

Types of Earthing systems

a. Pipe Earthing

In this system of earthing a G.I pipe of minimum 38mm dia of and 2.5 m length is embedded vertically in the ground to work as earth electrode. The earth lead wires are fastened to the top section of the pipe with nuts and bolts. The top of electrode should be 30 cm above the ground. The excavated pit around the G.I pipe is filled with salt and coal mixture for improving the soil condition and efficiency of the earthing system.

b. Plate Earthing

The earth electrode used is Copper plate of size 1200 mm x 1200 mm x 3 mm. Two copper strips of size 25 mm x 3 mm, 10 m long is welded to the plate and taken out for earth lead connection. HDPE pipe is provided in the for injection of water to improve moisture content. Earth pit is backfilled with soil mixed with charcoal/graphite powder.

c. Strip Earthing

Strip Earthing is used in rocky areas where sufficient depth is not available. Copper strip (size 25 x 3mm) or Gi strips(size 25 x 4mm) of minimum length 15 m is laid in a 15 m trench at a depth of 50cm.

d. Maintenance free Earthing

The earth electrode used is copper coated steel rods of minimum 17mm dia and 3.0mtrs length. A hole of 100mm to 125mm dia shall be dug to a depth of 2.8m and earth electrode shall be placed into the hole. The rod is then driven into the natural soil to a depth of 150mm. earth enhancement material i.e a mixture of graphite and cement is filled into the dug hole in slurry form and allowed to set. The remaining portion of the hole is covered by backfill soil. A copper strip of 150mmx25mmx6mm shall be exothermically welded to the earth rod for taking connections

Maximum allowable Earth resistance:

For signal installations – 10 ohms, except BPAC, EI, IPS, SPD earths - 1 ohms

For Telecom installations – 1 ohms

Domestic /Service Buildings – 8 ohms