

The low-tension distribution shall be on the three-phase four-wire system, one phase wire and the neutral being used for single-phase service.

The supply to street-lighting incandescent lamps and to private consumers for lighting purposes shall be at 230 volts.

*Neutral to be earthed.*

3. The neutral point of each secondary distributing system shall be earthed at the transformer.

The earth connection shall be provided with a switch for cutting off the earth connection for testing.

*High-pressure Transformers.*

4. Where high-pressure transformers are placed in substations all high-tension conductors shall be thoroughly insulated and protected from accidental contact, and the sub-station shall be entirely inaccessible to unauthorized persons. Where high-pressure transformers are attached to poles they shall be placed so as to be inaccessible, except by the use of a ladder or other special appliance. Where high-pressure transformers are placed on consumers' premises the whole of the apparatus shall be enclosed or rendered inaccessible except to the authorized persons.

Where cables are led to and from transformer enclosures they shall be protected on the poles by being run in iron pipes, which shall be effectively earthed.

The cases of all transformers shall be earthed by means of a copper conductor at least 0.022 square inch in section.

*Regulation of Pressure.*

5. The pressure shall be maintained within 4 per cent. above or below the declared pressure at the consumers' terminals. The Board shall maintain a suitable recording voltmeter, and on complaint by any consumers that the variations in voltage exceed these limits, or on the instructions of the Inspecting Engineer, the Board shall connect a recording voltmeter to record the pressure between the lines at their entrance to the consumer's premises, and shall supply to the Inspecting Engineer a chart showing the variations in voltage between the lines at this point for a period of seven consecutive days. If the variations thus recorded exceed the above limits the Board shall take immediate steps to comply with this regulation. If after thirty days a similar chart shows that the above limits of variation in voltage are not complied with, a breach of these regulations shall be deemed to have been committed. If the accuracy of the Board's recording voltmeter is questioned by the consumer, a standard instrument shall be supplied by the Inspecting Engineer, the readings of which shall be accepted as final.

*Switchboard.*

6. All switchboards shall be made of and mounted on material that is not inflammable, and no switchboard conductor shall carry electric current at a density exceeding 1,000 amperes per square inch. No conductor at a pressure above 600 volts shall be exposed on the front of any switchboard, and the back of any switchboard carrying exposed conductors at a pressure over 600 volts shall be screened off and accessible only to the authorized persons.

All power-house and sub-station switchboards shall be provided with two efficient and independent earth connections connected in parallel, to one of which all frames, instrument-cases, and other metal parts shall be connected. Means shall be provided for testing the resistance between these two connections through the earth. Such tests shall be made at least once a month and recorded.

*Circuit-breakers.*

7. All outgoing feeders and distributors from any power-house or sub-station shall be provided with automatic circuit-breakers or fuses, set to open circuit at 50 per cent. excess current over the rated full load of such feeder or distributor, with a time-limit not exceeding ten seconds.

*Distribution.*

8. 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, they 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 Board.

*Overhead Electric Lines.*

9. Overhead conductors shall be of stranded hard-drawn copper, aluminium, or other material of not less than 0.0129 square inches in section, provided that service wires of short span of 100 feet or less may be not less than 0.0072 square

inches in section. The lines shall be covered throughout with triple braiding thoroughly impregnated with weather-proofing compound, provided that where circumstances permit the lines may, with the consent of the Minister, be bare.

Electric lines at high pressure shall be covered with vulcanized rubber of at least 600-megohm grade; provided that where circumstances permit the lines may, with the consent of the Minister, be bare.

The stress in overhead conductors shall not exceed 25,000 lb. per square inch for copper, and 12,000 lb. per square inch for aluminium in the extreme case of a temperature of 12 degrees Fahr. and a wind-pressure of 18 lb. per square foot of diametrical plane occurring simultaneously. The span between supports and the sag shall be determined to conform with the above limiting stresses, provided that the span shall not exceed 200 ft. 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 wires between other wires at a pole or support. Any aerial wire shall not in any part thereof be at a less height from the ground than 18 ft. or within 5 ft., measured horizontally or vertically, from any part of any building or erection other than a support for a line, except where brought into a building for the purpose of supply.

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 degrees, and the span shall be as short as possible.

*Supports for Overhead Lines.*

10. All low-tension electric lines shall be carried at a minimum height of 18 ft. above the ground, and all high-tension lines at a minimum height of 20 ft. above the ground.

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 support. Conductors covered with insulating material shall be so attached that their insulation shall not be impaired where they are secured to the insulator.

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 such supports shall be at least 4 (four) if of iron, steel, or reinforced concrete, and 5 (five) if of wood, taking into consideration all possible stresses, including wind-pressure at 30 lb. per square foot on plane surfaces and 18 lb. per square foot of diametrical plane for cylindrical surfaces.

*Location of Overhead Lines.*

11. Except by permission of the Minister of Telegraphs or subject to an agreement between the Post and Telegraph Department and the Board, all overhead electric-light pole 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-light wires necessitates the alteration of any existing telegraph wires, and such alteration is approved by the Minister of Telegraphs, the expense of the alteration shall be borne by the Board.

Where electric lines are on one side of the street and electric-telegraph lines on the other, and service is required to be given from either to the other side of the street, the Board 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 lines exist, the Board shall keep to the one side of the street; and in running wires to the opposite side of the street the Board shall arrange so as to interfere as little as possible with the route on that side of any future telegraph line.

*Lines not in Use.*

12. An aerial line shall not be permitted to remain erected after it has ceased to be used for the supply of energy, unless the Board intends within a reasonable time again to take it into use.

*Telegraph and Telephone Wire Crossings.*

13. 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 such electric lines at any time to be removed from such telegraph poles, on reasonable notice and without compensation of any description.

In places where it may be required to cross with the electric light wires through any other aerial wire, or through cables, 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 cross through may be, the method of carrying the electric-light wires across the pole, protecting