

Serial Number 1944/158



**THE ELECTRICAL WIRING REGULATIONS 1935,  
AMENDMENT NO. 4**

C. L. N. NEWALL, Governor-General  
ORDER IN COUNCIL

At the Government Buildings at Wellington, this 15th day of  
November, 1944

Present :

THE HON. W. NASH PRESIDING IN COUNCIL

PURSUANT to the Public Works Act, 1928, His Excellency the Governor-General, acting by and with the advice and consent of the Executive Council, doth hereby make the following regulations.

**REGULATIONS**

1. These regulations may be cited as the Electrical Wiring Regulations 1935, Amendment No. 4.

2. These regulations shall be read together with and deemed to form part of the Electrical Wiring Regulations 1935 (hereinafter called the principal regulations).

3. Regulation 15-06 of the principal regulations is amended by inserting, after the words "one month", the words "or in the case of defence camps one year".

4. Regulation 15-08 of the principal regulations is amended by inserting, after the words "one month", the following words: "or in the case of defence camps one year".

5. Regulation 15-08 of the principal regulations is further amended by inserting, after the words "twelve months", the following words: "or in the case of defence camps five years".

6. Regulation 22-25 of the principal regulations is amended by revoking paragraph (c), and substituting the following:—

"(c) The installation as a whole shall be controlled by one main switch or circuit-breaker."

7. Regulation 22-42 of the principal regulations is revoked, and the following substituted:—

"22-42. Every switch used for breaking a direct current circuit under load shall be quick-break and positive in action,"

**8.** Regulation 27-21 and Regulation 47-12 of the principal regulations are each amended by adding thereto respectively the following proviso :—

“ Provided that the requirements of this regulation shall not apply to any apparatus which is for the time being subject to the provisions of the Electrical Wiring (X-ray) Regulations 1944 ”.

**9.** The principal regulations are amended by inserting, next following Regulation 43-04 (as enacted by Regulation 11 of the Electrical Wiring Regulations 1935, Amendment No. 2), the following regulation :—

“ 43-05. Notwithstanding anything to the contrary in these regulations, any number of points for lighting purposes may be connected to a subcircuit provided that the maximum rating shall not exceed 15 amperes and that an approved circuit-breaker equipped with an automatic overload release is mounted on the switchboard and connected in the subcircuit, and, further, provided that such circuit-breaker is sealed by the electrical supply authority after setting such circuit-breaker to open the subcircuit when a current in excess of that permitted by these regulations for the particular conductor flows in such subcircuit.”

**10.** Regulation 43-22 of the principal regulations is amended by adding to clause (2) thereof the following words : “ or, if a note to the table so indicates, shall be a value graduated progressively in accordance with the values specified in the table ”.

**11.** The principal regulations are amended by inserting, next following Regulation 44-05, the following regulation :—

“ 44-06. Where the voltage of an installation in any hospital exceeds 32 volts, all fixed wiring shall either—

“ (a) Be enclosed in steel conduits as specified in Regulation 24-01 hereof ; or

“ (b) Be carried out with armoured cables as specified in Regulation 23-42 (c) or Regulation 23-43 (b) or Regulation 23-44 (b) hereof ; or

“ (c) Be carried out with metal-sheathed cables as specified in paragraph (a) or paragraph (b) of Regulation 23-43 hereof where each conductor of the cable has a cross-sectional area exceeding 0.0225 sq. in. (7/064 in. or its equivalent), and such cable shall be adequately protected from mechanical damage and rodents.”

**12.** Regulation 44-36 of the principal regulations is amended by adding to paragraph (c) thereof the following words : “ but shall not exceed 12 in. above such point ”.

**13.** The principal regulations are amended by inserting, next following Regulation 44-40, the following regulation :—

“ 44-41. Subject to Regulation 44-36 hereof, every aerial conductor shall be so erected as to be inaccessible under normal conditions to any person without the use of a ladder or other climbing-appliance.”

**14.** Regulation 45-11 of the principal regulations (as substituted by Regulation 28 of the Electrical Wiring Regulations 1935, Amendment No. 3) is amended by revoking paragraph (b), and substituting the following :—

“ (b) Casing shall not be installed in the space between a ceiling and a floor above the ceiling except in the cases of (a) a concrete floor, and (b) a floor in premises intended for use substantially as a private residence. Where the floor is of material

other than concrete and the premises are intended for use substantially as a private residence, the casing shall be installed in accordance with the following requirements:—

“(i) Where run parallel with the joist it shall either be fixed to the side of the joist not less than half-way down or be placed on the upper surface of the ceiling; and

“(ii) Where laid across joists, all floor-boards covering such wiring shall be securely screwed down in such a manner that they will not damage the capping, casing, or wires and so that the floor-boards can be removed for inspection; and

“(iii) Where floor-boards are screwed down, the heads of the screws shall be permanently visible and the lower lip of any groove in the floor-board shall be removed; and

“(iv) Traps shall be provided in the floor-boards where practicable for inspection purposes and such traps shall be securely fastened by means of screws.”

**15.** The principal regulations are amended by inserting, next following Regulation 45-31, the following regulations:—

“45-32. (1) Temporary wiring in defence camps and camps used in connection with works in course of construction supplied or intended to be supplied with electrical energy obtained from a source not connected with earth shall be carried out and maintained in accordance with the provisions either of Regulation 45-31 hereof or of clause (2) of this regulation. When carried out in accordance with the provisions of Regulation 45-31 hereof such wiring shall be inspected by an Authorized Inspector every three months.

“(2) Temporary wiring in defence camps and camps used in connection with works in course of construction and either (i) supplied or intended to be supplied with electrical energy from a source connected with earth and intended to be maintained for a period exceeding twelve months, or (ii) supplied or intended to be supplied from a source not connected with earth but not carried out in accordance with the provisions of Regulation 45-31 hereof, shall be carried out and maintained in accordance with the following provisions:—

“(a) Any conductors—

“(i) May be enclosed in screwed steel conduit installed in accordance with Regulation 45-01 hereof; or

“(ii) May be enclosed in wood casing installed in accordance with Regulation 45-11 hereof; or

“(iii) May be metal-sheathed as specified in Regulations 23-42, 23-43, 23-44, and 44-81 hereof, but in that case shall be installed in accordance with Regulations 44-82 to 44-87 (both inclusive) hereof; or

“(iv) May be covered with tough rubber compound in accordance with Regulation 23-71 hereof, but in that case shall be installed in accordance with Regulation 44-71 hereof; or

“(v) May be multicore and covered with a heavy non-metallic braid impregnated with suitable compounds, but in that case shall be installed in accordance with Regulation 44-71 hereof; or

“(vi) May be flexible cord, provided it is used only on the surface of a structure having a floor area not exceeding 200 sq. ft., but in that case shall be installed in accordance with such paragraphs of Regulation 44-71 hereof as are applicable; and

“(vii) Except as provided in paragraph (b) of this clause, shall not be of any other type except an approved type.

“(b) Open wiring installed in accordance with Regulation 44-62 hereof may be used, so long as—

“(i) Where installed in any place other than a tent the conductors are not less than 15 ft. above the floor, except where brought down to a lamp-holder or a switch; or

“(ii) Where installed in any tent the conductors are, where practicable, not less than 15 ft. above the floor and in all other cases are as high as practicable; and (in either of the aforesaid cases)

“(iii) A neutral conductor where not less than 15 ft. above a floor may be bare, provided it has a cross-sectional area of not less than 0.005 sq. in. (1/08 in. 14 S.W.G. or their equivalent).

“(c) Every subcircuit shall be protected by a free-handle type circuit-breaker or by a fuse-link which is inaccessible to unauthorized persons. Such circuit-breaker shall be set to operate before the current flowing in the subcircuit exceeds twice the maximum permissible current of the subcircuit conductor and the fusing current of such fuse-links shall not exceed twice the maximum permissible current of the subcircuit conductor.

“(d) Joints may be made between cables and between cables and flexible cords so long as all joints are mechanically and electrically sound.

“(e) Switch lamp-holders shall be of an all-insulated type and need not be provided with further means of control.

“(f) Except when necessary to make a switchboard inaccessible to any unauthorized person, no switchboard need be enclosed in a case.

“(g) The points on any subcircuit shall not be limited as to number.

“45-33. (1) The conductors of temporary wiring between the internal wiring and any outside conductors shall, in the case of service-mains, be installed in accordance with Regulation 44-11 hereof.

“(2) The conductors of temporary wiring between the internal wiring and any outside conductors shall, otherwise than in the case of service-mains, be installed either in accordance with Regulation 44-11 hereof or in accordance with clause (3) of this regulation.

“(3) The conductors referred to in clause (2) hereof may pass through a hole in the building—

“(a) If they are protected from mechanical injury; and

“(b) If every such hole is, where necessary, made weatherproof; and

“(c) If outside the building they are bent downwards to form a drip loop; and

“(d) If individual conductors passing through the same hole are separated before turning upwards in their course away from the building.

“ 45-34. A single wire having a cross-sectional area not exceeding 0·0201 sq. in. (1/·16 in. 8 S.W.G. or their equivalent) may be used for temporary wiring in a building, provided such wire is not enclosed in conduit which has any bends, elbows, or tees, nor drawn into any enclosure.

“ 45-35. (1) Where the span of an aerial line used for temporary wiring exceeds 1 chain, then, unless the provisions of Regulation 44-31 are complied with, hard-drawn copper conductors shall be used, and where the cross-sectional area of any such conductor exceeds 0·0201 sq. in. (1/·16 in. 7/·064 in. 8 S.W.G. or their equivalent) the conductor shall be stranded.

“ (2) No aerial conductor used for temporary wiring shall have a cross-sectional area less than 0·0045 sq. in. (7/·029 in. 1/·08 in. 14 S.W.G. or their equivalent.)

“ (3) Except where passing over a space which is capable of being used as a foot or vehicular passage, an aerial conductor of temporary wiring may be installed at 7 ft. above ground-level in those cases where the appropriate clearances specified in the other parts of these regulations cannot practicably be obtained.”

**16.** Regulation 51-03 of the principal regulations (as substituted by Regulation 16 of the Electrical Wiring Regulations 1935, Amendment No. 1) is amended by prefixing “ (1) ” to the text thereof, and by adding the following clause thereto :—

“ (2) Every fixed water-heater shall be controlled as a whole by a switch in each live conductor mounted in a position easy of access to the consumer, and where such switch is not within 6 ft. of the water-heater a permanent and legible notice shall be placed on the hot-water cylinder in a position near to and readily visible from the heating element. Such notice shall read : ‘ Before removal of or interference with the heating element the control switch must be placed in the “ off ” position ’.”

**17.** Regulation 52-01 of the principal regulations (as heretofore amended by Regulation 34 of the Electrical Wiring Regulations 1935, Amendment No. 3) is revoked, and the following substituted :—

“ 52-01. Where the voltage of an installation in any theatre exceeds 32 volts, all fixed wiring shall either—

- “ (a) Be enclosed in steel conduits as specified in Regulation 24-01 hereof ; or
- “ (b) Be carried out with armoured cables as specified in Regulation 23-42 (c) or Regulation 23-43 (b) or Regulation 23-44 (b) hereof ; or
- “ (c) Be carried out with metal-sheathed cables as specified in paragraph (a) or paragraph (b) of Regulation 23-43 hereof where each conductor of the cable has a cross-sectional area exceeding 0·0225 sq. in. (7/·064 in. or its equivalent), and such cable shall be adequately protected from mechanical damage and rodents.”

**18.** Regulation 62-01 of the principal regulations (as heretofore amended by Regulation 38 of the Electrical Wiring Regulations 1935, Amendment No. 3) is further amended by inserting, next following clause (3) thereof, the following additional clause :—

“ (3A) Every low pressure circuit-breaker not exceeding 15 amperes in current-carrying capacity which—

“ (a) Is normally opened and closed manually shall be capable of withstanding the following tests in the order named :—

“ (i) A tripping test of fifty makes and fifty breaks at within 10 per cent. of the marked tripping current :

“(ii) An endurance test at rated current of six thousand makes and six thousand breaks at the approximate rate of ten makes and ten breaks a minute :

“(iii) A voltage test of 2,000 volts between poles, between poles and earthed metal supports, and across the break with the contacts open. Each such test shall be of one minute's duration.

“(b) Is normally opened electrically and either closed manually or electrically shall be capable of withstanding the following tests in the order named :—

“(i) A tripping test of fifty makes and fifty breaks at within 10 per cent. of the marked tripping current :

“(ii) An endurance test at rated current of five hundred makes and five hundred breaks at the approximate rate of ten makes and ten breaks a minute :

“(iii) A voltage test of 2,000 volts between poles, between poles and earthed metal supports, and across the break with the be contacts open. Each such test shall of one minute's duration.”

19. Regulation 62-61 of the principal regulations is revoked, and the following substituted :—

“62-61. Every double-wound step-down transformer and every isolating transformer of one to one ratio shall be capable of withstanding the tests prescribed by Regulation 62-41 hereof.”

20. Table VI of Division VII of the principal regulations is revoked, and the following table substituted :—

TABLE VI.—RUBBER-INSULATED FLEXIBLE CABLES : DIMENSIONS AND CURRENT RATING  
(Regulation 43-22)

Diameter and Number of Strands forming Conductors.				Nominal Area.	Current Rating (subject to Voltage Drop).	
Diameter : 0-010 in.	Diameter : 0-012 in.	Diameter : 0-018 in.	Diameter : 0-029 in.		Two-conductor.	Three-conductor.
140	97*	..	..	Sq. in. 0-01	Amps. 30	Amps. 27
195	..	60*	..	0-0145	36	32
296	..	91*	..	0-0225	45	39
..	266	117*	..	0-03	52	46
..	368	163*	..	0-04	62	55
..	557	248*	..	0-06	82	71
..	..	416	160*	0-1	118	103
..	..	610	235*	0-15	151	132
..	..	810	312*	0-2	183	160
..	..	1,248	481*	0-3	238	..
..	..	1,677	646*	0-4	286	..
..	..	2,057	792*	0-5	330	..

\* For trailing cables and similar purposes.

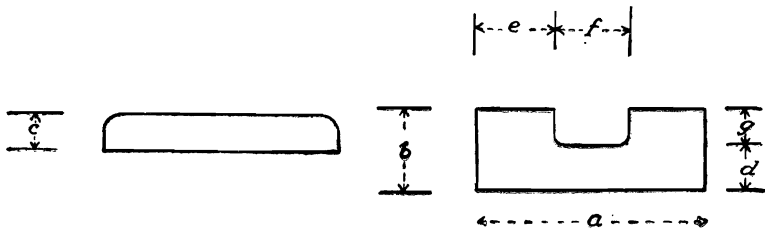
An earth-continuity conductor, whether insulated or not, forming part of a flexible cable is not regarded as a conductor for the purposes of this table.

The current rating of a conductor having strands of a number or diameter not specified in this table shall be a value graduated progressively in accordance with the values so specified.

21. Table XVII of Division VII of the principal regulations (as inserted by Regulation 45 of the Electrical Wiring Regulations 1935, Amendment No. 3) is revoked, and the following substituted:—

TABLE XVII.—SIZES OF CAPPING AND CASING  
(Regulation 24-11)

Size.	a.	b.	c.	d.	e.	f.	g.
1	In. $1\frac{1}{8}$	In. $\frac{1}{2}$	In. $\frac{1}{4}$	In. $\frac{1}{4}$	In. $\frac{7}{16}$	In. $\frac{5}{8}$	In. $\frac{1}{4}$
2	In. $1\frac{3}{8}$	In. $\frac{3}{8}$	In. $\frac{1}{4}$	In. $\frac{1}{4}$	In. $\frac{7}{16}$	In. $\frac{3}{4}$	In. $\frac{3}{8}$
3	In. 2	In. $\frac{3}{4}$	In. $\frac{1}{2}$	In. $\frac{3}{8}$	In. $\frac{7}{16}$	In. $1\frac{1}{8}$	In. $\frac{3}{8}$
4	In. $2\frac{5}{8}$	In. 1	In. $\frac{3}{8}$	In. $\frac{3}{8}$	In. $1\frac{1}{2}$	In. $1\frac{5}{8}$	In. $\frac{3}{8}$
5	In. 3	In. 1	In. $\frac{3}{8}$	In. $\frac{7}{16}$	In. $1\frac{9}{16}$	In. $2\frac{1}{2}$	In. $\frac{9}{16}$



22. Table XVIII of Division VII of the principal regulations (as inserted by Regulation 45 of the Electrical Wiring Regulations 1935, Amendment No. 3) is revoked, and the following substituted:—

TABLE XVIII.—APPROXIMATE CAPACITY OF CASING

Number and Diameter (Inches) of Wires comprising Conductor.	Nominal Area of Conductor.	Approximate Overall Diameter of Cable.*	Approximate Maximum Number of Cables:				
			No. 1 Casing.	No. 2 Casing.	No. 3 Casing.	No. 4 Casing.	No. 5 Casing.
	Sq. in.	In.					
1/.044	0.0015	0.155	5	9	13	..	..
3/.029	0.002	0.170	4	8	12	..	..
3/.036	0.003	0.190	3	7	11	..	..
7/.029	0.0045	0.210	3	5	8	..	..
7/.036	0.007	0.224	2	4	7	..	..
7/.044	0.01	0.270	..	2	4	..	..
7/.052	0.0145	0.300	..	2	3	10	16
7/.064	0.0225	0.340	..	2	3	8	7
19/.044	0.03	0.380	..	..	2	5	6
19/.052	0.04	0.425	..	..	..	4	6
19/.064	0.06	0.500	..	..	..	3	4
19/.072	0.075	0.522	..	..	..	3	4

\* The table is to be taken as a guide only, as the overall diameter of cables may vary with different makers and this may affect the maximum number which can be accommodated in any given size of casing made to the standard dimensions. The overall diameters of cables shown in column 3 were obtained from samples of cables from local stocks, and if cables of larger overall diameter are used the maximum number may have to be reduced. The table refers to the placing of wires in position before fixing the capping.

C. A. JEFFERY,  
Clerk of the Executive Council.

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These regulations are administered in the Public Works Department.