

used, save that for the internal wiring of fittings a conductor having a cross-sectional area not less than 0.0006 sq. in. (14/0076 in. or its equivalent) may be used.

(2) No conductor of a cross-sectional area less than 0.0048 sq. in. (19/26 S.W.G. or its equivalent) shall be used for high pressure or extra-high pressure in connection with luminous-discharge-tubes.

43-12. (1) No single wire having a cross-sectional area exceeding 0.0015 sq. in. (1/044 in. or its equivalent) shall be used as a conductor, except where used as a collector or trolley-wire for a travelling crane or similar appliance, or where used within a heating or cooking appliance, or where used as an earthing-lead, or where used for a battery connection.

(2) Every conductor used for connecting a motor to a sub-circuit shall be stranded.

(3) Every conductor used for connecting the safety-devices and gate locks of an electric lift to a subcircuit shall be stranded.

43-13. (1) Service-mains shall have a carrying-capacity not less than the maximum demand of the installation, but in no case shall they have a cross-sectional area less than 0.0045 sq. in. (7/029 in. or its equivalent). All neutral service-mains shall be capable of carrying the whole load which will be imposed on them when all main fuse-links on the live conductors save one have blown, except that in those cases where circuit-breakers are used to control the incoming main supply the neutral service-main need only be large enough to carry the out-of-balance current.

(2) Where the maximum demand is not otherwise readily ascertainable it shall be assessed as follows:—

(a) Lighting points—

(i) Domestic: Two-thirds of connected load.

(ii) Hotels and the like: Three-quarters of connected load.

(iii) Public buildings, business premises, and offices: Nine-tenths of connected load.

(b) Points available for heating (excluding those primarily intended for cooking)—

(i) Domestic (1 point): Total connected load.

(2 to 5 points): Total connected load of one point plus one-quarter of total connected load of all the other points. (6 points and over): Total connected load of two points plus one-tenth of total connected load of all the other points.

(ii) Hotels and the like: Three-quarters of total connected load of all points in main rooms such as dining-rooms, lounges, billiard-rooms, offices, and the like, plus one-fifth of total connected load of all the other points.

(iii) All other cases: Total connected load.

(c) Points primarily intended for cooking—All cases: Three-quarters of connected load.

(d) Points primarily intended for motive power—

(i) One motor: Total connected load.

(ii) Two or more motors: Full connected load of largest motor, plus half connected load of all the other motors.

(3) Where electrical energy is used for more than one purpose the maximum demand shall be assessed by adding together the figures obtained from the above calculations.

43-14. The load on submains may be assessed as in clauses (2) and (3) of the last preceding regulation, but no allowance shall be made for load diversity in subcircuits.

43-15. For plug-sockets the minimum size of conductor shall have a cross-sectional area of not less than—

(a) 0.0045 sq. in. (7/029 in. or its equivalent) to the first plug-socket on a subcircuit; and

(b) 0.003 sq. in. (3/036 in. or its equivalent) to any subsequent plug-socket.

43-16. (1) No conductor of a less cross-sectional area than 0.0045 sq. in. (7/029 in., 1/08 in., 14 S.W.G. or their equivalent) shall be used as an earthing-lead, save that:—

(a) In the case of flexible cords having conductors of a cross-sectional area not exceeding 0.0048 sq. in. (110/0076 in., 44/012 in., or their equivalent) the cross-sectional area of the earthing-lead may be equal to that of the current-carrying conductors; and

(b) In the case of flexible cords and flexible cables having conductors of a cross-sectional area greater than 0.0048 sq. in. the cross-sectional area of the earthing-lead may be not less than half that of the current-carrying conductors but in no case shall it be less than 0.0048 sq. in.; and

(c) In the case of cables protected by tough rubber compound in accordance with Regulation 23-71 hereof and Class I metal sheathed cables in accordance with Regulation 44-81 hereof the earthing-lead may be in accordance with Table XVI hereof.

(2) The minimum size of such conductor (0.0045 sq. in.) shall be deemed sufficient for installations where the carrying-capacity of the conductors does not exceed 50 amperes.

(3) The effective area of the earthing-lead shall be increased by 0.0045 sq. in. for each additional 50 amperes or part thereof.

CAPACITY OF CONDUCTORS.

43-21. The size of conductors shall be so selected that for lighting and heating the fall in pressure from the terminals of the main switch on the main switchboard controlling the various circuits to any and every point of the installation does not exceed 1 volt plus 2 per cent. of the pressure at the said terminals when the conductors are carrying the maximum demand under the practical conditions of service.

43-22. (1) In no case, whether for lighting, heating, cooking, or power, shall the current exceed—

(a) In the case of cables other than flexible cables the respective values given in Tables IV and V in Division VII hereof for each size of conductor when the maximum current referred to in the last preceding regulation is being carried; or

(b) In the case of flexible cables and flexible cords the values given in Table VI and column 4 of Table VIII in Division VII hereof respectively.

(2) The current-carrying capacity of a conductor having wires of a number or diameter not specified in the said respective tables shall be taken to be proportionate to that of the cases specified.

INSULATION OF CONDUCTORS.

43-31. Except for earthed concentric wiring, all conductors, other than earthing-leads, shall be insulated, either by being carried on insulators (as provided by Regulation 44-22 hereof) or by the use of insulated cables and/or flexible cords.

IDENTIFICATION OF CABLES AND FLEXIBLE CORDS.

43-41. (1) All insulated cables other than flexible cables shall, except as provided in clause (3) of this regulation, be rendered distinguishable by means of the following colours:—

A.C. Three-phase and D.C. three-wire systems of wiring—

(a) Live conductor—Red, yellow, or blue.

(b) Neutral, earthed conductor or middle-wire—Black.

D.C. Two-wire systems of wiring—

(c) Positive—Red, yellow, or blue.

(d) Negative—Black.

A.C. Two-wire non-earthed systems of wiring—

(e) One conductor—Red, yellow, or blue.

(f) Other conductor—Black.

(2) All insulated flexible cords and all insulated flexible cables, shall, except as provided in clause (3) of this regulation, be coloured in such a manner that each conductor may be readily identified.

(3) This regulation does not apply to any three-core cable used solely for three-phases or to any conductor used as an aerial conductor or enclosed within a current-using device or used for high pressure or extra-high pressure in connection with luminous-discharge tubes.

(4) For the purposes of this regulation a conductor shall be deemed to be alive up to the lamp or other current-using appliance when the switch is in the "on" position.

PART 44.—INSTALLING CONDUCTORS I.

GENERAL.

44-01. The methods of installing conductors prescribed by Regulations 44-02 to 46-37 hereof are hereby declared to be approved methods for the purposes of these regulations and these methods, or such other methods as may from time to time be approved, shall alone be employed.

44-02. (1) No conductor or its insulating covering, or its protective covering, shall (except at crossings) be at a less distance than 1 in. from any pipe not forming part of the wiring system, nor any telephone wire, nor any bell wire, nor any other wire not forming part of the wiring system.

(2) No metal conduit or the metallic sheathing of any conductor (whether earthed or not) shall (except at crossings) be at a less distance than 1 in. from any gas-pipe.

(3) In the case of crossings, unless the inch clearance is provided, a non-conducting distance-piece shall be securely fixed between the two, and this distance-piece shall extend at least 1 in. in all directions at the crossing.

44-03. Conductors exposed to injury shall be adequately protected.

44-04. (1) Single cables armoured with steel wire or tape or encased in a ferrous sheath shall not be used for alternating current except in connection with an earthed concentric system in which the sheathing forms one conductor.