

shall be securely bonded to earth. Metal frame structures or other metallic equipment shall be earthed to the earth network, cables, trays, conduits, armouring shall be earthed at the supply end. The electrical motors shall have earthing from MCC(as per size of motor) according to ADDC specifications. In case the motor is far away from MCC, earthing shall be done as per earthing arrangement in ADWEA Wiring Regulation. Lighting fixtures and push-button stations shall be earthed with an additional earthing conductor. Earthing connection shall be made by brazing or welding by Cad weld methods. For outdoor lighting poles, a separate PVC insulated earth conductor of minimum size 6 sq mm shall be laid with the cable for earthing of poles.

1.3.34.2 Lightning Protection

- A. All buildings and other structure shall be provided with a lightning protection in accordance with the "General Conditions for Lightning Protection of the Federal Republic of Germany" and with VDE regulation No 0185, or to BS 6651. The major components shall be air termination networks, down conductors, earth termination networks, bonding to prevent side flashing. Zones of protection shall be carefully selected. A soil resistivity survey shall be conducted by the Contractor in order to determine the necessary size of earthing rod and depth the rod shall be driven down. Where structures vary in height and have more than one roof termination network, the lower roof network should not only be joined to its own down conductors, but also joined to the down conductors of the taller portion of the structure in order to avoid side flashing. Special precaution measures shall be provided for the electronic equipment (computer, instruments, etc.) regarding lightning protection.
- B. The earth rod shall be solid copper of 19 sq mm, earth conductor laid on roof and earthing conductor from earth pit should be 25 x 3 mm copper tape
- C. Lightning terminal, of one meter minimum height, of copper with no of fins shall be provided. A test clamp at a distance 1.8 meter from ground shall be provided and copper tape up to test clamp shall be enclosed in PVC covered tape
- D. The maximum earth resistance for individual pit for lightning protection shall not exceed 10 Ohms.
- E. The lightning system design shall be approved by the local civil defence authorities prior to the submission to the Engineer. It is the Contractor's responsibility to obtain this approval.