
STATUTORY INSTRUMENTS

1988 No. 1057

The Electricity Supply Regulations 1988

PART II

CONNECTION WITH EARTH

Protective multiple earthing

7.—(1) The supplier shall not connect or permit the connection of, or continue, a supply to any part of a consumer's installation where the supply neutral conductor is, or is intended to be, used to connect any circuit protective conductor in that part of the consumer's installation with earth unless he is satisfied so far as is reasonably practicable, that—

- (a) his works comply with the requirements of paragraphs (2) or (3) and paragraphs (4) to (6); and
 - (b) the consumer's installation complies with the requirements of paragraphs (7) to (10).
- (a) (2) (a) For the purposes of this paragraph and paragraph (3)—
- (i) measurements shall, where appropriate, be made along the distributing main;
 - (ii) in a distributing main which is divided so that it has more than one end, apart from that at the source of voltage, each such end shall be treated as if it were the only end of that main.
- (b) The supply neutral conductor shall be connected with earth at a point no nearer to the source of voltage than the junction of the distributing main with the service line connecting it with the consumer's installation which both uses the supply neutral conductor as its connection with earth and is the nearest such installation to the end of the distributing main.
- (a) (3) (a) This paragraph applies only where—
- (i) at least one of the consumer's installations (not exceeding four in total) whose connections to a distributing main lie nearest to the end of the main uses the supply neutral conductor for the purpose of connecting the installation with earth; and
 - (ii) the distance of the furthest of those connections from the end of the distributing main does not exceed 40 metres.
- (b) In any case where this paragraph applies the supply neutral conductor shall be connected with earth at a point no nearer to the source of voltage than the junction between the distributing main and the service line connecting the consumer's installation referred to in sub-paragraph (a) above which is nearest to the source of voltage in the distributing main.
- (4) The supply neutral conductor shall be connected with earth at such points as may be necessary to ensure that the resistance to earth of the supply neutral conductor—
- (a) does not anywhere exceed 20 ohms; and
 - (b) is such that the fuses or automatic switching devices protecting the high voltage side of any transformer will operate if any fault in it causes the low voltage side to become charged

at a higher voltage unless the high voltage side of that transformer is connected with earth through a continuously rated arc suppression coil.

(5) The supply neutral conductor shall have a copper equivalent cross-sectional area which satisfies the requirements of regulation 6.

(6) Any connection with earth required by this regulation may be made by connecting the supply neutral conductor to the supply neutral conductor of another distributing main.

(7) Any metalwork on the consumer's premises which—

(a) is in, or may reasonably be expected to come into electrical contact with earth;

and

(b) is so situated that any person, livestock or domestic animal could simultaneously touch—

(i) any such metalwork, or any metalwork in electrical contact therewith; and

(ii) any exposed metalwork forming part of the consumer's installation but not normally carrying an electric current, or any metalwork in electrical contact therewith,

shall be connected to the earthing terminal.

(8) Where paragraph (7) applies—

(a) every circuit protective conductor in the part of the consumer's installation described in paragraph (1) shall be connected to the earthing terminal mentioned in paragraph (7);

(b) the connection required by paragraph (7) shall be made by means of a bonding conductor attached in such a way as to avoid, so far as is reasonably practicable, electrolytic action at the point of connection; and

(c) where the bonding conductor is attached to a pipe or metalwork entering a building or Structure that connection shall be made as near to the point of entry as is reasonably practicable for the purpose of avoiding the risk of electric shock.

(9) The minimum copper equivalent cross-sectional area of any bonding conductor shall not be less than the figure shown in column 2 of the Table set out below in respect of any supply neutral conductor the corresponding copper equivalent cross-sectional area of which is shown in column 1.

Table

| Column 1 <i>Copper equivalent cross-sectional area of supply neutral conductor</i> | Column 2 <i>Minimum copper equivalent cross-sectional area of bonding conductor</i> |
|---|--|
| 35 sq mm or less | 10 sq mm |
| over 35 sq mm but not more than 50 sq mm | 16 sq mm |
| over 50 sq mm but not more than 95 sq mm | 25 sq mm |
| over 95 sq mm but not more than 150 sq mm | 35 sq mm |
| over 150 sq mm | 50 sq mm |

(10) The supply neutral conductor shall not be connected electrically to any metalwork in any caravan or boat.