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OCCUPATIONAL SAFETY AND HEALTH (ELECTRIC POWER) (SPECIAL) RULES, 1979

Arrangements of Rules

Rule

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Citation

1. These Rules may be cited as the Occupational Safety and Health (Electric Power) (Special) Rules, 1979

Interpretation

2. In these Rules, except where the context otherwise requires—

"apparatus" includes electrical apparatus and all apparatus, machines, and fittings in which conductors are used or of which they form a part:

"authorised distributor" includes a public or local authority, company, person, or body of persons holding a distributing licence to distribute or supply electrical energy for any purpose;

"authorized person" includes—

(a) the occupier;

(b) a contractor for the time being under contract with the occupier; or

(c) a person employed, appointed or selected by the occupier, or by a contractor, to carry out certain duties incidental to the generation, transformation, distribution or use of electrical energy; such occupier, contractor, or person being a person who is competent for the purposes of these Rules:

"bare" means not covered with insulating material;

"conductor" means an electrical conductor arranged to be electrically connected to a system:

"covered with insulating material" means adequately covered with insulating material of such quality and thickness as is capable of eliminating danger;

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

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

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"danger " means to health or danger to life or limb from shock bum or other injury to persons employed, or from fire, attendant upon the generation, transformation, distribution or use of electrical energy

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

"insulated stand" means a floor, platform, stand or mat of such size, quality and construction according to the circumstances of the use thereof, that a person is thereby adequately protected from danger;

"insulating screen" means a screen of such size, quality and construction according to the circumstances of the use thereof, that a person is thereby adequately protected from danger:

"insulating boots" means boots of such size, quality and construction according to the circumstances of the use thereof, that a person is thereby adequately protected from danger;

"insulating gloves" means gloves of such size, quality and construction according to the circumstances of the use thereof, that a person is thereby adequately protected from danger;

"pressure" means the elective difference of electrical potential between any two conductors or between a, conductor and earth and is said to be—

(a) "low" when it does not exceed 250 volts under normal conditions, subject however to the percentage variation allowed by any rules made under the Electric Power Act;

(b) "medium" when it exceeds 250 volts but does not exceed 650 volts under normal conditions, subject however to the percentage variation allowed by any rules made under the Electric Power Act;

(c) "high" when it normally exceeds 650 volts but does not exceed 3.000 volts:

(d) "extra high'' when it normally exceeds 3.000 volts:

"public supply" means the supply of electrical energy by a local authority company or person authorized under the Electric Power Act:

"substation" means any premises in which electrical energy is transformed or converted to or from pressure above medium pressure, except for the purpose of working instruments, relays or similar :auxiliary apparatus if such premises or part of premises are large enough for a person to enter after the apparatus is in position;

"switchboard" means the collection of switches or fuses, conductors and other apparatus in connexion therewith used for the purpose of controlling the current or pressure in any system or part of a system:

"switchboard passage-way" means any passage-way or compartment large enough for a person to enter and used in connexion with a switchboard when live:

“system” means an electrical system in which all the conductors and

apparatus are electrically connected to a common source of electromotive force

Application

3(1) These Rules apply to the generation, transformation, conversion, switching, controlling, regulating, distribution and use of electrical energy in any factory and in any premises, place, process, operation or work to which the provisions of the Occupational Safety and Health Act, are, applied

(2) Every occupier shall comply with these Rules, and every agent, workman and person employed shall conduct his work in accordance with these Rules.

Safety of operators and conductors

4. Every apparatus and conductor shall be sufficient in size and power for the work for which it is used and so constructed, installed, protected, worked and maintained as to prevent danger so far as is reasonably practicable

Insulation of conductors

5. Every conductor shall either be covered with insulating material and further efficiently protected where necessary to prevent danger or be so placed and safeguarded as to prevent danger so far as is reasonably practicable.

Construction of switch, circuit breaker, etc

6. Every switch, switch fuse, circuit breaker and isolating link shall be–

(a)so constructed, placed or protected as to prevent danger;

(b)provided with an efficient handle or other means of working, and insulated from the system and so arranged that the hand cannot inadvertently touch live metal;

(c)So constructed and adjusted as accurately to make and maintain good contact

(d)so constructed or arranged that it cannot accidentally for all his into contact and left out of contact

Construction of coal, multiple switch, etc

7(1) Every pole of double pole, multiple switch, circuit breaker, or every switch intended to be used for breaking a circuit, shall be so constructed that it cannot, with proper care, be left in partial contact

(2) Every switch intended to be used for breaking the circuit and every circuit breaker shall be so constructed that an arc cannot accidentally be maintained

construction and arrangement of fuse and

8(1) Every fuse or every automatic circuit breaker used in place thereof shall be so constructed and arranged as effectively to

automatic circuit breaker

interrupt the current before it exceeds the working rate as to involve danger and shall be of such construction or be so guarded or placed as to prevent danger from overheating, or from arching , or the scattering of hot metal or other substance, when it comes into operation

(2) Every fuse shall be either of such construction or so protected by a switch that the fusible metal may be readily renewed without danger.

Construction of electrical joints and connection

9. Every electrical joint and connexion shall be of proper construction as regards conductivity, insulation, mechanical strength and protection.

Provision for cutting off pressure

1. Efficient means suitably located, shall be provided for cutting off all pressure from every part of a system as may be necessary to prevent danger.

protection against excess current

2. Efficient means, suitably located, shall be provided for protecting from excess of current every part of a system as may be necessary to prevent danger.

Prohibition of single-pole switch

3. (1) Where one of the conductors of a system is connected to earth, no single pole-switch other than a link for testing purposes or a switch for use in controlling a generator shall be placed in such conductor or any branch thereof.

(1) A switch or automatic cut-out, ay, however, be placed in the connexion between the conductor and earth at the generating station for use in testing and emergencies only.

bare and uninsulated conductors

4. Where one of the main conductors of a system is bare and uninsulated, such as a bare return of a concentric system, no switch, fuse or circuit breaker shall be placed in that conductor, or in any conductor connected thereto, and the conductor shall be earthed; but switches, fuses or circuit breakers may be used to break the connexion with the generators or transformers supplying the power so long as, in the case of bare conductors, no connexion of the conductor with earth is thereby broken.

Protection of motor converter and

5. Every motor, converter and transformer shall be protected by efficient means suitably placed and so connected that all pressure may thereby be cut off from the motor, converter or transformer,

transformer

as the case may be, and from all apparatus in connexion therewith; but where on point of the system is connected to earth there shall be no obligation to disconnect on that side pf the system which is connected to earth.

Control of electrical motor

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

(2) In every place in which machines are being driven by any electrical motor there shall be means at hand for either switching off the motor or stopping the machines if necessary to prevent danger.

Portable apparatus

16. (1) Every flexible wire for portable apparatus for alternating currents or for pressures above 150 volts direct current shall be connected to the system either by efficient permanent joints or connexions or by a properly constructed connector.

(2) In all cases where the person handling portable apparatus or pendant lamps with switches for alternating current or pressures above 150 volts direct current would be liable to get a shock through a conducting work or otherwise if the metal work of the portable apparatus became charged it shall be efficiently earthed, and any flexible metallic covering of the conductors shall be itself efficiently earthed and shall not itself be the only earth connexion for the metal of the apparatus.

(3)A lamp holder shall not be in metallic connexion with the guard or other metal work of as portable lamp.

(4) In any place where the pressure exceeds low pressure, the portable apparatus and it's flexible wire shall be controlled by efficient means suitably located and capable of cutting off the pressure, and mean the metal work shall be efficiently earthed independently of any flexible metallic cover of the conductors And any such flexible, covering shall itself be independently earthed.

Switchboard arrangement

17. The general arrangement of switchboards shall, so far as reasonably practicable, be such that-

(a) all parts which may have to be adjusted or handled are readily accessible;

(b) The course of every conductor may where necessary be readily traced;

(c) conductors not arranged for connexion to the same system

are kept well apart, and can where necessary be readily distinguished; and

(d) all bare conductors are so placed or protected as to prevent danger from accidental short circuits.

Protection of switchboard with bare conductors

18. (1) Every switchboard having bare conductors normally so exposed that they may be touched shall, if not located in an area or areas set apart for the purpose thereof, where necessary, be suitably fenced or enclosed.

(2) No person other than an authorized person or a person acting under his immediate supervision shall for the purpose of carrying out his duties have access to any part of an area so set apart.

Apparatus appertaining to a switch board

19. Every apparatus appertaining to a switchboard and requiring handling shall so far as practicable be so placed or arranged as to be operated from the working platform of the switchboard, and every measuring instrument and indicator connected therein shall so far as practicable be so placed as to be observed from the working platform, and where such apparatus is to be worked or observed from any other place adequate precaution shall be taken to prevent danger.

Switchboard working platform and passageway

20. (1) At the working platform of every switchboard and in every switchboard passage-way, if there is any bare conductor exposed or arranged to be exposed when alive so that it may be touched, there shall be a clear and unobstructive passage of ample width and height with a firm and even floor; and adequate means of access, free from danger, shall be provided for every switchboard passage-way.

(2) A switchboard, working platform and passage way, unless the bare conductors, whether overhead or at the sides of the passage-ways, are otherwise adequately protected against danger by divisions or screens or other suitable means, shall—

(a) if constructed for low pressure and medium pressure switchboards, have a clear height of not less than two hundred. and twenty centimetres and a clear width measured from a bare conductor of not less than one hundred centimetres;

(b) if constructed for high pressure and extra high pressure switchboards, other than operating desks or panels working solely at low pressure, have a clear height of not less than two hundred and fifty centimetres. and a clear width measured from any bare

conductor of not less than one hundred centimetres; or

(c) not have bare conductors exposed on both sides of the switchboard passage-way unless either-

i) the clear width of the passage is in the case of low pressure and medium pressure not less than one hundred and fifty centimetres and in the case of high and extra high pressure not less than two hundred and fifty centimetres in each case measured between bare conductors; or

(ii) the conductors on one side are so guarded that they cannot be accidentally touched.

Protection of high pressure or extra high pressure switchboard

21. (1) In every switchboard for high pressure or extra high pressure-

(a) every high pressure and extra high pressure conductor within reach from the working platform or in any switchboard passage way shall be so placed or protected as adequately to prevent danger;

(b) the metal cases of all instruments working at high pressure or extra high pressure shall be either earthed or completely enclosed with insulating covers; and

(c) All metal handles of high pressure or extra high pressure switches and, where necessary to prevent danger, all metal gear for working the switches, shall be earthed.

(2) Where any work is done on any switchboard for high pressure or extra high pressure the switchboard shall be made dead on unless relevant section of the switchboard on which the work is done is made dead and every other section which is live is—

(a) so separated from the relevant section by permanent or removable divisions or screens as not to be a source of danger to people working on the relevant section; or

(b) in such a position or of such construction as to be as safe as if so separated according to the provisions of these Rules,

or the switchboard itself is so arranged as to secure that the work is done without danger without taking any of the precautions required by the provisions of these Rules.

Protection of high pressure generator,

22. Every part of a generator, motor, transformer or other similar apparatus, at high pressure or extra high pressure, and within reach from any position in which any person employed may require to be,

motor, etc	shall be so far as reasonably practicable so protected as to prevent danger.
Protection against accidental charge from high pressure system	23. Where a high pressure or extra high pressure supply is transformed for use at lower pressure, or energy is transformed up to above low pressure, suitable provision shall be made to guard against the danger by reason of the low pressure system becoming accidentally charged above its normal pressure by leakage or contact from the high pressure system.
Earthing of metal at and conductor	24. So as to prevent danger, where necessary, adequate precaution shall be taken either by earthing or by other suitable means to prevent any metal other than the conductor from becoming electrically charged.
Protection of conductor or apparatus against accidental charge	25. Adequate precaution shall be taken to prevent any conductor or apparatus from being accidentally or inadvertently electrically charged when persons are working thereon.
Insulating stands or screens	26. So as to prevent danger adequately, where necessary, insulating stands or screens shall be provided and kept, permanently in position and shall be maintained in sound condition
Portable insulating stands, screens boots and gloves	27. Portable insulating stands, screens, boots and gloves or other suitable means shall be provided and used when necessary adequately to prevent danger, and shall be periodically examined by an authorized person.
Working space and means of access.	28. 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.
Lighting of premises	29. All of those parts of premises in which apparatus is placed shall be adequately lighted to prevent danger.
Protection of conductors and apparatus from weather. etc	30. All conductors and apparatus exposed to the weather, wet, corrosion, inflammable surroundings, or explosive atmosphere, or used in any process for any special purpose other than for lighting power, shall be so constructed or protected and such special

precautions shall be taken as maybe necessary adequately to prevent danger in view of such exposure or use.

Authorized persons

31. (1) No person, other than an authorized person or competent person acting under his Immediate supervision, shall undertake any work where technical knowledge or experience is required in order to adequately avoid danger, and no person shall work alone in any case in which the Minister by notice directs that he shall not.

(2) No person other than an authorized person or competent person over 21 years of age acting under his immediate supervision, shall undertake any repair, alteration, extension, cleaning or similar work where technical knowledge or experience is required in order to avoid danger, and no one shall do such work unaccompanied.

(3) Where any contractor is employed, and the danger to be avoided is under his control, it shall be the contractor who shall appoint the authorized person required by the provisions of this rule, but if the danger to be avoided is under the control of the occupier, then it shall be the occupier who shall appoint the authorized person.

Display of instructions for electric shock treatment.

32. Instructions as to the treatment of persons suffering from electric shock shall be affixed in all premises where electrical energy is generated, transformed or used at a pressure normally exceeding 125 volts alternating or 250 volts direct; and in such premises or classes of premises in which electrical energy is generated, transformed or used at a pressure normally 125 volts alternating or 250 volts direct as the Minister may by notice direct.

Construction of substation

33. Every substation shall be substantially constructed and shall be so arranged that no person other than the authorized person can obtain access thereto otherwise than authorized person can interfere with the apparatus or conductors therein from outside, and it shall be provided with efficient means of ventilation and kept dry.

Control and substation

34. Every substation shall be under the control of an authorized person and no person other than an authorized person or a person acting under his immediate supervision shall enter any part thereof where there may be danger.

Underground substation

35. Every underground substation not otherwise easily and safely accessible shall be provided with adequate means of access by a door or a trap-door with a stair-case or ladder securely fixed and 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 substation shall be by doorway and staircase-

(i) if any person is regularly employed therein otherwise than for inspection or cleaning; or

(ii) If the substation is not of ample dimensions and there is therein either moving machinery, other than ventilating fans, or extra high pressure.

Exemptions

36. Nothing in rules, 5,6,7,10,12, 13, 14, 18, 19, 20, 24, 25, 26, 27, 28, 29, 31, 32, 33 and 34 shall apply, except where due to special circumstance the Minister has given notice to the occupier that they shall apply-

(a) To any system in which the pressure does not exceed 125 volts alternating current.

(b) In any public supply generating station, to any system which the pressure between it and earth does not exceed low pressure; or

(c) In any above-ground substation for public supply to any system not exceeding low pressure.

(2) Nothing in these rules shall apply to any service lines or apparatus on the supply side of the consumer's terminal or any chamber containing such service lines or apparatus, where supply is given from outside by an authorized distributor and no live metal is exposed so that it may be touched.

(3) If the occupier can show, in regard to any requirements of these rules, that the special conditions in his premises are such as adequately to prevent danger, such shall be deemed to be satisfied, and the Minister may by order direct that any class of special conditions defined, in the order shall be deemed for the purpose of, all or any, of the requirements of these Rules to prevent danger.

(5) The minister may, by order, exempt from the operation of all or any of these rules any premises to which any special rules or regulations under any other Act as to the generation, transformation, distribution or use of electrical energy apply.

(6)The minister may, if satisfied that safety is otherwise practicably secured, or that exemption is necessary on the grounds of emergency of special circumstances, by order, grant an exemption subject to any conditions that may be prescribed therein