

45-94. Electric bells and buzzers may be operated directly from any low pressure subcircuit which is connected to a service-main provided that every such bell or buzzer complies with Regulation 25-01 hereof and provided further that—

- (a) Every bell-push is suitable for low pressure; and
- (b) The wiring to every bell, buzzer, and push is totally enclosed right up to the terminals thereof.

PART 46.—INSTALLING CONDUCTORS III.

SELECTION OF CABLE RUNS.

46-01. Cables shall be fixed as far as possible in accessible positions, so chosen that the cables are not exposed to drip or accumulation of water or oil, or to high temperature from boilers, steam-pipes, or other hot objects, or to risk of mechanical injury.

46-02. The runs for cables shall be selected so that in no case will the inside radius of any bend to which a cable is subjected be less than—

- (a) For lead-covered cable, whether armoured or not,—
 - (i) Ten times its overall diameter when being drawn in; or
 - (ii) Six times its overall diameter for paper-insulation, or three times for rubber-insulation at any time.
- (b) For rubber-insulated cable, other than specified in the preceding paragraph, twice its overall diameter.

NUMBER OF CABLES IN CONDUIT.

46-11. The number of cables installed in any one conduit shall not exceed that prescribed in Table XII in Division VII hereof, and the run and size of the conduit shall be such that it is possible to withdraw any one cable and draw in another of equal size without injury.

46-12. When carrying alternating current, except in the case of high pressure or extra-high pressure cables specified in Regulation 56-04 hereof, the lead and return conductors of a single-phase circuit and all phase conductors with the neutral conductor (if any) of a three-phase circuit shall be installed in the same conduit.

CABLE SOCKETS AND OTHER CONNECTIONS.

46-21. The ends of all cables having a cross-sectional area greater than 0.01 sq. in. (7/044 in. or its equivalent) shall—

- (a) Be provided with a soldering-socket; or
- (b) Have all strands secured in a binding-post.

46-22. The ends of all cables and flexible cords having a cross-sectional area of 0.01 sq. in. (7/044 in. or its equivalent) or less shall—

- (a) Be secured under a washer, or the head of a screw, of such size as will ensure full contact being made with all strands; or
- (b) Have all strands secured in a binding-post; or
- (c) Be provided with a soldering-socket.

46-23. Where a soldering-socket or terminal is used the cable shall be so supported that there is no appreciable mechanical stress on such socket or terminal.

46-24. Soldering-fluxes containing acid or other corrosive substances shall not be used.

46-25. Insulating material damaged by the application of heat during the process of soldering shall be cut away, and shall be replaced with insulation equivalent to the original.

46-26. The braid, lead, or other covering over the insulating material, including the tape in contact therewith, shall be kept clear of live metal.

46-27. In the case of paper-insulated cables the exposed conductor and insulating material shall be protected from moisture by being suitably sealed with insulating-compound.

46-28. Where the conductors are insulated with rubber and installed in damp situations, or where the conductors are insulated with paper, the ends of stranded conductors shall either be provided with soldering-sockets or be made solid by soldering.

CONNECTION BETWEEN CONDUCTORS.

46-31. Subcircuit wiring shall in general be carried out on the loop-in system free from joints except as provided in Regulations 44-62, 44-72, 44-83, 44-85, 45-31, 45-92, and 46-37 hereof.

46-32. Joints shall be made only when unavoidable, and every joint shall be mechanically and electrically sound.

46-33. (1) Where rubber-insulated cables are metal sheathed, armoured, covered with tough rubber compound, or installed in conduit, every joint shall be enclosed in a joint-box. The protective covering of the cable shall be maintained up to a point situated within such box.

(2) In the case of paper-insulated cables the joint shall be enclosed either in a joint-box or in a lead sleeve wiped on to the cable sheathings. The box or sleeve, as the case may be, shall be filled with an insulating-compound impervious to moisture.

46-34. Every joint-box shall be accessible, save that in the case of armoured or lead-covered underground cables such boxes where underground need not be accessible.

46-35. Every joint-box used in a damp situation shall be weatherproof and moisture resisting.

46-36. Connection between a cable and a flexible cord, except where made by means of a plug and socket or similar device, shall in every case be made by means of a ceiling-rose or other approved connector fixed within a suitable receptacle. In the case of heavy fittings which cannot be connected by the above method, the proposed method shall be approved by the Authorized Inspector.

46-37. No joint shall be made in a flexible cord, except within a fitting or appliance, and pieces of flexible cord shall not be joined together otherwise than by means of a substantial coupling or connector of the plug and socket type properly insulated and so installed that its live parts are so guarded or recessed as to prevent accidental personal contact therewith both when uncoupled and when coupled together.

PART 47.—FITTINGS, APPLIANCES, AND ACCESSORIES.

FITTINGS.

47-01. All fittings shall be so erected that—

- (a) They are securely fixed; and
- (b) There is no mechanical strain on any terminal; and,
- (c) Where hanging and exceeding 10 lb. in weight, they are suspended in accordance with the requirements of paragraph (d) of Regulation 27-01 hereof; and,
- (d) If of the rigid type, they are stayed, where necessary, to prevent turning at the joints; and,
- (e) If exposed to rain, drip, or externally condensed moisture, they are weatherproof, and if erected outdoors and over 2 ft. in length are stayed unless specially designed to withstand wind-pressure; and
- (f) If so situated that the enclosing globe is liable to mechanical injury, it is protected by a suitable guard.

47-02. (1) Shades of inflammable material shall be kept free from contact with lamps and lamp-holders by means of suitable guards or supports.

(2) Celluloid or other highly inflammable material shall not be used for any shade, candle-tube, colour-screen, or in any position where it is likely to introduce an electrical hazard.

47-03. Fittings shall, unless provided with reasonable space for the connections, or where the circuit wires are taken direct into the lamp-holder, be mounted on a base block or metal outlet box. The base block or metal outlet box shall be securely fixed.

APPLIANCES.

47-11. Every washing-machine shall be connected to the supply in the room in which the machine is used by means of a three-pin plug and socket and three-core flexible cord, or by means of fixed wiring.

47-12. Medical and dental appliances in which metal liable to become alive is, or which may be, in direct contact with the body of the patient shall comply with the requirements of Regulation 27-21 hereof.

ACCESSORIES.

General.

47-21. Accessories which are not mounted on a switchboard shall, unless provided with reasonable space for the connections, be mounted on a base block or metal outlet box. The base block or metal outlet box shall be securely fixed.

47-22. Accessories of the centre-contact, concentric, or screw type shall have the live conductor connected to the centre contact.

Ceiling-roses.

47-31. Ceiling-roses shall not be used for pressures normally in excess of 250 volts.

Lamp-holders.

47-41. Switch lamp-holders shall be provided with further means of control in a readily accessible position in the same room.

47-42. Lamp-holders in domestic installations shall not be fixed on any wall at a less height than 5 ft. above floor-level unless suitably protected to prevent contact being made by any person with the contacts in the lamp-holder.

Incandescent Lamps.

47-51. No incandescent lamp for ordinary lighting purposes shall be used on a pressure normally in excess of 250 volts.