

(2) The horizontal clearance shall be measured when the line is at a maximum deflection from the vertical, due to wind-pressure, as specified in clause (1) of Regulation 41-11 hereof.

(3) A conspicuous notice of the words "Danger—Live Wires" shall be fixed to a part of the building nearest to the lines, where it will be readily seen by any person on the building near the wires, and shall be permanently maintained in a legible condition.

(4) Where it is not possible to fix such notice in a conspicuous place, then a notice, with the word "Danger" in letters not less than 2 in. high, shall be fixed to one of the aerial conductors immediately over the highest part of the building, and the clearance hereinbefore prescribed shall be allowed between the building and the bottom part of this notice.

41-53. Where a high pressure or extra-high pressure aerial electric line passes above any building with metal sides and roof, the roof shall be bonded effectively to the sides of the building, and such sides shall be earthed to ensure the operation of the protective devices in the event of contact being made between the electric line and any metal part of the building.

CLEARANCES IN GENERAL.

41-61. If any tree, or part of a tree, is likely to cause damage to an electric line the licensee shall take steps to have it removed in accordance with section 324 of the Public Works Act, 1928.

41-62. Every aerial electric conductor shall be so erected as to be inaccessible to any person without the use of a ladder or other climbing-appliance.

41-63. For the purpose of computing any clearance for an aerial electric line the maximum sag of any conductor shall be assumed to occur at a temperature of 120° F.

41-64. Where an overhead electric line crosses a navigable waterway, such clearances as the Minister of Marine directs shall be provided.

41-65. The minimum clearance between any electric line pole or other support and a railway track shall be not less than that prescribed by Regulation 46-11 hereof.

41-66. Overhead lines shall be located as far as practicable from aerodromes; and where it is essential to erect any overhead line in the vicinity of an aerodrome such line shall be so located as to minimize interference with air traffic.

SUPPORTS.

41-71. (1) Every support for overhead electric lines shall be so located as to avoid any undue obstruction of pedestrian or vehicular traffic.

(2) Where any aerial electric line is erected substantially parallel to a wire fence the supports, where practicable, shall be at such a distance from the fence that a vertical line taken from the end of the crossarm nearest the fence will touch the ground at a distance of not less than 5 ft. from the fence.

41-72. (1) Every support for an overhead electric line shall be of durable material, and of sufficient strength to withstand forces due to wind-pressure, change of direction of line, and unequal length of span and, in those cases where clause (3) of Regulation 41-11 hereof applies, due to ice or snow loading.

(2) The factor of safety of each support shall be not less than 2 in the case of iron, steel, or concrete, and not less than 4 in the case of wood, calculated on the crippling-load of the structure.

(3) All concrete poles shall have clearly and permanently marked thereon the designed position of the ground-line, and, immediately above this, in ton-feet units, the ultimate transverse bending moment for which the pole has been designed. Half of such bending moment shall be taken for the purpose of calculating the permissible load.

(4) In computing the applied moments for the strength of supports a wind-pressure of 30 lb. per square feet of plane surface and 18 lb. per square feet of diametral plane of a cylindrical surface shall be assumed.

(5) In no case shall the strength or stiffness of a support in the direction of the overhead line be less than one-quarter the required strength or stiffness in a direction transverse to the line.

(6) In the case of every lattice steel structure or compound structure, including "A" or "H" poles, the wind-pressure on the leeward-side members shall be taken as one-half of the wind-pressure on the windward-side members, and the factor of safety shall be calculated on the crippling-load of struts and the elastic limit of tension members.

41-73. (1) In the case of high pressure or any lower pressure aerial electric line where crossarm construction and pin-type insulators are used and the span exceeds 3 chains, double crossarms, each fitted with insulators, shall be provided

at all angles where the direction of the line changes more than 45°, and, as far as possible, the forces due to the angle shall be divided equally between the insulators.

(2) Where lines of any pressure are subject to ice or snow loading, the crossarms shall be designed to provide additional strength to withstand the extra loading.

41-74. (1) In computing the strength of wooden supports the following working-stresses, based on heartwood measurements, shall be used:—

Common Name.	Botanical Name.	Country where grown.	Working Stresses in Pounds per Square Inch.
(a) Pole and Crossarm Timbers.			
Black beech	<i>Nothofagus Solandri</i>	New Zealand	2,400
Bloodwood	<i>E. corymbosa</i>	Australia	3,000
Dense Douglas fir	<i>Pseudo. taxifolia</i>	North America	2,000*
Dense southern yellow-pine	<i>Pinus Caribaea</i>	"	2,200*
"	<i>echinata</i>	"	2,200*
"	<i>palustris</i>	"	2,200*
"	<i>taeda</i>	"	2,200*
Eastern white cedar	<i>Thuja occidentalis</i>	"	1,200
Grey box	<i>E. hemephloia</i>	Australia	3,000
Grey gum	<i>E. propinqua</i>	"	3,000
"	<i>E. punctata</i>	"	3,000
Hard beech	<i>Nothofagus truncata</i>	New Zealand	2,400
Hinau	<i>Elaeocarpus dentatus</i>	"	2,200
Ironbark	<i>E. Crebra</i>	Australia	3,500
"	<i>E. paniculata</i>	"	3,500
"	<i>E. siderophloia</i>	"	3,500
Jarrāh	<i>E. marginata</i>	"	2,600
Kaikawaka	<i>Librocedrus bidwillii</i>	New Zealand	1,400
Larch	<i>Larix decidua</i>	"	1,900
Macrocarpa	<i>Cupressus macrocarpa</i>	"	2,000
Red beech	<i>Nothofagus fusca</i>	"	1,400
Red gum	<i>E. rostrata</i>	Australia	1,700
"	<i>E. teriteornis</i>	"	3,000
Silver pine	<i>Dacrydium Colensoi</i>	New Zealand	1,500
Tallowwood	<i>E. microcorys</i>	Australia	3,000
Totara	<i>Podocarpus totara</i>	New Zealand	1,600
Western red cedar	<i>Thuja plicata</i>	North America	1,700
White mahogany	<i>B. acmenioides</i>	Australia	3,000
(b) Crossarm Timbers only.			
Blackbutt	<i>E. pilularis</i>	Australia	2,300
Black maire	<i>Olea Cunninghamhamii</i>	New Zealand	3,000
Karri	<i>E. diversicolor</i>	Australia	2,800
Mangeao	<i>Litsea calicaris</i>	New Zealand	1,900
Puriri	<i>Vitex lucens</i>	"	2,500
Rata	<i>Metrosideros lucida</i>	"	2,800
"	<i>robusta</i>	"	2,800
Spotted gum	<i>E. maculata</i>	Australia	3,000
Turpentine	<i>Syngcarpia lauriflora</i>	"	2,600

* Applies to creosoted timber only.

(2) The working-stress assigned in computation to any timber not mentioned in the last preceding clause shall be subject to the approval of the Chief Electrical Engineer.

41-75. No pole-step shall be placed at a less height than 9 ft. above ground-level.

41-76. (1) All aerial electric lines shall, except as provided in Regulation 42-33 hereof, be attached to suitable insulators carried on crossarms or brackets of suitable material and cross-section, and, except in the case of strain or suspension insulators, they shall be so attached to the insulators or guarded that they cannot fall away from the supports in case they become detached from the insulator, but will fall on the cross-arm or insulator support. Where the loading on the cross-arm is unbalanced the crossarm shall be braced or so fixed that it is kept in a permanent position.

(2) Every line at an angle shall be so attached to the insulator that the insulator takes the stress directly and not by means of the binder.

(3) All high pressure and extra-high pressure aerial electric lines at angles shall be provided with guard-hooks, except—

(a) In cases where the line in becoming detached from any support will not reduce the clearance, on the consequent span to less than 14 ft. above the ground-level; or

(b) When shackle insulators are used and the line is on the inside of the shackle; or

(c) When strain insulators or suspension insulators are used in which the electric line is attached to the insulator by means of a clamp of an approved design; or

(d) When double crossarms to comply with Regulation 41-73 (1) hereof are used.

(4) No guard-hook need be earthed.

(5) No pin for a pole-top insulator shall be inserted in the end of the pole-top, but shall be attached to the side of the pole.

(6) All aerial electric lines (other than service-lines) shall terminate on shackle insulators or strain insulators, or on two pin-type insulators fitted in tandem.