

and with a cover of at least 12 in. from the surface of the pavement. Where laid under the roadway this cover shall be increased to 2 ft.

17. 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, and reasonable means shall be taken to prevent the accumulation of gas in such receptacles.

18. Where any underground line crosses or is in proximity to any metallic substance special precaution shall be taken against the possibility of any electrical charging of the metallic substance from the line or from any metallic conduit, pipe, or casing enclosing the line.

19. All underground metal conduits, pipes, or casings containing an electric line shall be efficiently earthed, and shall be so jointed and connected across all street boxes and other openings as to make good electrical contact throughout their whole length.

20. The covers of street boxes shall be so secured that they cannot be opened except by means of a special appliance. Street boxes shall be either filled solid with cable compound, or, if not so filled, shall be inspected from time to time for the presence of gas, and suitable action shall be taken to check its influx and accumulation.

21. Every main either overhead or underground shall be tested for insulation after having been placed in position and before it is used for the purpose of supply, the testing pressure being at least 500 volts; and the said Council shall duly record the results of the tests of each main or section of a main, and forthwith forward a report thereof to the Resident Engineer of Public Works at Invercargill.

The insulation of every complete circuit used for the supply of energy, including all machinery, apparatus, and devices forming part of or in 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. Every leakage shall be remedied without delay. Every such circuit shall be tested for insulation at least once every week, and the Council shall duly record the results of the tests, and forward a report thereof at the end of each week to the Resident Engineer of Public Works at Invercargill.

22. The said Council shall be responsible for all electric lines, fittings, and apparatus belonging to it, or under its control, which may be upon a consumer's premises, being maintained in a safe condition and in all respects fit for supplying energy.

23. In delivering the energy to a consumer's terminals the said Council shall exercise all due precautions so as to avoid risk of causing fire on the premises.

24. The maximum working-current in any conductor shall not be sufficient to raise the temperature of the conductor, or any part thereof, to such an extent as to materially alter the physical condition or specific resistance of the insulating covering, if any, or in any case to raise such temperature to a greater extent than 130° Fahr. The cross-sectional area and conductivity at joints must be sufficient to avoid local heating, and the joints must be carefully made, resin being used as a flux, and must be protected against corrosion. The sectional area of all conductors on the consumer's premises from the main switchboard or from any distribution-board must be maintained throughout the circuit, and joints should be made only when branching off a circuit, and should be at least 8 in. distant from a joint in any other conductor.

25. All electric lines and apparatus on a consumer's premises, excepting such parts as are required to be connected to earth, shall be highly insulated, and be suitable for the voltage at which supply is being given. They shall be thoroughly protected against injury to the insulation or access of moisture, and any metal forming part of the electric circuit shall not, unless efficiently connected with earth, be exposed so that it can be touched. All electric lines shall be so fixed and protected as to prevent the possibility of electrical discharge to any adjacent metallic substance.

26. The said Council shall fix, where their service mains for lighting purposes terminate on any premises, double-pole well-protected fuses of at least 2 in. clear break. The consumer shall also place, in an accessible position, as near to the entrance-fuses as may be practicable, double-pole main switches of ample carrying-capacity, well insulated, with quick break of sufficient clearance to prevent arcing.

27. The wiring shall be done from distributing-boards, which shall be of incombustible material. Suitable fuses on each pole fitted to engage in spring clips shall be placed on these boards, so that it shall be possible to disconnect any or all circuits from the supply. If double-pole switches are used on the distributing-board circuits, fuses need not then be of the type to engage in spring clips. Not more than 3 amperes shall be controlled by each subswitch.

28. There must be an approved porcelain bridge or other efficient insulation between the terminals of lamp-holders,

and where lamp-holders are liable to be handled by persons making good earth contact they should be provided with non-conducting covers.

29. The insulation of conductors used for interior wiring shall be of vulcanized rubber of not less than 600-megohms-per-mile grade, or of other approved material suitably protected. All interior conductors carrying current to apparatus at 400 volts shall be run in strong metal casing.

30. 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 in situations where there is any danger of the presence of explosive dust or gas.

31. Arc lamps used in any street for public lighting shall be so fixed as not to be in any part at a less height than 10 ft. from the ground.

32. Arc lamps used in any street for private lighting shall be so fixed as not to be in any part at a less height than 8 ft. from the ground, and shall be so screened as to prevent risk of contact with persons.

33. 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 to earth. They may be run in series, and at any available voltage up to 500 volts. Resistances for the regulation of arc lamps, if exterior to the lamp, shall be mounted on incombustible bases, shall be so placed that they cannot by conduction or radiation set fire to any contiguous materials, and shall be of ample size to safely carry the maximum current that will normally flow through them. Each arc-lamp circuit shall be provided with a fuse on each pole. Interior arc lamps shall also be provided with a switch on each circuit.

34. The frame of all motors supplied at 230 or 400 volts shall be connected to an efficient earth by a copper conductor, which shall have an area of not less than 0.023 square inches. All metal casings of switches, resistances, fuses, cables, and wires shall be efficiently earthed in a similar manner.

35. Every three-phase motor must be controlled by an efficient triple-pole quick-break switch, suitable to prevent arcing, and conveniently placed so that the person in charge of the motor can cut off wholly the supply from the motor, and all devices in connection therewith.

Every direct-current motor supplied from the tramway circuit shall be provided with a single-pole switch and cut-out, which shall be inserted in the positive side. The negative conductor shall be permanently connected to the negative terminal of the motor.

36. Efficient single-pole fuses or other automatic cut-out must be provided to efficiently protect the conductors on each pole from excess of current.

37. Every precaution shall be taken in choosing positions for and in the wiring and setting-up of motors, and the necessary devices in connection therewith, so that there shall be no danger of fire being caused by their normal or abnormal action, or of shock being sustained in the ordinary handling thereof.

38. Terminals of motors supplied at 230 or 400 volts must be so guarded that they cannot be accidentally touched or short-circuited.

39. The insulation resistance of each motor-circuit, including all devices necessary for the working of the motor, shall be not less than 1 megohm to earth when all metal parts that are required to be connected to earth are so connected.

40. The said Council shall not connect the wires and fittings on a consumer's premises with its mains, or, in the case of premises already connected, continue the supply from its mains, unless it is reasonably satisfied that the requirements of this license are complied with, that the wiring and fittings are suitable for the voltage at which supply is being given, and that the connection or continuance of supply would not cause a leakage from those wires and fittings exceeding one ten-thousandth part of the maximum supply current to the premises; and where the said Council declines to make such connection or to continue to supply it shall serve upon the consumer a notice stating its reasons for so declining.

41. If the said Council is reasonably satisfied, after making all proper examination by testing or otherwise, that the wiring and fittings are not suitable for the voltage being employed, that a leakage exists at some part of a circuit of such extent as to be a source of danger, and that such leakage does not exist at any part of the circuit under its control, or that any other requirements of this license are not complied with, then and in such case any officer of the said Council duly authorized by it in writing may, for the purpose of discovering whether the leakage exists at any part of a circuit within or upon any consumer's premises, or whether the wiring is suitable and the general requirements of this license are complied with, by notice require the consumer, at some reasonable time after the service of the notice, to permit him to inspect and test the wires and fittings belonging to the consumer and forming part of the circuit.