other than

- (a) a conductor placed or otherwise safeguarded so as to prevent danger, or
- (b) a conductor in a circuit in which the voltage does not exceed 25 volts,

shall be adequately covered with insulating material.

(2) Every flexible cable of any portable apparatus or transportable apparatus which contains three insulated conductors of which two are for connecting the apparatus to a system and the remaining conductor is for connecting the apparatus to earth shall comply with the following requirements, namely:

Each of the cores in a flexible cable heretofore mentioned in this paragraph shall have its outer covering coloured as follows—

- (a) the covering of the earth conductor shall be coloured green and yellow and in such a way that the covering (on any length of the conductor measuring 15mm or more) has neither more than 70 per cent, nor less than 30 per cent of its surface coloured in one of those colours and has the remainder of its surface coloured in the other colour,

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(b) subject to subparagraph (c) of this paragraph, the covering of one of the conductors (other than the earth conductor) shall be coloured brown and that of the other such conductor, shall be coloured blue, and

(c) where, because of the use of a single pole switch or for some other reason, the electrical plan of the appliance is such that it is desirable in the interests of safety, that a particular conductor should be connected to the phase or live pole of the electricity supply, the covering to be coloured brown shall be that of that conductor and the covering to be coloured blue shall be that of the other conductor.

(3) Paragraph (2) of this regulation shall only apply to flexible cable of portable apparatus or transportable apparatus which is first brought into use on or after the 1st day of March, 1972, and to flexible cable fitted to such apparatus by way of replacement or renewal on or after that day.

18. (1) Subject to paragraphs (3) and (4) of this regulation, every cable, other than a flexible cable used to supply portable or transportable apparatus, containing a conductor and which is required by these Regulations to be covered with insulating material, shall be protected throughout its length by a suitable metallic covering and all the conductors forming a particular section of the same system shall be contained in a single such covering: provided that this regulation shall not apply to cables which are permanently fixed and are placed or otherwise safeguarded so as to prevent danger.

(2) Where the metallic covering mentioned in paragraph (1) of this regulation is used as an earth conductor, it shall have a conductance throughout not less than half that of the conductor having the greatest current-carrying capacity enclosed thereby: provided that in the case of a cable of which the metallic covering is wire and which is covered with a lead sheath, the conductance of that sheath may be taken into account for the purposes of this paragraph if plumbed joints are used where the cable is jointed or terminated.

(3) Where it is necessary to move an electric motor from time to time to adjust the tension of a driving belt, rope or chain, such length of cable as is requisite may be protected by flexible metallic tubing instead of a metallic covering, but a separate earthing conductor having a cross-sectional area of not less than 6 square millimetres, shall be provided therewith.

(4) Nothing in this regulation shall apply to a cable in any circuit in which the voltage does not exceed 250 volts D.C. or 125 A.C.

19. (1) Wherever any cable (including a flexible cable) protected by a metallic covering is connected to other electrical apparatus, the metallic covering shall be securely attached to the apparatus.

(2) Any material insulating a conductor in a cable shall be efficiently sealed at any point at which the conductor is connected to other electrical apparatus if its insulating property at that point might be diminished by moisture.

20. (1) Every flexible cable used for supplying portable apparatus or transportable apparatus, on building operations or in works of engineering constructions, shall

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include an earthing conductor having throughout a cross-sectional area and conductance neither of which is less than that of the largest current carrying conductor in the cable.

(2) Every flexible cable so used in a circuit in which the voltage exceeds either 250 D.C. or 125 A.C. shall be protected throughout by—

(a) a metallic covering containing all conductors forming a particular section of the circuit and having a conductance not less than half that of the conductor enclosed thereby having the greatest current-carrying capacity, other than the earthing conductor, or, where that is impracticable, having a conductance not less than that of a copper conductor with a cross-sectional area of 14 square millimetres, or

(b) a screen of wires containing as many of the conductors forming a particular section of the circuit as the particular circumstances permit and having a conductance not less than that of a copper conductor with a cross-sectional area of 14 square millimetres, or

(c) more than one screen of wires which together enclose and contain as many of the conductors, other than the earthing conductor, as form a particular section of the circuit each being of such construction and having such conductance as may be approved by the Minister,

provided that where the voltage in a circuit exceeds 650 volts the protection shall be by metallic covering described in sub-paragraph (a) of this paragraph.

21. (1) Every hand-held portable apparatus shall be provided with a switching-off device which shall form part of the apparatus.

(2) Neither a portable apparatus nor a transportable apparatus, operating at a voltage exceeding either 125 volts A.C. or 250 volts D.C., shall be used in damp or confined situations or on building operations or in works of engineering construction unless—

(a) in the case of electrical apparatus comprising one or more motors—the motor or one of the motors, as may be appropriate, is rated at more than two horse power, or

(b) in the case of other electrical apparatus the rated input exceeds two kilovolt amperes.

22. (1) Every portable hand lamp shall be provided with a properly insulated holder and a substantial guard enclosing the bulb of the lamp.

(2) A portable hand lamp shall not be supplied with electricity at a voltage exceeding either 25 volts A.C. or 50 volts D.C. in damp or confined situations or on building operations or in works of engineering construction.

23. (1) In every transformer suitable provision shall be made by earthing or otherwise to guard against danger arising from the charging of lower voltage components by leakage or induction from higher voltage components.

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(2) Where a transformer is used to supply electricity to—

(a) portable apparatus (other than a portable hand lamp) at a voltage not exceeding 125 volts A.C.,

(b) a portable hand lamp at a voltage not exceeding 25 volts A.C.,

it shall be of the double wound type, and the centre point of the secondary or lower voltage winding shall be tapped and brought out for permanent connection to earth.

24. (1) In case electrical work is to be carried out no person other than an authorised person or a competent person acting under the immediate supervision of an authorised person shall carry out the work, and

(a) in case the work consists of any repair, alteration, extension or cleaning, or such other electrical work as regards which technical knowledge or experience is required to avoid danger, or

(b) in any other case in which an inspector so directs, the person shall not work unaccompanied.

(2) When a contractor is employed to carry out electrical work and there is danger the avoidance of which is under his control, the contractor shall appoint the authorised person and ensure that paragraph (1) of this regulation is complied with, but if the avoidance of the danger is under the control of the occupier, the occupier shall appoint the authorised person and ensure that the said paragraph (1) is complied with.

25. (1) A person shall not commence work upon any conductor in a circuit in which the voltage is such that that conductor might be a source of danger to him until that conductor has been made dead and any necessary steps have been taken, whether by earthing or otherwise, to ensure that it will remain dead until the work is finished.

(2) Where it is necessary adequately to prevent danger, there shall be provided and kept permanently in position suitable insulating stands or screens and such stands or screens shall be maintained in sound condition.

(3) Where it is necessary adequately to prevent danger, there shall be provided and used portable insulating stands, screens, boots, gloves, or other suitable means and such stands, screens, boots, gloves or other such means shall be periodically examined by an authorised person.

(4) Adequate working space and means of access, free from danger, shall be provided in relation to all electrical apparatus which has to be worked or attended to by any person.

26. (1) The occupier shall make and ensure the effective carrying out of arrangements for the testing by a competent person appointed by him of all parts of every circuit upon the completion of every new installation and every major alteration to an existing installation as regards each of the following, namely :

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- (a) verification of polarity,
- (b) the conductance of the earth conductor and earth plate or earth rods,
- (c) the effectiveness of the earth loop impedance,
- (d) the effectiveness of every earth-leakage circuit breaker, and
- (e) the insulation resistance of every circuit,

and a certificate, in such form as the Minister may approve, of the results of such test shall be attached to the general register.

(2) If an inspector so requires, the occupier shall have a test of the installation made in an approved manner by a competent person, and a certificate of the result of such test and containing a description of the method used in that test shall be attached to the general register.

27. (1) Where electric welding apparatus is used the following provisions shall apply, namely :

- (a) electricity shall not be taken from the load side of the apparatus except by means of single conductor flexible cables each containing a copper conductor with a cross-sectional area of not less than 14 square millimetres or such other conductor as may be approved by the Minister for the purposes of this sub-paragraph,
- (b) the return current conductor, the article being welded and any associated metal work shall be connected to earth in such a manner as will prevent danger, and
- (c) there shall be fitted in position an effective guard to prevent the person using the apparatus from accidentally touching the live parts of either the electrode or the electrode holder with the fingers of the hand which holds the electrode holder.

(2) Each person using electrical welding apparatus shall ensure that it is not left in a position so that a person could accidentally come into contact with an electrode or electrode holder whilst live.

28. Wherever any transformer or switchgear is installed otherwise than in a building, the transformer or switchgear shall be efficiently protected either by fencing not less than 2.44 metres (eight feet) high or by some efficient means for preventing any unauthorised person gaining access to the apparatus or to anything connected thereto and used as a conductor; provided that this regulation shall not apply if both of the following requirements are complied with, namely :

- (a) the transformer or switchgear, as the case may be, is completely enclosed with—
 - (i) a metal casing which is connected to earth, or
 - (ii) some other equally suitable non-metal casing, and
- (b) any cables connected with the apparatus are protected by a metallic covering.

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29. (1) All overhead lines shall be constructed, installed and maintained in a manner suitable for the work and conditions under which they are to be operated and for the prevention of danger.

(2) To prevent contact with a person, machine, or any conducting material, all overhead lines and other current-carrying parts connected to or containing part of overhead lines shall be arranged so that adequate clearance is provided from the ground or other accessible place, or when it is impracticable to divert the lines they shall be provided with suitable guards or barriers.

(3) So far as is reasonably practicable, means shall be provided to render any live conductor dead in the event of its accidentally falling due to breakage or otherwise.

30. (1) The occupier shall ensure that a notice containing, or notices which together contain, the matters mentioned in paragraph (2) of this regulation is or are posted and kept posted in such position and in such characters as to be easily seen and read wherever electrical apparatus is installed, being apparatus from which a person might receive a dangerous electric shock.

(2) The following are the matters referred to in paragraph (1) of this regulation :

(a) a prohibition on any person other than an authorised person handling or interfering with the electrical apparatus to which the notice relates,

(b) a warning of danger and an indication of the highest voltage used in relation to the apparatus,

(c) directions as to how to rescue persons in contact with live electrical conductors and to restore persons from the effect of electrical shock.

L.S. GIVEN under my Official Seal, this 10th day of January, 1972,

JOSEPH BRENNAN,

Minister for Labour.

EXPLANATORY NOTE.

These regulations prescribe the safety measures to be adopted in relation to the use of electricity and electrical equipment in factories and other places covered by the Factories Act, 1955 .

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