

THE ELECTRICITY LAW.

(CAP. 82.)

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ELECTRICITY REGULATIONS.

1. These regulations may be cited as the Electricity Regulations.

PART I.

GENERAL CONDITIONS ON WHICH UNDERTAKERS MAY SUPPLY ENERGY.

Frequency.

2. The frequency of alternating current systems shall be 50 complete cycles per second: Provided that any other frequency may be employed for the operation of Electric Railways subject to the approval of the Governor.

Systems of supply.

- 3.—(1) The supply of energy shall be given on one or more of the following systems:—

- (a) two-wire system at a nominal pressure not exceeding 230 volts, measured at the consumer's terminals—
 - (i) direct current, or
 - (ii) single-phase alternating current;
- (b) three-wire system at a nominal pressure not exceeding 460 volts between the outer conductors and 230 volts between each outer and intermediate conductor, measured at the consumer's terminals—
 - (i) direct current, or
 - (ii) single-phase alternating current;
- (c) three-phase four-wire system, at a nominal pressure not exceeding 400 volts between phases and 230 volts between each phase and neutral conductor, measured at the consumer's terminals;
- (d) high or extra-high pressure alternating single-phase two-wire supply to motors, motor generators, pole transformers, transformers placed in street-boxes or in sub-stations, together with supply from the pole transformers or sub-stations to a low or medium pressure system or systems as defined in sub-paragraphs (a) and (b) of this regulation;
- (e) high or extra-high pressure alternating current three-phase supply to motors, motor generators, rotary converters, pole transformers or transformers placed in sub-stations, together with a supply from the pole transformers or sub-stations to a low or medium pressure system or systems as defined in sub-paragraphs (a), (b) and (c) of this regulation;
- (f) high or extra-high pressure two-wire direct current supply to motors and motor generators;
- (g) series street-lighting for any pressure not exceeding 3,300 volts;
- (h) direct current supply at a pressure not exceeding 650 volts with one pole earthed;
- (i) such other systems as may be authorized by the Governor.

(2) Where the undertakers wish to raise or lower the voltage of the energy supplied to the consumer's wires, they must first ensure that any apparatus used by the consumer is suitable for the raised or lowered voltage and, if required, must satisfy the Director that the consumer is caused no hardship by such raising or lowering of the voltage.

4.—(1) For purposes of domestic supply not exceeding 3 kilowatts the nominal pressure shall not exceed 230 volts single-phase or 400 volts three-phase at the consumer's terminals. For domestic supply exceeding 3 kilowatts the nominal pressure shall not exceed 460 volts at the terminals of a direct current or single-phase alternating current system and 400 volts at the terminals of a three-phase system. Voltage of supply.

(2) Supply of energy for industrial purposes may be given at high or extra-high pressure either for transformation or for direct supply to motors, provided that :

(a) all control gear and all metal work designed to be electrically charged at high or extra-high voltage are so enclosed or protected as to be inaccessible except to an authorized person ;

(b) where transforming apparatus is used suitable provision is made, either by connecting with earth a point of the circuit at the lower voltage or otherwise, to guard against danger by reason of the said circuit becoming accidentally charged above its normal voltage by leakage from or contact with the circuit at the higher voltage ;

(c)—(i) all conductors and apparatus intended for use at high or extra-high voltage are inaccessible to the consumer and all operations in connection with the said conductors and apparatus are carried out by the undertakers by arrangement with the consumer ; or

(ii) the consumer gives to the undertakers a guarantee in writing that every portion of the consumer's installation which is for use at high or extra-high voltage will be maintained in an efficient state and, if so required, to the satisfaction of the undertakers ; that in cases where the said portion of the consumer's installation is not enclosed in a building or other structure to which access can only be obtained by means of a key or special appliance, an authorized person will be available to cut off the supply in the event of emergency ; and that instructions as to the treatment of persons suffering from electric shock will be affixed on or in the premises of the consumer.

(3) Supply for series street-lighting may be given for pressure up to but not exceeding 3,300 volts.

5.—(1) The pressure shall be maintained for both lighting and power supply within 6 per cent above or below the nominal pressure at the consumer's terminals and these pressures shall not be altered or departed from to an extent greater than that variation except by consent of the Director and upon such terms and conditions as he may impose, and after public notice has been given during a period of one month, in such manner as he may require, of the intention of the undertakers to apply for consent to alter the same. On complaint by any consumer that the variation in voltage exceeds the limits specified, or on the instructions of the Electrical Inspector, the undertakers shall connect a portable recording voltmeter, to be provided and maintained by the undertakers to record the pressure between the service-lines. If the variations thus recorded exceed the above limits the undertakers shall take immediate steps to comply with this regulation unless excepted by the Director. Regulation of pressure and frequency.

(2) The frequency shall be maintained within $2\frac{1}{2}$ per cent above or below the standard of 50 cycles per second, and shall be checked and regulated every 15 minutes so that clocks and other synchronous apparatus can operate within a reasonable degree of accuracy.

6. The supply of low or medium pressure energy may be effected either by underground cables or by overhead bare or covered conductors.

Method of distribution.

Location of
overhead
lines low or
medium
pressure.

7.—(1) One side of every street shall be left free by the undertakers for telegraph lines.

(2) Except by permission of the Governor, or subject to an agreement between the Director and the undertakers, all overhead electric lines shall be placed on the opposite side of the street to that on which any telegraph lines exist; where the erection of the overhead electric lines necessitates an alteration of any existing telegraph lines, and such alteration is approved by the Governor, the expense of the alteration shall be borne by the undertakers. In running the electric lines along a street where no telegraph line exists the undertakers shall keep to one side of the street, and in running electric service lines to the opposite side of the street, such lines shall be erected at such a height and in such a manner as not to obstruct any future telegraph lines: Provided always that if the service lines are erected in accordance with regulation 44 the expense of any alteration thereto necessitated by the erection of a new telegraph line shall be borne by the Government or the telegraph licensee, as the case may be.

(3) In running telegraph lines along a street where no power lines exist the Government or the telegraph licensee shall likewise keep to one side of the street, so as to leave the opposite side free for any future power lines.

Location of
overhead
lines high
pressure and
extra-high
pressure.

8.—(1) The undertakers shall dispose their high and extra-high pressure overhead lines so as to give the maximum separating distance between them and the telegraph lines as shall be reasonably possible.

(2) The horizontal separating distance between any power line (including poles, stays not specially insulated for the full line to earth voltage and any exposed conductors at open air sub-stations) and any part of a telegraph line (including poles and stays) shall not be less than the height of the highest power wire or any such exposed conductors, measured at the nearest support, or one and one-half times the height of the highest telegraph wire, whichever is the greater, provided that where the lines are erected on ground at different levels the heights shall be calculated from the lower ground level.

(3) The undertakers shall take steps to ensure that the maximum steady value of the earth fault current reached before the operation of the circuit breaker or similar device shall not exceed such a value as will induce a potential of 300 volts in the telegraph lines.

(4) In all cases of parallel running of power and telegraph lines if any undue interference takes place which results from the power line being put into commission it shall be rectified forthwith at the expense of the undertakers or of the Government or the telegraph licensee, whosoever of them shall be the second comer.

(5) In those cases where the undertakers are the first comers along any road, the Government or the telegraph licensee shall dispose any lines which they may subsequently erect so as to meet the requirements of paragraph (1) of this regulation.

(6) Where special devices for suppressing arcing grounds or limiting earth fault currents or the induced voltages resulting therefrom are inserted in the neutral of any system the undertakers shall maintain the device in good condition and adequately tuned or adjusted.

Facility for
service con-
nections, etc.

9. Where distributing mains are on one side of the street and telegraph lines on the other, and service is required to be given from either to the other side, the undertakers and the Government or the telegraph licensee shall give to each other reasonable facilities as far as possible to effect supply. Where possible electric service lines shall pass over telegraph lines, and telegraph service leads shall pass under electric lines.

10. Save by special permission of the Governor overhead lines at high or extra-high pressure shall not be employed within congested areas, and the question of what is a congested area shall be determined by the Governor. Restrictions as to the use of overhead conductors.

11.—(1) The undertakers shall, prior to the completion of the work to which the Order or any separate portion thereof refers, give to the Governor at least one month's notice in writing of the estimated date of each completion. The undertakers shall not use the work or any portion thereof until the Governor has given notice in writing that he has received from the Director a certificate that such work or such portion thereof has been satisfactorily carried out. Notice of completion.

(2) Failing the receipt of the Governor's approval within two weeks of the notified completion of the work, the undertakers may use such work; but are liable for any alteration to such parts of the work as do not in the opinion of the Electrical Inspector conform with these regulations.

12.—(1) The undertakers shall submit to the Director drawings and calculations for each type of pole which is used in their construction work; each such type to be designated by a definite reference number or letter. New lines and extensions.

(2) The drawings are to show the detailed construction of the pole together with the number of wires, and position and type of insulators it is proposed to use with it.

(3) The calculations are to show the stresses in the pole members and stresses and sag in the wires used with that particular type of pole together with the di-electric strength of the insulators.

(4) Before commencing the erection of any new line or the extension of any line already erected (other than a service line) the undertakers shall give at least seven days' notice in writing to the Director of their intention to carry out the work and such notice shall be by a plan showing the location, size, number and pressure of the wires and cables proposed to be erected together with the reference number or letter of the type of construction it is proposed to adopt. Notwithstanding the provisions of regulation 11 the undertakers may use such extensions and service lines, provided that the work has been carried out in strict conformity with the requirements of these regulations; for the purpose of ascertaining whether or not the extensions and service lines comply with such conditions the Electrical Inspector may from time to time inspect the work, and if he finds that any portion of the same does not comply with the requirements of these regulations, the Governor reserves to himself the right to call upon the undertakers to discontinue the use of such part of the work until he is satisfied that the regulations are complied with. The undertakers shall prepare and maintain a plan of suitable scale showing the location of all works, lines (other than service lines), sub-stations and transformers erected from time to time. Such plan shall be brought up to date within twenty-eight days of the completion of any extension, shall show the date of erection of each electric line, and shall be available at any time for examination by the Director or the Electrical Inspector.

(5) The undertakers shall furnish to the Government or a telegraph licensee on request from time to time a list of all service lines erected or altered during the previous period, and on the 31st of January of each year shall furnish to the Government a summarized list of all extensions to the mains made during the previous twelve months ending 31st December, giving date, location of route and length of same.

(6) Notwithstanding anything contained in these regulations or in any other regulation made under section 10 of the Electricity Law, overhead lines shall be erected in accordance with the latest appropriate British Standard Specifications. Cap. 82.

PART II.

CONDITIONS SECURING THE SAFETY OF THE PUBLIC AND FOR INSURING
THE PROPER AND SUFFICIENT SUPPLY OF ENERGY.

Conditions
of direct
current
supply with
earth return.

13.—(1) Supply under conditions of regulation 3 (1), sub-paragraph (h), shall be limited to the operation of electric motors and motor generators, and to outdoor electric lighting. In such cases a single-pole fuse cut-out, or automatic circuit-breaker, shall be inserted in the unearthed conductor, and arranged to operate with an overload not exceeding 100 per cent above the rated full load of the circuit. Such cut-out or circuit-breaker shall be placed in a suitable locked or sealed receptacle of fireproof construction fixed at convenient height at the point of supply. At the distributing point of a lighting-circuit there shall be inserted in the unearthed conductor a single-pole switch, together with a fuse arranged to operate with an overload not exceeding 50 per cent, above the rated full load of such circuit. In a motor circuit there shall be provided in the immediate vicinity of each motor connected thereto a single-pole switch and fuse cut-out or circuit-breaker arranged to operate with an overload not exceeding 50 per cent, above the rated full load of the motor so controlled. Each motor shall also be fitted with an automatic no-voltage release and a series resistance for starting. The earthed conductor shall be continuous throughout its length without a switch or fuse.

(2) Any person generating, distributing or utilizing direct current shall take all necessary precautions to prevent deterioration by electrolytic action, resulting from this direct current, of any pipes, cables or other metal work, whether the property of the undertakers or of any other person.

Connection
of circuits
with earth.

14. The connection of circuits with earth shall be made in accordance with the following conditions:—

- (a) the intermediate conductor of a low or medium pressure three-wire single-phase system, and the neutral conductor of a low or medium pressure three-phase four-wire system shall be effectively earthed at the point of supply, that is, at the generating station, sub-station or transformer, and at such other points along the electric distribution line as are necessary to give a resistance not exceeding 10 ohms between any point in such conductor and the general mass of earth;
- (b) in a three-wire direct current system the intermediate conductor shall be earthed at the generating station only, and the current from the intermediate conductor to earth shall be continuously recorded by means of a recording ammeter, and if at any time the current exceeds one-thousandth part of the maximum supply-current steps shall be immediately taken to improve the insulation of the system;
- (c) in high and extra-high pressure three-phase star-connected systems the neutral point may be earthed at the point of supply and at the neutral point of each star-connected transformer in the circuit. Alternatively, if the neutral conductor is not earthed, or if the system be delta-connected, then means as approved by the Director shall be provided in each circuit for indicating faulty insulation in any part of the circuit, and for automatically and immediately earthing the phase or cutting off the faulty circuit unless the leakage current is so small or so compensated as to obviate the possibility of interference with lines of the Government or of a telegraph licensee, or the voltage to earth does not exceed 30 volts. If the insulation of any circuit is faulty, immediate steps shall be taken to make good the insulation;

- (d) in the case of a high pressure or extra-high pressure star-connected system, the neutral point of which is directly connected to earth, the resistance between that point and earth shall be sufficiently low to ensure that the fuse or automatic circuit-breaker or trip-coil protecting that system shall disconnect the circuit from the source of supply in the event of an accidental earth occurring on that phase, or in the case of accidental contact with a low or medium pressure line. In automatic circuit-breakers each phase must be equipped with a trip-coil;
- (e) where any part of a circuit is normally connected with earth, no fuse, single-pole switch or circuit-breaker shall be inserted in the earthed conductor or in any conductor connected thereto, and the connection with earth shall be efficiently maintained, except when it is interrupted by means of a link for the purpose of periodical tests;
- (f) subject to the previous consent of the Director the earth may be used as a neutral return for transformers of a rated capacity not exceeding 20 kilovoltamperes;
- (g) all joints in earth conductors shall be effectively made so as to ensure a conductivity across the joint equivalent to that of the conductor, and the whole of the joint shall be such that deterioration will not take place due to electrolytic action or otherwise.

15.—(1) A test shall be made by the undertakers every twelve months to ensure that all earth wires used in connection with electric lines are intact and the earth connections are effective. Such tests shall be made more often than once in every twelve months if so required by the Director. Tests required under regulation 16 (2) must be made at least three times per annum. All earths on guards erected over or under telegraph wires shall be tested every twelve months, and copies of tests forwarded to the Director. Between the electric line or electrical apparatus or other devices to be earthed and the general mass of earth the electrical resistance shall not exceed 10 ohms, and shall be as much less than 10 ohms as is required to ensure at all times an immediate and safe discharge to earth of energy. Records of all tests made shall be kept in the form of Appendix D hereto.

Testing
earth
connections.

(2) Special devices inserted at neutral points for suppressing arcing grounds or limiting earth fault currents shall be tested once in every twelve months by a method approved by the Director to ensure that they are in good order and adjustment.

Appendix D.

16.—(1) All power house and sub-station switchboards, including the frames to which they are attached, shall be made of fireproof material; the maximum permissible current and temperature in any conductor mounted thereon or leading thereto shall not exceed the values permitted under the rules made from time to time by the Institution of Electrical Engineers of Great Britain. No conductor at a pressure above 250 volts to earth shall be exposed on the front of any switchboard; the back of any switchboard with conductors at a pressure exceeding low pressure shall be screened or otherwise made inaccessible except to authorized persons. Where conductors cross over any passage way or run along the walls of any passage way at a height of less than 8 feet from the floor or platform, they shall be screened in a manner approved by the Electrical Inspector.

Switch-
boards in
power
house and
sub-stations.

(2) All power house and sub-station switchboards controlling high pressure and extra-high pressure circuits shall be provided with an efficient earthing bar or cable, to which all frames, instrument-cases, and other non-current carrying metal parts thereof shall be connected, and the earthing bar or cable shall be connected to earth by means of two independent earthing connections. Means shall be provided for testing the resistance between these two connections through the earth. Such tests shall be made at least three times per annum, and a record thereof shall be kept in the form of Appendix D hereto.

Appendix D.

(3) Every power house and sub-station switch intended to be used for breaking a circuit, and every circuit-breaker, shall be so constructed or arranged that it cannot with proper care be left in partial contact or accidentally fall or move into contact when left out of contact. All enclosed switches shall have an external attachment to indicate clearly whether the switch is open or closed.

(4) All power house and sub-station switchboard circuits shall be so arranged that the course of any main conductor may be readily identified.

(5) Passage ways around power house or sub-station switchboards, switchgear and electrical apparatus other than those of a totally enclosed type shall be such as to provide the clearance herein specified, viz. :—

(a) in the case of low or medium pressure switchboards and apparatus, an overhead clearance of not less than 7 feet and a passage way with not less than 3 feet horizontal clearance from any bare conductor affixed thereto ;

(b) in the case of high pressure and extra-high pressure switchboards and apparatus other than operating desks and panels working solely at low pressure, all conductors must be so screened or guarded that they cannot be accidentally touched when alive, and the following clearances shall be measured from such screen or guard :—

an overhead clearance of not less than 8 feet from the floor to such screen or guard and a passage way with not less than 3 feet 6 inches horizontal clearance from such screen or guard.

Safety
regulations
for power
stations and
sub-stations.

17. The following precautions shall be adopted to ensure the safety of persons and property from injury, shock, fire or otherwise :—

(a) a sufficient number of fire buckets of suitable capacity as approved by the Electrical Inspector, filled with clean dry sand and ready for immediate use in extinguishing fire, or suitable fire-extinguishers filled with a non-conducting fluid, shall be kept in a convenient situation adjacent to the electrical apparatus ;

(b) a sufficient number of rubber gloves, mats, rubber soled boots and galoshes and insulated platforms or stools as approved by the Electrical Inspector, shall be provided for use when necessary. All such appliances shall be inspected before use and tested at regular intervals ;

(c) a notice containing directions as to resuscitation of persons suffering from the effects of electric shock shall be exhibited in a conspicuous position ;

(d) a notice of a pattern approved by the Director displaying the words "No admittance" shall be placed outside every place containing electrical machinery where interference with such machinery may cause danger ;

(e) every switchboard having bare conductors normally so exposed that they may be touched shall, if not located in an area set apart for the purpose thereof, be suitably fenced or otherwise enclosed. No person except an authorized person, or a person acting under the immediate supervision of an authorized person, shall have access to any part of an area set apart for switchgear or other live-apparatus and a notice of a pattern approved by the Director displaying the word "Danger" shall be placed near the switchboard ;

(f)—(i) switches and fuses for the control of outside lighting circuits, if located outside an area set apart for the purpose, shall have no bare live metal exposed and shall be so mounted and protected that they cannot be interfered with by unauthorized persons ;
(ii) in addition they shall be so located, constructed or arranged that the operator cannot in normal circumstances receive a shock due to leakage ;

- (g) all apparatus appertaining to a switchboard and requiring handling shall, so far as practicable, be so placed or arranged that the same may be operated from the working platform of the switchboard, and all measuring instruments and indicators connected therewith, shall, so far as practicable, be so placed that the same may be observed from the working platform. If such apparatus be worked or observed from another place, adequate precautions shall be taken to prevent danger;
- (h) when work is about to be or is being done on any switchboard, then, unless the switchboard be otherwise so arranged as to secure that the work may be carried out without danger, either (i) the switchboard shall be made dead, or (ii) if the switchboard be so arranged that the conductors thereof can be made dead in sections and so separated by permanent or removable divisions or screens from all adjoining sections of which the conductors are live so that work on any section may be carried out without danger, that section on which work has to be done shall be made dead;
- (i) all parts of generators, motors, transformers or other similar apparatus at high pressure or extra-high pressure which are within the natural reach of a person from any position in which such person may find it necessary to be, by reason of his employment, shall be, so far as practicable, so protected as to prevent danger;
- (j) adequate precautions shall be taken to prevent any conductor or apparatus from being accidentally or inadvertently electrically charged when persons are working thereon;
- (k) adequate working space and means of access, free from danger, shall be provided for all apparatus that has to be worked or attended to by any person;
- (l) all those parts of the premises in which apparatus is placed shall be adequately lighted;
- (m) every enclosed sub-station shall be substantially constructed and shall be so arranged that no person other than an authorized person can obtain access thereto or can interfere from outside with the apparatus or conductors therein and shall be provided with efficient means of ventilation and be kept dry;
- (n) every underground sub-station not otherwise easily and safely accessible shall be provided with adequate means of access by a door with a staircase or ladder securely fixed and so placed that no live part of any switchboard or any bare conductor shall be within reach of a person thereon: Provided that the means of access to such sub-station not otherwise easily and safely accessible shall be a doorway and staircase, if—
 - (i) any person is regularly employed therein, otherwise than for inspection or cleaning; or
 - (ii) the sub-station is not of ample dimensions and there is therein either moving machinery other than ventilating fans, or extra-high pressure;
- (o) all joints in earth conductors shall be effectively made so as to ensure a conductivity across the joint equivalent to that of the conductor, and the whole of the joint shall be such that deterioration will not take place due to electrolytic action or otherwise.

18. All outgoing feeders and distributors from any power house or sub-station exceeding 100 kilowatts shall be provided with fuses or automatic circuit-breakers of a type approved by the Director, set to open within five seconds at a current not exceeding 100 per cent over the normal rated load of such feeder or distributor: Provided that in transformer sub-stations

Circuit-breakers.

of 100 kilowatt capacity or less only the high pressure or primary side of the transformer need be so protected, and special precautions shall be taken in the adjustment of such high pressure protection to the capacity of the transformer. Where circuit-breakers are used they shall be located in accessible positions and shall be of the loose-handle type. Each circuit-breaker shall be capable of breaking the above overload current by hand without undue arcing and with no risk of injury to the operator. Automatic trip-coils shall be provided on each phase.

Fuses.

19. Every fuse shall be either of such construction or so protected by a switch that it may be readily renewed without danger.

Minimum size of conductor.

20. The diameter of any conductor in any low pressure electric line laid or erected for the supply of energy shall be not less than 0.104 in. (2.64 mm.) except as provided in regulation 31 (e); for high or extra-high pressure lines the diameter shall not be less than 0.128 in. (3.25 mm.): Provided that 7/0.28 in. (7/7.11 mm.) conductor may be used for service connections in spans not exceeding 65 feet. Earthing wires shall in no case be less than .166 ins. (4.2 mm.) diameter copper outdoors or .064 in. (1.63 mm.) diameter indoors.

Material and quality of overhead line conductors.

21.—(1) Overhead line conductors shall be of copper, aluminium, mild steel or iron or of a combination of aluminium conductors with a steel core or of any other material or combination of materials as may be approved by the Governor.

(2) All overhead line conductors at the time of erection shall comply as regards elongation, ultimate strength and elasticity with the latest appropriate British Standard Specification.

Stresses in overhead line conductors.

22. All line conductors at the time of erection shall comply as regards elongation, breaking load and elasticity, with the latest appropriate British Standard Specification. The factor of safety of line conductors shall be two. The factor of safety shall be based on the breaking load and shall be calculated on the assumption that the line conductors are at a temperature of $-5^{\circ}\text{C}.$ ($23^{\circ}\text{F}.$), and that they are simultaneously subjected to a wind pressure equivalent to 12 pounds per square foot at right angles to the line and calculated on the projected area of the line.

Clearances.

23. The following conditions shall be observed with regard to clearances:—

- (a) overhead electric lines at low or medium pressure shall not in any part thereof be at a less height than 17 feet from the ground, except as provided in regulation 44;
- (b) overhead electric lines at high pressure shall not in any part thereof be at a less height than 20 feet from the ground;
- (c) overhead electric lines at extra-high pressure shall not in any part thereof be at a less height than 20 feet from the ground;
- (d) where low or medium and high pressure or low or medium and extra-high pressure lines are carried on the same poles, a minimum height of 19 feet below the low or medium pressure lines shall be provided to allow telegraph crossings to pass underneath. When such lines are erected along tramway routes the low or medium pressure lines shall be at such a height as to permit the telegraph circuits that cross over the street to pass above the trolley wire and below the low or medium pressure lines;
- (e) overhead electric lines crossing electric tramway lines shall have a minimum clearance of 4 feet above the trolley wire;
- (f) overhead electric lines shall not come within 2 feet of any other aerial lines or cables, except at a pole and then only by arrangement between the respective owners of the wires;

- (g) overhead electric lines shall be so erected as to be inaccessible to any person without the use of a ladder or other special appliance;
- (h) the maximum sag shall be computed on the assumption that the conductor is subjected to a temperature of 60° C. (140° F.);
- (i) where it is necessary for a linesman to climb between live conductors on the same pole the following minimum climbing-spaces shall be provided between conductors :—
 - (i) low or medium pressure, 4 feet;
 - (ii) high pressure, 5 feet;
- (j) where overhead wires cross navigable waterways, special clearance shall be provided as directed by the Governor.

24. The following conditions shall be observed with regard to supports for overhead lines :—

Supports for overhead lines.

- (a) every support for overhead electric lines shall be so located as to avoid unduly obstructing pedestrian or vehicular traffic;
- (b) every support for overhead electric lines shall be of durable material, and of sufficient strength to withstand forces due to wind pressure, change of direction of line and unequal length of span. The factor of safety of each support shall be two, in the case of iron, steel or ferro-concrete, and four, in the case of wood, calculated on the crippling load of the structure. Where extra-high pressure lines cross a road, earthing-bars of a type approved by the Director shall be erected at each side of such road-crossing;
- (c) where pin-type insulators are used the conductors shall be carried on insulators mounted on steel or wooden arms, or singly upon iron brackets fastened to the poles. Except on pull off or strain poles the conductors shall be so attached to the insulators or guarded that if they fall away from the insulators they shall remain on the cross arms, brackets or guards. Where electric lines are covered with insulating material they shall be so attached to the insulators that their insulation shall not be impaired thereby, and no joint in the span of an insulated conductor shall be made within 5 feet of an insulator. Pins for pole-top insulators on wooden poles shall not be screwed into the pole-top, but attached to the side of the pole;
- (d) overhead electric distributing mains at low or medium pressure may be carried on brackets attached to buildings, provided they are inaccessible from any portion of the building without the use of a ladder or other special appliance, or that they are so screened as to prevent the possibility of accidental contact by any person, and provided also that they are secured in such a manner that they cannot fall away from the insulator support or make contact with the building;
- (e) where guys or stays are used they shall be securely anchored and earthed, or insulated at a point not more than three feet distant from the top end;
- (f) each pole shall be clearly and permanently marked with a number.

25.—(1) Precautions shall be taken to prevent danger, in the case of metal or reinforced concrete poles by the provision of—

Earthing of poles for low and medium pressure lines.

- (a) a continuous earth wire carried from pole to pole and earthed at intervals of not more than 5 spans and also at the source of supply; or
- (b) a suitable metal framework to support the insulators, the framework being insulated from the pole and connected to the neutral conductor; or
- (c) a separate earth plate or driven metal earthing pipe of adequate length at each pole.

(2) In the case of wooden poles by the provision of—

- (a) a bonding wire connected to the supporting metal work of all insulators, the bonding wire terminating at the lowest part of the supporting metal work ; or
- (b) a separate earth plate or driven metal earthing pipe of adequate length at each pole to which all the metal work of the insulators is connected.

Earthing of poles for high and extra-high pressure lines.

26.—(1) Adequate means shall be taken to render any line conductor dead in the event of it falling due to breakage or otherwise unless the leakage current is compensated. All metal work other than conductors shall be permanently and efficiently connected with earth, either by means of separate earthing plates at each pole or by means of a continuous earth wire carried from pole to pole and earthed at intervals of not more than five spans and also at the source of supply : Provided always that the iron work on wooden poles for high and extra-high pressure lines need not be earthed outside a municipal area, unless specially required by the Director.

(2) The design and construction of the system shall be such that when contact is made between a line conductor and metal connected to earth the resulting leakage current shall not be less than twice the leakage current required to operate the devices which make the line dead, unless the leakage current is compensated.

Quality of galvanized iron, etc.

27. Galvanized iron wire used for stays, cradles, or other mechanical purposes ; galvanized iron binding wire ; arm bolts, nuts, washers and stay swivels ; truss and brace rods, truss tie and brace bolts, stay rod tighteners and test pieces shall conform with the latest appropriate British Standard Specification for each material so far as those specifications are applicable.

Maximum length of span.

28.—(1) The distance between supports carrying electric lines at low or medium pressure within a municipal area, or within such other limits as may be specified in the Order, shall, notwithstanding the provisions of regulations 22 and 31 hereof, not exceed 165 feet.

(2) The distance between supports carrying electric lines outside such limit shall be determined by the provisions of regulations 22, 23 and 31.

Angle of crossing thoroughfares.

29. Where an overhead electric line at low or medium pressure is transferred from one side of a road to the other, in a municipal area, the angle formed by the centre line of the road and the portion of the line crossing the road shall approximate, as closely as practicable, to a right angle. Save by special permission of the Director where the angle of crossing is 135° or more the length of unsupported wire shall not exceed 98 feet.

Overhead electric lines.

30.—(1) Every pole or support carrying extra-high pressure lines or high pressure lines shall have attached to it a durable and conspicuous plate of reasonable dimensions marked with a sign of a skull and cross-bones or equivalent suitable warning and be provided with an anti-climbing device of a type approved by the Director.

(2) The electric lines upon which the workmen are engaged shall be disconnected from the source of the supply except in the case of insulator testing, the taking of measurements and the cleaning of insulators by means of apparatus of a type approved by the Director. Lines at a pressure not exceeding medium pressure however need not be so disconnected, provided that rubber gloves together with tools with insulated handles are used in conjunction with rubber mats where the use of such mats is possible.

(3) Where telegraph lines are affected bare electric lines shall also be subject to the conditions prescribed in regulation 33.

31. Where low or medium pressure and high pressure, or high and extra-high pressure, or any combination of the four systems are carried on the same poles and supports, the following conditions shall apply:—

Conditions covering low pressure, high pressure and extra-high pressure on same poles.

- (a) in star-connected systems the provisions of regulation 14 (c) concerning treatment of the neutral point shall apply;
- (b) the main high and extra-high pressure distributing mains shall be protected on each phase by fuses, circuit-breakers or trip-coils accurately adjusted to open circuit within five seconds on an overload not exceeding 100 per cent in excess of the normal full load current;
- (c) special precautions must be taken in fusing for extra-high pressure transformers under 10 kilovoltamperes capacity;
- (d) electric lines of different pressures shall be separated by the under-mentioned distances, measured horizontally or vertically at the pole:—
 - (i) *between* low or medium and .. 3 feet if both sets are insulated for full voltage to earth; and
5 feet if the high pressure line is uninsulated;
 - (ii) *between* low or medium and .. 5 feet;
extra-high pressure.
 - (iii) *between* high or extra-high .. 5 feet;
pressure and high pressure.
 - (iv) *between* extra-high pressure .. 5 feet;
and extra-high pressure.
 - (v) under the extremes of wind pressure and temperature rise, as defined in regulation 22, the separation between wires at the centre of the span shall not be less than one-half of the above distances;
 - (vi) the pole spacing in cases (i) and (ii) shall not exceed 165 feet;
- (e) notwithstanding the provisions of regulation 20, the minimum size of conductor to be used in the above construction shall not be less than 0.128 inches diameter;
- (f) no low or medium pressure wires shall be above the level of any high pressure or extra-high pressure wires, or on the same level as any extra-high pressure wires, except where it may be necessary for the purpose of making connections at overhead transformer stations;
- (g) where overhead electric lines are being worked on and are in proximity to live high or extra-high pressure lines, care must be taken effectively to earth the lines after disconnection and before work commences, in order to discharge electrostatic induction.

32.—(1) Telephone wire or wires belonging to the undertakers supported on electric line poles shall be of hard drawn copper or other suitable material and shall not be less than 0.104 inches diameter. The minimum clearance between the lowest point of the span and the ground shall be 16 feet.

Telephone lines on electric line poles.

(2) The wires shall be suitably guarded against lightning and shall be fused.

(3) If carried on poles also carrying high or extra-high pressure wires such arrangements shall be made where the telephone is placed as will prevent the possibility of injury resulting to any person using the telephone as the result of a conductor coming into contact with the telephone wires, or as the result of leakage or of induction.

33.—(1) The undertakers shall take all reasonable precautions in construction, laying down, placing and using the electric lines so as not injuriously to affect, whether by induction or otherwise, any telegraph line in existence at the time of the construction, laying down, or placing of the electric lines. They shall take all reasonable precautions to prevent their plant from radiating electric waves in such manner as to cause interference

Protection of telegraph lines and avoidance of radio interference, etc.

with apparatus used for the reception of radio communications and telephonic or telegraphic signals. If it be proved to the satisfaction of the Director that the interference due to the undertakers' plant when measured at the site of the receiving apparatus by a method or methods approved by the Director, is equivalent to a level higher than 30.5 decibels below the mean level of a wanted signal having a field of 1 millivolt per metre modulated at 20%, or the level of interference defined in the latest appropriate British Standard Specification whichever is the lower level, the undertakers shall at their own expense take the necessary steps to remedy the interference: Provided always that the provisions of this regulation shall not apply to an area having a radius of 650 feet from the centre of a power house: Provided also that if the interference is not continued for a period of time of three seconds or more, or if the interval between such interfering impulses is more than 10 minutes, such interference shall not be considered to be a breach of this regulation.

(2) All generators shall be designed with a wave form as nearly as possible to the sine wave in order to minimize inductive interference with telephone and radio electric circuits.

(3) Unless otherwise agreed by the Director, where electric lines intersect telegraph lines, the following conditions shall apply:—

- (a) high pressure electric lines shall be insulated with vulcanized rubber of not less than 600 megohm grade and the insulated cable shall be suspended from an earthed bearer wire by means of metal suspenders, unless the electric lines are bare as provided in regulation 30 (3), in which case the special conditions of sub-paragraphs (l), (m), (n) and (o) of paragraph (3) of this regulation shall apply;
- (b) medium and low pressure electric lines shall be covered with triple covering thoroughly impregnated with weather-proof compound, unless the electric lines are bare as provided in regulation 30 (3), in which case the special conditions of sub-paragraphs (l), (m), (n) and (o) of paragraph (3) of this regulation shall apply;
- (c) where lead-covered telegraph cables and high pressure electric lines intersect, the electric lines shall be insulated with vulcanized rubber of not less than 600 megohms grade and the insulated cable shall be suspended from an earthed bearer wire by means of metal suspenders;
- (d) the distance between high pressure electric lines and telegraph lines at any point shall not be less than 5 feet and between low or medium pressure lines and telegraph lines shall not be less than 3 feet;
- (e) where high, medium or low pressure electric lines and telegraph lines intersect, the electric lines shall cross above or below the telegraph lines as may be agreed upon between the Director and the undertakers;
- (f) where high, medium or low pressure electric lines and telegraph lines intersect, no crossing shall be effected except with the approval of the Director;
- (g) where high, medium or low pressure lines and telegraph lines intersect, such electric lines shall be erected and maintained in such a manner and subject to such conditions as may from time to time be agreed upon between the Director and the undertakers;
- (h) where electric lines at high or extra-high pressure intersect telegraph lines, the electric lines shall be subject to such special conditions as may be agreed upon between the Director and the undertakers;

- (i) where high tension or extra-high tension electric lines and telegraph lines intersect, the maximum tension in any conductor in every crossing-span shall not exceed one-half of the elastic limit of the conductor under the conditions of minimum temperature and wind pressure as specified in regulation 22 ;
- (j) in cases where electric lines are erected before the telegraph lines, the undertakers, on receipt of notice from the Government or a telegraph licensee, as the case may be, that it is proposed to run a telegraph line along or across the route, shall forthwith make all alterations to the electric lines for the protection of telegraph lines as may be agreed upon between the Government or such telegraph licensee, and the undertakers, at the expense of the Government or such telegraph licensee, as the case may be ;
- (k) where electric lines, braided or rubber-covered, are erected along a route in accordance with the provisions of these regulations, and it is proposed to intersect such electric lines by telegraph lines erected subsequent to the electric lines, the cost of any guard-wires or other special insulation or protection or of any alterations to the electric lines required by the Director, will be borne by the Government or the telegraph licensee, as the case may be ;
- (l) where bare electric lines, as provided in regulation 30 (3), intersect telegraph lines the special additional conditions in the following sub-paragraphs of this regulation shall also apply ;
- (m) where telegraph lines intersect the undertakers' bare electric lines at low, medium or high or extra-high pressure, the undertakers shall bear the cost of insulating, protecting and maintaining the insulation and protection of all telegraph lines, erected before the bare electric lines, and also the cost of all special work and the maintenance thereof, which the Government or the telegraph licensee deems it necessary to carry out in consequence of the undertakers' electric lines being bare ;
- (n) when in the opinion of the Director it is considered necessary that the bare electric lines at any intersection should be replaced by braided, rubber-covered or other insulated electric lines as approved by the Director, the undertakers shall, at their own expense, replace such bare electric lines when requested to do so by the Director, except in those cases where the Government or a telegraph licensee is second comer ;
- (o) when work on telegraph lines is being done by the Government or a telegraph licensee in the proximity of bare electric lines, such electric lines shall be temporarily disconnected from the source of supply during the progress of such work as may be agreed upon between the Director or the telegraph licensee and the undertakers.

34. An overhead electric line shall not be permitted to remain erected after it has ceased to be used for the supply of energy unless the undertakers intend within a reasonable time again to use such line. Lines not in operation to be removed.

35.—(1) No work of any nature shall be erected or constructed upon, over or under any part of the Cyprus Government Railway until the undertakers have obtained the consent of the Superintendent of the Railway and of the Director thereto. Railway crossings.

(2) Where overhead lines cross the railway the span between the supports shall not exceed 100 feet in length where practicable. The pole on each side of the railway shall be embedded in concrete, when carrying transmission or distribution lines.

(3) The lines over the railway shall be erected with a factor for safety on the basis that the maximum tension in the conductor shall not exceed half the elastic limit of the conductor under the conditions of minimum temperature and wind pressure as specified in regulation 22.

(4) The minimum clearance above rail-level for all lines shall be 23 feet from the top of the rail to the lowest conductor. The dip or sag shall be calculated on the assumption of a maximum temperature of 60°C. (140°F.). The supports of the line shall have a factor of safety of four, under conditions of wind pressure hereinbefore specified.

(5) For any pressure not exceeding high pressure the conductors in the crossing span may be bare or may be insulated. For extra-high pressure the conductors shall be bare.

(6) Where bare conductors are carried through the crossing-span, provision shall be made for the erection of earthing devices of a type approved by the Director which shall be so fixed under each conductor that, in the event of a conductor breaking, contact with the earthing device shall be made by such conductor before coming in contact with a passing train.

(7) Telephone wires of the undertakers may be run with a minimum clearance above rails of 23 feet and shall be of a galvanized iron or hard drawn copper of not less than 0.104 inches diameter where they cross the railway and for a clear span on either side.

(8) If the Governor requires it, a line erected across a railway shall be provided with—

(a) duplicate insulators for supporting the line conductor and a device to ensure that in the event of a line conductor falling it shall be put to earth; or

(b) duplicate insulators, supporting duplicate conductors tied at intervals not exceeding 5 feet, or other means agreed upon between the Governor and the undertakers.

Earth wires
on poles.

36. Earth wires, where led down iron or concrete poles, shall be protected by a wooden casing or other protection as approved by the Director for a distance of 8 feet from the ground.

Lightning
arresters.

37.—(1) Where any portion of any electric line is exposed in such a position as to be liable to injury from lightning, it shall be effectively protected against injury by suitable lightning arresters or other means as approved by the Director.

(2) Earth wires for circuits or equipment shall not be utilized also for earthing lightning arresters for which a separate earth connection must be provided.

Trans-
formers.

38. Where transformers are placed on poles, they shall be fitted with watertight cases, and either thoroughly protected against interference or attached to the poles at such a height as to make them inaccessible except by means of a ladder or other special appliance. Where pole-platform type of construction is adopted, a substantial railing shall be built around the platform. Each pole transformer shall be equipped with primary fuses. Where transformers other than low or medium tension transformers at 10 kilowatts capacity or less are placed within a building or enclosure, the same shall be inaccessible except to authorized persons; all high pressure or extra-high pressure conductors therein at a height of less than 9 feet from the floor or platform shall be screened and protected against accidental contact. The casings of all transformers, whether within or without a sub-station, shall be effectively earthed by a copper conductor. Pole-steps shall not be placed less than 10 feet above the ground level.

Motors,
generators
and
domestic
electric
appliances.

39.—(1) The frames of fixed motors, generators, and domestic electric appliances shall be earthed in accordance with the latest edition of the Regulations for the Electrical Equipment of Buildings issued by the Institution of Electrical Engineers of Great Britain. All metal casings of switches, fuses, cables and wires shall be earthed in accordance with such Regulations.

(2) The earth wire shall be of high conductivity copper and shall be protected where necessary against corrosion or mechanical damage. It shall be of sufficient current carrying capacity for the protection of the apparatus to which it is connected. The minimum sectional area shall be 0.0032 sq. ins. (0.064 ins. diameter).

(3) Every motor must be controlled by a quickbreak protected switch conveniently placed so that the person in charge of the motor can cut off the supply from the motor and from all auxiliary devices connected therewith.

(4) Fuses or other automatic cut-out must be provided to protect effectively the conductors in each circuit from excess of current.

(5) Terminals of motors, generators, and domestic electric appliances must be guarded so that they cannot be accidentally touched or short-circuited.

(6) A notice in English, Greek and Turkish shall be fixed in a conspicuous position on or near every motor and switchboard accessible to unauthorized persons, forbidding them to touch it, except those used for domestic purposes.

(7) The insulation resistance to earth of each motor, generator and domestic electric appliance circuit, including all auxiliary devices, shall not be less than $\frac{1}{2}$ a megohm in the absence of any definite insulation resistance required by the latest appropriate British Standard Specification, for the particular type of apparatus under consideration.

40.—(1) All arc lamps shall be so guarded as to prevent pieces of ignited carbon or broken glass falling from them, and shall not be used where there is any danger arising out of the presence of explosive dust or gas. Arc lamps.

(2) Arc lamps or any part thereof used in any street for public lighting shall be at least 10 feet from the ground.

(3) Arc lamps used in any street for private lighting shall be at least 9 feet from the ground, and shall be so screened as to prevent risk of contact with persons.

(4) Arc lamps must be insulated from earth, and be fixed so that they cannot swing into contact with any substance, metallic or otherwise, that might connect them with the earth.

(5) Every precaution must be taken against the danger of shock during trimming of arc lamps.

(6) Resistance for the regulation of arc lamps, if exterior to lamp, shall be mounted on incombustible bases, shall be so placed that they cannot by induction or radiation set fire to any contiguous material, and shall be of ample size to carry with safety the maximum current that normally flows through them.

(7) Each arc lamp circuit, if wholly insulated, shall be provided with a fuse on each pole, but if one terminal is connected to an earthed neutral or intermediate conductor, a fuse shall not be inserted in the connection to the neutral or intermediate conductor.

41.—(1) Underground conductors shall be thoroughly insulated and shall be protected from mechanical damage by steel armouring, wooden boxing, or earthenware, concrete, iron or fibre conduits or pipes or reinforced concrete marker slabs. They shall be laid, wherever possible, under the footpaths and with a cover of at least 1 foot 6 inches from surface of the pavement. Where laid under the roadway this cover shall not be less than 2 feet 6 inches except where the soil is of a rocky nature when the depth may be not less than 1 foot 6 inches, provided that special precautions against exposure and damage are taken. Under-ground conductors.

(2) All conduits, pipes, casings and street-boxes used as receptacles for electric lines shall be constructed of durable material, and shall be of ample strength to prevent damage from heavy traffic; reasonable precaution shall be taken to prevent the accumulation of gas in such receptacles.

(3) Where any underground electric line is brought through the surface of the ground to connect with overhead electric lines, it shall be completely enclosed in an effectively earthed metal pipe for a height of at least 9 feet above the ground: Provided that in the case of lead-sheathed steel-armoured cables the sheathing and armour thereof have been made continuous and earthed, the metal pipe need not be earthed.

(4) Electric lines placed in a tunnel or subway not in the sole occupation of the undertakers must be insulated and protected by a metallic sheath or enclosed in a metal pipe, both being effectively earthed.

(5) When any high or extra-high pressure electric line is laid beneath the surface of the ground, efficient means shall be employed to render it impossible that the surface of the ground or any other electric line or conductor shall become charged by leakage from the high or extra-high pressure electric line.

Earthing
conduits and
sheathing.

42. All metal conduits, pipes or casings containing electric lines shall be effectively earthed, and shall be so joined and connected across all street-boxes and other openings as to make good electrical contact throughout their whole length. Steel armouring or any other metallic sheathing shall be made continuous throughout the entire length of the cable.

Insulation of
electric lines.

43.—(1) Every low or medium pressure electric line or cable, after being placed in position and before it is used for the purpose of supply, shall be tested for insulation at a pressure equal to the pressure of supply at which it is intended to be used or at a pressure of 500 volts, whichever is the greater.

(2) A high or extra-high pressure electric line or cable shall not be brought into use until it has withstood, either—

(a) the tests prescribed in the latest appropriate British Standard Specification; or

(b) in cases where no such tests have been prescribed, the continuous application for 15 minutes of alternating current at a pressure exceeding the maximum working pressure by 25% or by 10,000 volts, whichever is the less, or of direct current at a pressure exceeding the maximum working pressure by 50%: Provided that, if the component parts of the said electric line or cable have been subjected to the tests prescribed above prior to their being placed in position, it shall not be necessary to subject the said electric line or cable to these tests again subsequent to their being placed in position, but the said electric line or cable shall not be brought into use until it has withstood a further test by the application of a pressure of not less than 1,000 volts between conductors and between each conductor and earth for a period of not less than one minute.

(3) The tests shall be carried out by the undertakers in the presence of the Electrical Inspector if so required by the Director or his duly authorized representative.

(4) The insulation of every complete circuit used for the supply of energy including all machinery, apparatus and devices forming part of or in any connection with such circuit, shall be so maintained that the leakage current shall not under any conditions exceed one-thousandth part of the maximum supply current. Suitable steps shall be taken promptly to locate such leakage, and every such leakage shall be remedied without delay.

44. Service connections for overhead distributing mains shall be taken direct from insulators and shall not be tapped off the lines between supports. They shall be led as directly as possible to insulators firmly attached to some portion of the consumer's premises which is not accessible to any person without the use of a ladder or other special appliance. The portion of any low tension electric service line passing over a street shall not be less than 17 feet above the crown of the road. Within the boundary of the consumer's property, the height of the low or medium tension electric service lines shall not be less than 14 feet above the ground level: Provided that, if the conductors other than earthed conductors are bare, such height shall be not less than 15 feet. High pressure or extra-high pressure service lines shall be of a height not less than those specified in regulation 23. Electric service lines.

45.—(1) The undertakers shall be responsible for all electric lines, wires, fittings and apparatus belonging to them which may be upon a consumer's premises, being erected and maintained in a safe condition and in all respects fit for supplying energy. Service connections.

(2) The construction of all meters shall be mechanically sound and suitable for the purposes for which they are intended to be used, shall be such as to give reasonable assurance of permanence in all mechanical, electrical and magnetic adjustments, and shall comply with the limits of error as laid down in the latest appropriate British Standard Specification.

(3) A suitable fused cut-out or a suitable automatic circuit-breaker shall be inserted in each phase wire of an electrical service line, except as provided in regulation 14 (e), within or without a consumer's premises; if within, it shall be placed as close as possible to the point of entry. If fuses are of outdoor type they must be moisture-proof. In case of 400 volts or 460 volts supply the phase or outer wire fuses shall be separated by an insulating partition, and shall be so arranged that any two conductors cannot be touched simultaneously. In ovens and other apparatus taking 3 kilowatts or more, a switch shall be located in each phase or outer wire adjacent to and within easy reach of such apparatus. Such switch shall be enclosed in a metal casing.

46.—(1) All electric wires, fittings and apparatus on a consumer's premises, except such parts as require to be earthed, shall be highly insulated and suitable for the voltage at which the supply is given, and shall be so designed, installed and used as to minimize any interference by means of the propagation of electric waves or otherwise with other electric or radio electric apparatus. They shall be thoroughly protected against injury to the insulation or access of moisture, and such wires and apparatus shall conform to the latest edition of the Regulations for the Electrical Equipment of Buildings issued by the Institution of Electrical Engineers of Great Britain in force for the time being and such other rules as may be issued by the undertakers with the approval of the Governor. In all portable electric inspection lamps the lamp-holder shall be so completely enclosed by insulating material that it shall be impossible for contact to be made with it by the handle, metal guard or user without dismantling the lamp. All electric wires shall be so fixed and protected as to prevent the possibility of electrical discharge to any adjacent metallic substance. Installation on consumer's premises.

(2) The undertakers shall not connect the wires, fittings and apparatus on a consumer's premises with their electric lines, or in the case of premises already connected, continue to supply from their electric lines, unless the requirements of these regulations are complied with, and the wiring, fittings and apparatus are suitable for the voltage of supply and in accordance with the latest edition of the Regulations for the Electrical Equipment of Buildings issued by the Institution of Electrical Engineers of Great Britain in force for the time being, and such other rules as may be issued by the undertakers with the approval of the Governor.

(3) For the purpose of ascertaining whether radio or electrical interference is caused by the apparatus installed in a consumer's premises, the Director or his duly authorized representative shall have access at all reasonable times to the consumer's premises. If it be proved to the satisfaction of the Director that the interference due to the consumer's plant when measured at the site of the receiving apparatus by a method or methods approved by the Director, is equivalent to a level higher than 30.5 decibels below the mean level of a wanted signal having a field of 1 millivolt per metre modulated at 20%, or the level of interference defined in the latest appropriate British Standard Specification, whichever is the lower level, the consumer shall, at his own expense, take the necessary steps to remedy this interference. In the event of wilful non-compliance, he shall be liable to a penalty not exceeding £2 for every day during the continuance of the interference, from the date of receipt of a request in writing from the Director to remedy the interference: Provided always that if the interference is not continued for a period of time of three seconds or more or if the interval between such interfering impulses is more than 10 minutes such interference shall not be considered to be a breach of this regulation.

(4) For the purpose of satisfying themselves that the requirements of these regulations are being complied with the undertakers shall require that notice shall be served upon them of the consumer's intention to instal wires, fittings and other apparatus on any such premises and the consumer shall render the undertakers every reasonable facility for inspecting and testing such wires, fittings and apparatus during the progress of the work and after its completion.

(5) After the completion of the installation and before current is supplied by the undertakers, the undertakers shall make such tests as may be necessary to ensure the conformity of the installation to the requirements of the foregoing paragraphs and a record thereof shall be kept in the form of

Appendix E. Appendix E hereto.

(6) If any consumer is dissatisfied with the action of the undertakers in refusing to give a supply of energy to his premises the wires and fittings of that consumer may, on his application to the Governor, be inspected and tested by the Electrical Inspector. If the Electrical Inspector is satisfied that such wires, fittings and apparatus may be safely used the undertakers shall, upon receipt of notice to that effect from the Director, forthwith supply the consumer with energy.

(7) The cost of any such inspection shall be borne by the applicant therefor unless the Electrical Inspector shall otherwise direct under the provisions of regulation 58.

Power to authorized officers to enter generating stations, etc.

47. The Director or his authorized representative shall be entitled to enter at all times any of the generating stations or sub-stations of the undertakers supplying or supplied at a high pressure or extra-high pressure, and to make, without unduly interfering with the continuous supply of energy, any such examination and tests of the mains, machines, transformers or other apparatus in use in these stations as may be necessary, and the undertakers shall afford all due facilities for any such examination and tests.

Power to authorized officers to enter lands and works,

48. For the purpose of ascertaining whether these regulations are being faithfully complied with by the undertakers, the Director or his authorized representative may at all reasonable times enter on the lands and works used by or in occupation of the undertakers.

Power to Governor to delegate.

49. The Governor may from time to time delegate to any other person or persons any of the powers and discretions vested in him under or by virtue of these regulations.

PART III.

ISSUE OF CERTIFICATES OF INSPECTION AND CERTIFICATES OF COMPETENCY
TO ELECTRICAL ENGINEERS, CHARGEMEN AND WIREMEN AND THE
REGISTRATION OF ELECTRICAL CONTRACTORS.

50.—(1) Certificates of inspection on completion of a new installation under regulation 11 shall be in the form of Appendix A hereto.

Certificates
of inspection
Appendix A.

(2) Certificates of inspection of an installation of apparatus under regulation 12 shall be in the form of Appendix B hereto.

Appendix B.

51.—(1) No person shall be in charge of the installation or operation of any electrical apparatus or equipment unless and until such person shall have furnished proof to the Licensing Authority of his ability to carry out satisfactorily the duties of the post which he holds and shall have been examined and received a certificate of competency as to his technical ability as electrical engineer, chargeman, wireman or contractor, as the case may be.

Certificates
of com-
petency.

(2) Any person so examined and being found to possess the requisite technical knowledge may be granted a certificate in accordance with such knowledge and in accordance with the requirements of regulation 53 of these regulations :

Provided always that the Licensing Authority shall issue certificates of the appropriate grade to all Electrical Engineers who are either Corporate Members of the Institution of Electrical Engineers of Great Britain, or who possess qualifications which would render them eligible for admission to the Corporate Membership of the said Institution, without further examination as provided for in regulation 53 (6) of these regulations.

52. Certificates of competency for Electrical Engineers, Chargemen and Wiremen shall be in the form of Appendices C 1, C 2 and C 3 hereto, respectively.

Forms of
certificates
of com-
petency.
Appendices
C 1, C 2 and
C 3.

53.—(1) An Engineer may be registered as a special grade Electrical Engineer if he is at least 25 years of age and proves to the satisfaction of the Licensing Authority that he has been regularly trained as an Electrical Engineer, both in theory and practice, and has had at least five years' subsequent employment in a responsible position as an Electrical Engineer.

Certificates
for Electrical
Engineers,
Electrical
Contractors,
Chargemen
and
Wiremen.

(2) A first grade Electrical Engineer shall be at least 25 years of age and shall possess a certificate of competency as a first grade Electrical Engineer issued to him in Cyprus after he has satisfied the Licensing Authority that he has complied with the following conditions and possesses the following qualifications :—

(a) he must possess all the qualifications referred to in paragraph (4) of this regulation and must produce written evidence that he has been in charge of electrical apparatus or of the installation of electrical apparatus for at least three years while in possession of such qualifications. He must further be able to describe the principal type of apparatus in up-to-date use on high and extra-high pressures and must show knowledge of their construction, erection, testing, running, maintenance and repair;

(b) he must be able to make simple calculations for distributing mains and wiring.

(3) A second grade Electrical Engineer shall be at least 23 years of age and shall possess a certificate of competency as a second grade Electrical Engineer issued to him in Cyprus after he has satisfied the Licensing Authority that he possesses all the qualifications referred to in paragraph (4) of this regulation and must produce written evidence that he has been in charge of electrical apparatus or of the installation of electrical apparatus for at least one year while in possession of such qualifications.

(4) A third grade Electrical Engineer shall be at least 21 years of age and shall possess a certificate of competency as a third grade Electrical Engineer issued to him in Cyprus after he has satisfied the Licensing Authority that he has complied with the following conditions and possesses the following qualifications:—

- (a) he must have served an apprenticeship in, or have worked for at least three years in, a workshop or factory where the making or repairing of apparatus has been carried out or have equivalent experience;
- (b) he must be able to describe the principal types of apparatus in up-to-date use on low and medium pressures and must show knowledge of their construction, erection, testing, running, maintenance and repair;
- (c) he must show knowledge of the principles governing the operation and testing, while in motion, of apparatus for low and medium pressures;
- (d) he must be able to make dimensioned sketches of parts of apparatus;
- (e) he must have a good knowledge of those portions of these regulations and of the latest edition of the Regulations for the Electrical Equipment of Buildings issued by the Institution of Electrical Engineers of Great Britain in force for the time being, which apply to his work particularly those which refer to ensuring the safety of persons operating an apparatus and of the general public.

(5) The examination for a certificate of competency as a first, second or third grade Electrical Engineer may be conducted partly by written answers to questions set and partly *viva voce*.

(6) The Licensing Authority may, at his discretion, issue certificates of competency to Electrical Engineers without examination.

(7) Any person conducting or responsible for conducting the business of an Electrical Contractor shall possess qualifications not less than those required for third grade Electrical Engineers, and shall on being found to possess such qualifications be granted a certificate as a Registered Electrical Contractor in the form of Appendix C 4 hereto: Provided always that any person above the age of 25 years who has carried on the business of an Electrical Contractor for at least one year previous to the commencement of the Law and who is in the opinion of the Licensing Authority competent to carry on such business shall be granted a certificate without further examination.

(8)—(a) A candidate for a certificate of competency as first grade Chargeman must possess a second grade Chargeman's certificate and prove that he has been in charge of apparatus for a period of not less than one year whilst holding a second grade Chargeman's certificate, or he must satisfy the Licensing Authority that his experience is such that the foregoing requirements may be reasonably dispensed with.

(b) He must satisfy the Licensing Authority that he is capable of taking charge of apparatus when in operation and give practical demonstration of his knowledge; and if he holds a second grade Chargeman's certificate he must also satisfy the Licensing Authority that he has made satisfactory progress in his knowledge of apparatus since obtaining such certificate.

(9)—(a) A candidate for a certificate of competency as second grade Chargeman shall be at least 18 years of age and shall prove that he has served in attendance on apparatus for a period of not less than two years;

Appendix
C 4.

Cap. 82.

(b) he must understand the uses of the various parts of such apparatus as is in the opinion of the Licensing Authority likely to come under his charge and must show sufficient knowledge to enable him to operate it when running and, if desired by the Licensing Authority, he shall give practical demonstration of his knowledge.

(10) A candidate for a certificate of competency as a Wireman shall produce evidence of having served an apprenticeship of at least two years under a certificated Wireman and shall satisfy the Licensing Authority that he has a satisfactory practical knowledge and experience of wiring: Provided always that any person who has carried on the trade of a Wireman for at least two years previous to the commencement of the Law and who is, in the opinion of the Licensing Authority, competent to carry on such trade shall be granted a Wireman's certificate without further examination.

(11) Every candidate for a certificate of competency shall produce satisfactory reference as to character and, if required by the Licensing Authority, undergo a medical examination.

(12) Any candidate for examination who fails for the third time to pass the examination for which he has presented himself shall not again present himself for examination, unless the Licensing Authority, taking into consideration the circumstances of any particular case, allows a further trial.

(13) The Licensing Authority may, in his discretion, restrict the certificate of competency of any Electrical Engineer, Chargeman, Wireman or Contractor to any particular type of apparatus; but the holder of such a restricted certificate may after the lapse of twelve months from the date of such restricted certificate apply to be examined for the removal of the restriction.

(14) Certificates of competency shall be signed by the Licensing Authority.

(15)—(a) No electrical contracting work shall be carried out by any undertakers supplying electricity, unless such undertakers shall have obtained a licence from the Licensing Authority to conduct the business of an Electrical Contractor in the form of Appendix C 5 hereto, and unless they employ a separate staff of supervisors and wiremen qualified in accordance with the provisions of these regulations. Appendix C 5.

(b) An Electrical Contractor's licence granted to any such undertakers shall be liable to be withdrawn by the Licensing Authority if it is found that preferential treatment is being given by the holder thereof to prospective consumers with a view to obtaining an unfair advantage in competition with Electrical Contractors registered under paragraph (7) of this regulation.

(16)—(a) The fees to be paid to the Licensing Authority for examination for a certificate of competency or certificate of registration shall be as follows:

	£	s.	p.
Electrical Engineers	1	0	0
Chargemen and Contractors	10	0	0
Wiremen	5	0	0

(b) The above mentioned fees shall include the certificate of competency or certificate of registration where the candidate is successful, but no fee paid shall be refunded to an unsuccessful candidate or to a candidate who is absent from an examination.

54.—(1) Except as regards the operation of a domestic electrical appliance no person shall, unless authorized in that behalf by a permit in writing from the Director, be in charge of or carry out the installation, operation or supervision of any electrical apparatus save in accordance with the provisions of this regulation.

Responsi-
bilities of
Electrical
Engineers,
Chargemen
and
Wiremen.

(2)—(a) A special grade Electrical Engineer may be in charge of the installation or operation of all or any kind of electrical apparatus.

(b) A first grade Electrical Engineer may be in charge of the operation of electrical apparatus of all pressures and may supervise the installation of low and medium pressure apparatus.

(c) A second grade Electrical Engineer may be in charge of the operation of low and medium pressure apparatus and supervise the installation of low pressure apparatus.

(d) A third grade Electrical Engineer may be in charge of the operation of low and medium pressure apparatus not exceeding 100 kilovoltamperes and supervise the installation of low pressure domestic electric apparatus.

(e) A first grade Chargeman may be in charge of the operation of low pressure apparatus up to 40 kilovoltamperes.

(f) A second grade Chargeman may be in charge of the operation of low pressure apparatus up to 20 kilovoltamperes.

(g) A Wireman may carry out the wiring of all installations and shall be responsible for all work performed by his assistants or apprentices.

(3) When any installation or apparatus is operated by two or more shifts the authorized persons and their assistants going off shift shall not leave their stations until relieved by the authorized persons and their assistants coming on shift.

Persons in
charge of
installations.

55.—(1) The licensee or owner of every installation shall, within ten days of the placing of any person in charge of an installation, inform the Director in writing of the name and qualifications of such person.

(2) In regard to any installation the Electrical Inspector may give directions for an additional number of persons to be employed and the licensee or owner shall comply with such direction.

Power to
Governor to
suspend and
revoke
certificates
of com-
petency.
Cap. 82.

56. The Governor may, after an inquiry either under section 27 (2) of the Law or otherwise or whenever on consideration of a judgment of any Court it appears to him expedient so to do suspend for such period as he may think fit or revoke the certificate of competency of any Electrical Engineer, Chargeman, Wireman or Contractor issued under these regulations, and no person whose certificate of competency shall have been suspended or revoked shall during the period of such suspension or revocation take charge or be in charge of any installation or apparatus.

Certificates
to be
produced.

57. Every certificate of inspection, certificate of competency and certificate of registration issued under these regulations, shall, so long as it remains in force, be produced whenever called for by the Director or the Electrical Inspector.

Inspection
fees.
Cap. 82.

58.—(1) The fee for any inspection carried out by the Electrical Inspector under the provisions of the Law or these regulations shall be ten shillings.

(2) Such fee shall be paid by the applicant for such inspection unless the Electrical Inspector thinks proper to direct, as he is hereby authorized to do, that the fee shall be paid by the undertakers or any other person.

(3) Any person who is dissatisfied with any direction given by an Electrical Inspector under paragraph (2) of this regulation may appeal to the Governor within one month from the date thereof and the Governor's decision thereon shall be final and conclusive.

PART IV.

INTERPRETATION AND PENALTIES.

59. In these regulations the following words and phrases shall have the meanings attached to them respectively:— Interpretation.

"Authorized person" means any person duly authorized under Part III of these regulations.

"Conductor" means any wire or cable used for the transmission of energy.

"Consumer's wire" means any electric line or lines on the consumer's premises which are electrically connected with the undertaker's electric distribution lines.

"Director" means the Director of Public Works.

"Electrical Inspector" means any person appointed to be an electrical inspector by the Governor under section 11 of the Law. Cap. 82.

"Extra-high pressure" means any pressure in excess of 6,600 volts.

"High pressure" means any pressure over 650 volts but not in excess of 6,600 volts.

"Licensing Authority" means the person duly authorized or appointed by the Governor under section 12 of the Law. Cap. 82.

"Low pressure" means any pressure up to and including 250 volts.

"Medium pressure" means any pressure over 250 volts but not in excess of 650 volts.

"Pressure" means the difference of potential between any two conductors through which a supply of energy is given, or between any part of any conductor and the earth.

"Sub-station" means any building, structure, or enclosure either above or below ground, and containing, transforming or converting apparatus for the supply of energy.

60. Any person who acts in contravention of or fails to comply with the provisions of any of these regulations shall be guilty of an offence and shall be liable on conviction for any offence for which no special penalty is herein provided to a fine not exceeding twenty-five pounds. Penalty.

APPENDIX A.

GOVERNMENT OF CYPRUS.

*The Electricity Regulations.**(Regulation 50 (1).)*

CERTIFICATE OF INSPECTION ON COMPLETION OF A NEW INSTALLATION.

I.....an Electrical Inspector duly appointed under the Electricity Law, Cap.82, hereby certify that I have inspected and tested the Installation described hereunder and that it complies with the requirements of the Electricity Regulations.

Description of installation:—

The property of.....

Situated at.....and managed by.....

Remarks.....

Date.....

Place.....

Certificate No. A.....

(Signature).....

Electrical Inspector.

APPENDIX B.

GOVERNMENT OF CYPRUS.

The Electricity Regulations.

(Regulation 50 (2).)

CERTIFICATE OF INSPECTION OF AN EXTENSION TO AN
EXISTING INSTALLATION (OTHER THAN A SERVICE LINE).

I.....an Electrical Inspector
duly appointed under the Electricity Law, Cap. 82, hereby certify that
I have inspected and tested the following extension described hereunder
and that it complies with the requirements of the Electricity Regulations.

Description of extension:—

This extension is the property of.....and is
situated at.....and managed by.....and
is an addition to the installation in respect of which Certificate
No. A.....dated.....has been issued.

Remarks

Date.....

Place.....

Certificate No. B.....

(Signature).....

Electrical Inspector.

APPENDIX C I.

GOVERNMENT OF CYPRUS.

The Electricity Regulations.

(Regulation 52.)

CERTIFICATE OF COMPETENCY AS A.....GRADE
ELECTRICAL ENGINEER.

Pursuant to section 12 of the Electricity Law, Cap. 82.....,
having been found to possess the qualifications prescribed by the Electricity
Regulations, this Certificate of Competency as a.....grade
Electrical Engineer is issued to him.

Restrictions, if any:—

Date.....

Place.....

Certificate No. E.....

(Signature).....

Licensing Authority.

APPENDIX C 2.

GOVERNMENT OF CYPRUS.

*The Electricity Regulations.**(Regulation 52.)*CERTIFICATE OF COMPETENCY AS A.....GRADE
CHARGEMAN.

Pursuant to section 12 of the Electricity Law, Cap. 82,.....
having been found to possess the qualifications prescribed by the Electricity
Regulations, this Certificate of Competency as a.....
grade Chargeman is issued to him.

Restrictions, if any:—

Date.....

Place.....

Certificate No. C.....

(Signature).....

Licensing Authority.

APPENDIX C 3.

GOVERNMENT OF CYPRUS.

*The Electricity Regulations.**(Regulation 52.)*

CERTIFICATE OF COMPETENCY AS A WIREMAN.

Pursuant to section 12 of the Electricity Law, Cap. 82,.....
having been found to possess the qualifications prescribed by the Electricity
Regulations, this Certificate of Competency as a Wireman is issued to him.

Restrictions, if any:—

Date.....

Place.....

Certificate No. W.....

(Signature).....

Licensing Authority.

APPENDIX C 4.

GOVERNMENT OF CYPRUS.

*The Electricity Regulations.**(Regulation 53 (7).)*CERTIFICATE OF REGISTRATION AS AN ELECTRICAL
CONTRACTOR.

Pursuant to section 12 of the Electricity Law, Cap. 82,.....
having been found to possess the qualifications prescribed by the Electricity
Regulations, this Certificate of Registration as an Electrical Contractor is
issued to him.

Restrictions, if any:—

Date.....

Place.....

Certificate No. RC.....

(Signature).....

Licensing Authority.

APPENDIX C 5.

GOVERNMENT OF CYPRUS.

The Electricity Regulations.

(Regulation 53 (15).)

LICENCE FOR UNDERTAKERS SUPPLYING ELECTRICITY
TO CARRY ON THE BUSINESS OF AN ELECTRICAL
CONTRACTOR.

Pursuant to regulation 53 (15) of the Electricity Regulations,.....

.....
is hereby licensed to carry on the business of an Electrical Contractor
subject to the provisions of the said regulations.

Restrictions, if any:—

Date.....

Place.....

Licence No.....

(Signature).....

Licensing Authority.

APPENDIX D.

The Electricity Regulations.

(Regulations 15 (1) and 16 (2).)

RECORD OF TESTS OF EARTH CONNECTIONS.

Place and earth connection number.....

Apparatus for which earth connection is required.....

Date of test	Type of earth connection	Resist- ance in ohms.	Condition of conductors	Signature of person carrying out test	Remarks
.....
.....
.....
.....

Date.....

(Signature).....

*Undertakers or person authorized
on their behalf.**A copy of this form is to be completed for each earth connection and
forwarded to the Director once in every 12 months.*

APPENDIX E.

Installation No.

The Electricity Regulations.

(Regulation 46 (5).)

RECORD OF TESTS.

Electric Installation (*consumer's name and address*)Installed by (*contractor's name and address*)

Consisting of :—

.....	Lighting points	Fixed apparatus
.....	2 amp. socket outlets
.....	5 amp. socket outlets
.....	15 amp. socket outlets

Total connected loadwatts

Voltage System of supply

The installation as detailed above has been examined and tested, and :—

- (a) the value of installation resistance to earth is.....;
- (b) the value of resistance of earth continuity path is.....;
- (c) the earthing is in accordance with the requirements of the Regulations ;
- (d) all flexible cords, switches, fuses, plugs and socket outlets are in good serviceable condition ;
- (e) there is no sign of overloading of conductors or accessories ;
- (f) all single pole switches and centre points of Edison type screw lampholders are inserted in, or connected to, the phase or unearthed conductor of the circuit ;
- (g) all appliances, portable or fixed, for use in the bathrooms are in accordance with the requirements of the Regulations ;
- (h) the installation and none of the apparatus, fixed or portable, will cause radio interference to a level higher than that permitted by the Regulations ;
- (i) there are no obvious defects and the installation appears to be in good serviceable condition.

Date

Signature of Contractor

.....
*Signature of Undertakers or person
 authorized on their behalf.*