

41-03. (1) The cross-sectional area of any aerial conductor other than a conductor used as a communication-line, shall be not less than that of the respective kinds of conductor shown in the following table, namely:—

Material.	Medium Pressure or any Lower Pressure.		High Pressure or Extra-high Pressure.
	Service-lines.	Other than Service Lines.	
Copper .. .. .	Stranded wire, 7/044 in. or 7/18 S.W.G. Solid wire, 1/160 in. or No. 8 S.W.G.	Stranded wire, 7/052 in. or 7/17 S.W.G. Solid wire, 1/160 in. or No. 8 S.W.G.	7/064 in. or 7/16 S.W.G. ..
(b) Galvanized-iron, galvanized-steel or copper-covered steel	Same as for copper	Same as for copper	Stranded wire, 7/064 in. or 7/16 S.W.G. Solid wire, 1/160 in. or No. 8 S.W.G.
(c) Steel-core aluminium	7/0586 in. ..	7/0586 in. ..	7/0743 in.
(d) Steel-reinforced aluminium (4 steel, 3 aluminium)	7/0661 in. ..	7/0661 in. ..	7/0661 in.

(2) The cross-sectional area of every aerial conductor where crossing a railway line shall not be less than that prescribed by Regulation 46-13 hereof.

(3) Earthing-leads shall be of the sizes prescribed by Regulation 31-31 hereof.

(4) The cross-sectional area of every aerial communication-line (other than that of the Post and Telegraph Department) supported on poles or other supports carrying an electric line shall be not less than that prescribed by Regulation 42-61 hereof.

41-04. (1) Joints between aerial conductors shall be soldered or made with suitable clamps or metal sleeves. A dry splice may be made only in stranded conductors which are in tension.

(2) Every joint made in an aerial conductor having a cross-sectional area not less than 0.035 square inches (7/080 in. or 7/14 S.W.G.) shall have an ultimate strength of not less than 90 per cent. of that of the conductor.

(3) No joint shall be made at any street crossing or in the adjacent spans in any aerial stranded conductor having a cross-sectional area less than 0.035 square inches (7/080 in. or 7/14 S.W.G.) or in any solid conductor of any size.

(4) Where crossing a railway no joint shall be made in any aerial conductor in the crossing span or in either of the approach spans.

#### MAXIMUM STRESSES.

41-11. (1) The lines shall be so designed and constructed that the stress in any aerial conductor when subjected simultaneously to a minimum temperature of 20° F. (or such other temperature as may be specified in the license) and to a wind-pressure of 18 lb. per square foot of diametral plane (in the case of lines erected outside borough, town district, and township limits) or 12 lb. per square foot of diametral plane (in the case of lines erected within such limits) shall not exceed—

- 25,000 lb. per square inch for hard-drawn copper, or
  - 14,000 lb. per square inch for annealed copper, or
  - 12,500 lb. per square inch for hard-drawn aluminium, or
  - 34,000 lb. per square inch for steel of not less than 30 ton quality, or
  - 45,000 lb. per square inch for steel of not less than 40 ton quality, or
  - 22,500 lb. per square inch for iron.
- (g) And in any case 50 per cent. of the ultimate strength of the conductor.

(2) In the case of a composite conductor with a steel core, the maximum load in the circumstances mentioned in the last preceding clause shall not exceed 40 per cent. of the ultimate strength of the conductor if the steel core has an area of 0.02 square inches or less, and 50 per cent. if the area of the steel core exceeds 0.02 square inches.

(3) Where in the opinion of the Minister the electric lines are liable to be subjected to ice or snow loading the conductors shall be designed to withstand a wind-pressure of 8 lb. per square foot of diametral plane with a radial thickness of  $\frac{1}{2}$  in. of ice, or, with the approval of the Minister, to withstand such other conditions as may be more prevalent in the particular locality.

41-12. Dynamometers for measuring the tension in the aerial wires, or gauges for measuring the sag thereof, and thermometers for measuring air-temperature during erection, shall be used and maintained by the licensee.

41-13. All overhead wires shall be strung and pulled up in such a manner that the metal or covering (if any) is not damaged thereby, and when come-alongs or draw-voices are used for pulling up the wires they shall be of the parallel-jaw type.

#### CLEARANCES ABOVE GROUND.

41-21. No aerial electric line erected across a street at its intersection or junction with another street shall at any part thereof over such intersection or junction be at a less height than 21 ft. above ground-level, and, if so required by the Telegraph Engineer, shall be erected at such height greater than 21 ft. as he specifies in writing.

41-22. No aerial electric line at medium pressure or any lower pressure (including service-lines) shall at any part thereof be erected and maintained along or across any street at a less height than 18 ft. above ground-level, save that lines crossing a footpath at the side of any street or over any place used by the general public for pedestrian traffic only may be at a less height than 18 ft., but not less than 14 ft. above ground-level.

41-23. (1) No aerial electric line at medium pressure or any lower pressure erected elsewhere than along or across any street, footpath, or other place mentioned in the last preceding regulation shall be erected and maintained at a height of less than 16 ft. (if bare) or 14 ft. (if covered) above ground-level, save that in the case of an electric service-line erected in such a situation the height above ground-level in the span between the building and the nearest pole thereto may be not less than—

(a) 14 ft. in that part of the span which crosses any way open to the public.

(b) 12 ft. in that part of the span which crosses any private way used by vehicles having a height (including their loads) greater than 8 ft.

(c) 9 ft. in any other part of the span.

(2) For the purposes of the last preceding clause a bare neutral, if earthed, shall be deemed to be a covered line.

(3) Every aerial electric service-line shall be so attached to the building that it is impossible to touch it without the use of a ladder or other climbing-appliance.

(4) Where an extension-piece is necessary on a consumer's building to provide the necessary clearance, it shall be of substantial construction and perfectly rigid, and the leading-in conduit shall be taken up such extension-piece to a point near the attachment of the electric service-lines.

(5) In the case of an electric trolley-wire in any tunnel and in and about any mine or other place, the Chief Electrical Engineer may grant exemption from the provisions of this regulation subject to such conditions as he may impose on the grounds of freedom from electrical hazard.

41-24. No aerial electric line at high pressure shall at any part thereof be erected and maintained along or across any street, or footpath, or any place used by vehicles having a height (including their loads) greater than 10 ft. at a less height than 20 ft. above ground-level, and no such line erected elsewhere shall be erected and maintained at a less height above ground-level than 18 ft. (if bare) or 16 ft. (if covered).

This regulation does not apply to any overhead electric contact-wire on any railway.

41-25. No aerial electric line at extra-high pressure shall at any part thereof be erected and maintained at a less height above ground-level than 22 ft.:

Provided that in the case of any such line operating at a pressure not exceeding 11,000 volts between phases the height above ground-level at which it may be so erected and maintained may be reduced to:—

(a) 20 ft. along or across any road or footway in any place outside a borough, town district, or township:

(b) 18 ft. in any other place outside a borough, town district, or township, not being a place used by vehicles having a height (including their loads) greater than 10 ft.

This regulation does not apply to any overhead electric contact-wire on any railway.

41-26. (1) Where any low pressure or medium pressure aerial electric line and any high pressure or extra-high pressure aerial electric line are carried on the same pole or other support, then to allow telegraph-lines to be carried beneath such lines there shall be maintained between ground-level and the lowest of the lines so carried a space of 20 ft.:

Provided that the foregoing shall apply in any place outside a borough, town district, or township only at the pole or other support nearest to any building to which an electric line or telegraph-line is carried.

(2) Where in any locality lines of such pressures as aforesaid are carried on the same poles or other supports along tramway routes having overhead electric trolley-wires, the medium pressure or low pressure lines shall be at such a height above ground-level as may be necessary to allow telegraph-lines to cross beneath them and to pass above the trolley-wire of the tramway.

41-27. The minimum height above rail-level for an overhead electric line where crossing a railway line shall be not less than that prescribed by Regulation 46-12 hereof.