

and passage-ways, 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:—

(a.) Passage-ways constructed for low-tension switchboards shall have an overhead clearance of 7 ft. between the conductors and the floor, and a clear width measured from bare conductor of not less than 3 ft.

(b.) Bare conductors shall not be exposed on both sides of the switchboard passage-way unless either (1) the clear width of the passage is not less than 4 ft. 6 in., measured between bare conductors; or (2) the conductors on one side are so guarded that they cannot accidentally be touched.

Suitable means, such as rubber mats and gloves, shall be provided and used when necessary adequately to prevent danger.

#### 5. CIRCUIT-BREAKERS.

All outgoing feeders and distributors from the generating station shall be provided with automatic circuit-breakers or fuses set to open circuit at 100 per cent. excess current over the rated full load of such feeder or distributor, with a time-limit not exceeding ten seconds.

#### 6. FUSES.

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

#### 7. DISTRIBUTION.

The distribution may be carried out either by underground or overhead conductors, provided that if at any time it is deemed by the Minister to be detrimental to the public safety for the conductors or any particular class of conductors to be overhead such conductors shall, on receipt of notification to that effect from the Minister, and within ten months of such notification, be laid underground, and all consequent and necessary alterations made by and at the cost of the licensee.

#### 8. OVERHEAD ELECTRIC LINES.

The diameter of any conductor in any electric line laid or erected for the supply of electrical energy shall not be less than 0.104 in. diameter (No. 12 S.W.G. or 7/20 S.W.G.). If the material of the conductor is aluminium the conductor shall be stranded.

#### 9. STRESSES IN OVERHEAD LINES.

The stress in overhead conductors shall not exceed the following limits: 25,000 lb. per square inch for hard-drawn copper, 12,500 lb. per square inch for hard-drawn aluminium, 34,000 lb. per square inch for steel, and 22,500 lb. per square inch for iron in the event of a minimum temperature of 12° F., and a wind-pressure of 9 lb. per square foot of diametral plane occurring simultaneously, in the case of lines erected within the township limits. The span between supports and the sag shall be determined to conform to the above limiting-stresses.

#### 10. CLEARANCES FOR OVERHEAD LINES.

Overhead lines at low pressure shall not in any part thereof be at a less height than 18 ft. from the ground.

No overhead electric lines shall come within 2 ft. of any other aerial wires or cables, except where it may be permitted to pass either set of wires between other wires at a pole or support.

Overhead electric lines shall be so erected as to be inaccessible to any person without the use of a ladder or other special appliance.

The maximum sag shall be computed on the assumption that the conductor is subject to a temperature of 122° F.

#### 11. SUPPORTS FOR OVERHEAD LINES.

Every support for an aerial line shall be of durable material, and properly strengthened against forces due to wind-pressure, change of direction of line, and unequal length of span. The factor of safety of supports carrying electric distribution-lines shall be four in the case of steel, iron, or ferro-concrete, and five in the case of wood, calculated upon the ultimate strength of material, assuming the wind-pressure to be 15 lb. per square foot upon a plane surface and 9 lb. per square foot upon a diametral plane upon a cylindrical surface.

All aerial wires shall be attached to suitable insulators carried on cross-arms of suitable material and cross-section, and they shall be so attached to the insulators or guarded that they cannot fall away from the supports. Conductors covered with insulating material shall be so attached that their insulation shall not be impaired where they are secured to the insulators.

Electric lines may be carried on brackets attached to buildings; provided they are inaccessible from any window, balcony, parapet, or other portion of the building without the use of a ladder or other special appliance.

#### 12. MAXIMUM LENGTH OF SPAN.

The distance between supports carrying electric distribution-lines shall not exceed 150 ft. where the direction of the line is straight, or 120 ft. where the direction is curved or where the wires make a horizontal angle at the point of support.

#### 13. ANGLE OF CROSSING THOROUGHFARES.

Where an aerial line crosses a street the angle between the line and the direction of the street at the place of crossing shall not be less than 60°, and the span shall be as short as possible.

#### 14. COVERING OF OVERHEAD LINES.

Electric lines at low pressure shall be covered throughout with triple braiding, thoroughly impregnated with water-proof compound; provided that where circumstances permit the lines may, with the consent of the Minister, be bare.

All materials used for insulating electric lines or apparatus should be of the best quality and thoroughly durable and efficient, having regard to the conditions of their use.

#### 15. LOCATION OF OVERHEAD LINES.

Except by permission of the Minister of Telegraphs, or subject to an agreement between the Post and Telegraph Department and the licensee, all overhead electric lines shall be placed on the opposite side of the street to that on which any telegraph lines exist; and where the erection of the electric lines necessitates the alteration of any existing telegraph lines, and such alteration is approved by the Minister of Telegraphs, the cost of the alteration shall be borne by the licensee.

Where electric lines 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 of the street, the licensee and the Minister of Telegraphs shall give to each other reasonable facilities as far as possible to effect supply.

In running the lines authorized by this license through streets where no telegraph line exists the licensee shall keep to the one side of the street, and in running electric service lines to the opposite side of the street the licensee shall arrange so as to interfere as little as possible with the route on that side of any future telegraph line.

#### 16. TELEGRAPH AND TELEPHONE.

Electric lines shall not under any circumstances be attached to the Post and Telegraph Department's poles without the consent of the Minister of Telegraphs.

Where electric lines are permitted to be supported on telegraph poles all details of the support and of the insulation shall be approved by the Minister of Telegraphs, who may require the licensee to remove such electric lines at any time from such telegraph poles on reasonable notice and without compensation of any description.

At telegraph crossings the electric lines shall cross over or under the telegraph lines as may be decided by the Minister of Telegraphs.

In every crossing-span the maximum tension in the electric lines shall not exceed one-half the elastic limit of the wire in the event of the minimum temperature and wind-pressure specified in clause 9.

Where overhead electric lines at low pressure cross telegraph lines, the electric lines shall be protected for the crossing-span with a triple covering of jute braiding and thoroughly compounded.

Where lead-covered telephone cables are crossed above or below by the electric lines the latter lines shall be insulated with 600-megohms grade of vulcanized rubber throughout the crossing-span.

In cases where it may be required to cross with the electric line through any other aerial lines or through cables because of the impracticability of crossing above or below (and crossing shall be effected above or below if possible), all such through crossings, if permitted, shall be effected at a pole. In every case of a through crossing, no matter whose property the lines crossed through may be, the method of carrying the electric lines across the pole, of protecting them thereon, of preventing other lines from coming in contact with them, and of protecting persons working on the poles from danger of shock, shall be to the satisfaction of the Minister of Telegraphs. The electric line shall be covered with a triple covering of jute braiding thoroughly compounded where they pass through on the poles and over the whole length of the span on each side of the pole crossed through. Where the electric lines cross through on the pole they shall be encased in some approved hard protecting substance for the entire length of the arms on such pole. If metal pipe is used to encase the lines it shall be effectively earthed.

Efficient and approved guard-wires, effectively earthed, or other approved protective devices, shall be erected where