

erection other than a support for the wire, except where led to transformers or brought into a building for the purpose of supply.

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, if carrying 35,000-volt lines only, shall be such that the moment resulting from a wind-pressure of 30 lb. per square foot of plane surface and 18 lb. per square foot of diametrical plane upon a cylindrical surface upon the lines and supports shall not exceed one-half of the applied moment which is sufficient to cripple the support if of iron, steel, or ferro-concrete, and shall not exceed one-fourth of the breaking-stress in the case of wood. The factor of safety of supports carrying 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 under the same conditions of wind-pressure as hereinbefore mentioned.

The distance between supports carrying distribution-lines shall not exceed 200 ft. except by approval of the Minister.

10. 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 said Council, 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 lines, and such alteration is approved by the Minister of Telegraphs, the expense of the alteration shall be borne by the said Council.

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 said Council 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 the streets where no telegraph line exists the said Council shall keep to the one side of the street, and in running wires to the opposite side of the street the said Council shall arrange so as to interfere as little as possible with the route on that side of any future telegraph line.

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

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.

11. Telegraph and Telephone Lines.

Where electric lines are permitted to be supported on telegraph poles all details of the supports 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.

Throughout the whole area of supply the permission to place electric-light and power wires on the Telegraph Department's poles shall be restricted as far as possible, and in no case shall such wires be attached to the Telegraph Department's poles without the approval of the Minister of Telegraphs being first obtained.

At telegraph crossings the electric lines shall pass over or under the telegraph wires as may be decided by the Minister of Telegraphs. At such crossings high-pressure wires, and low-pressure wires over 400 volts, shall be insulated with not less than 600 megohm grade V.I.R., low-pressure wires of 400 volts and under with triple weatherproof covering, and extra high-pressure wires shall be subject to special conditions to be imposed by the Minister of Telegraphs in each case of crossing. Where the electric lines other than extra high-pressure lines cross telegraph wires, or if any telegraph wire is hereafter installed so as to cross the electric lines, and at such other points as may be deemed necessary by the Minister of Telegraphs, approved guard-wires effectively earthed or other protective devices shall be erected. Such guard-wires shall be carried on substantial supports at a height of 2 ft. above the electric lines if the telegraph wires pass over the electric lines, or 2 ft. above the telegraph wires if they pass under the electric lines. In addition to the above precautions telegraph wires may be insulated if deemed necessary by the Minister of Telegraphs.

The cost of all necessary guard-wires and special provisions required to comply with this clause shall be borne by the said Council in all cases where the telegraph wires exist prior to the erection of electric lines.

12. Earth Wires.

Earth wires where led down poles shall be protected with substantial casing for a distance of 8 ft. from the ground.

13. Railway Crossings.

No work of any nature shall be erected or constructed upon, over, or under any part of the New Zealand Government Railways until the said Council has obtained the consent of the Minister of Railways thereto, as required by section 4 of the Government Railways Amendment Act, 1910 (No. 2).

14. Service Connections to Overhead Lines.

Service lines shall be taken from insulators to insulators supported and firmly attached to a pole or 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. Every portion of any service line which is outside a building and accessible therefrom shall be rubber insulated except the neutral.

15. Maintenance.

Every aerial line, including its supports, its conductors, and their insulating covering, and all structural parts and electric appliances and devices belonging to or connected with the line, shall be duly and efficiently maintained as regards both electrical and mechanical conditions. All extra high-pressure main transmission lines shall be patrolled at least tri-weekly, and all trees in their vicinity shall be kept well cut back. The extra high-pressure branch transmission lines shall be patrolled at least bi-weekly.

16. Transformers.

Transformers shall be placed either on poles or in sub-stations. Where transformers are placed on poles they shall be fitted with watertight cases and attached to the poles at such a height as to make them inaccessible except by means of a ladder or other special appliance. Where transformers are placed within sub-stations, the sub-stations shall be inaccessible except to authorized persons. All high-pressure conductors therein shall be thoroughly insulated or protected from accidental contact. A substantial insulating rubber mat or insulated wooden platform and rubber gloves shall be supplied. The cases of all transformers, whether within or without a sub-station, shall be earthed by means of a copper conductor at least 0.022 square inch in section.

17. Lightning-arresters.

Where any portion of any electric line or support for an electric line is exposed in such a position as to be liable to injury from lightning it shall be efficiently protected against such liability.

18. Underground Conductors.

Underground conductors shall be thoroughly insulated, and shall be protected from mechanical damage by wooden boxing or earthenware, stoneware, concrete, iron, or fibre conduits or pipes. They shall be laid, wherever possible, under the foot-paths 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.

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.

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. Earthing Conduits.

All underground metallic 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. Street Boxes.

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 oil, 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. Insulation of Electric Mains.

Every main, either overhead or underground, shall be tested for insulation after having been placed in position and before it is used for the purposes of supply, the testing-pressures being at least 500 volts, and the said Council shall