

Sub: Standard procedure for providing earthing.

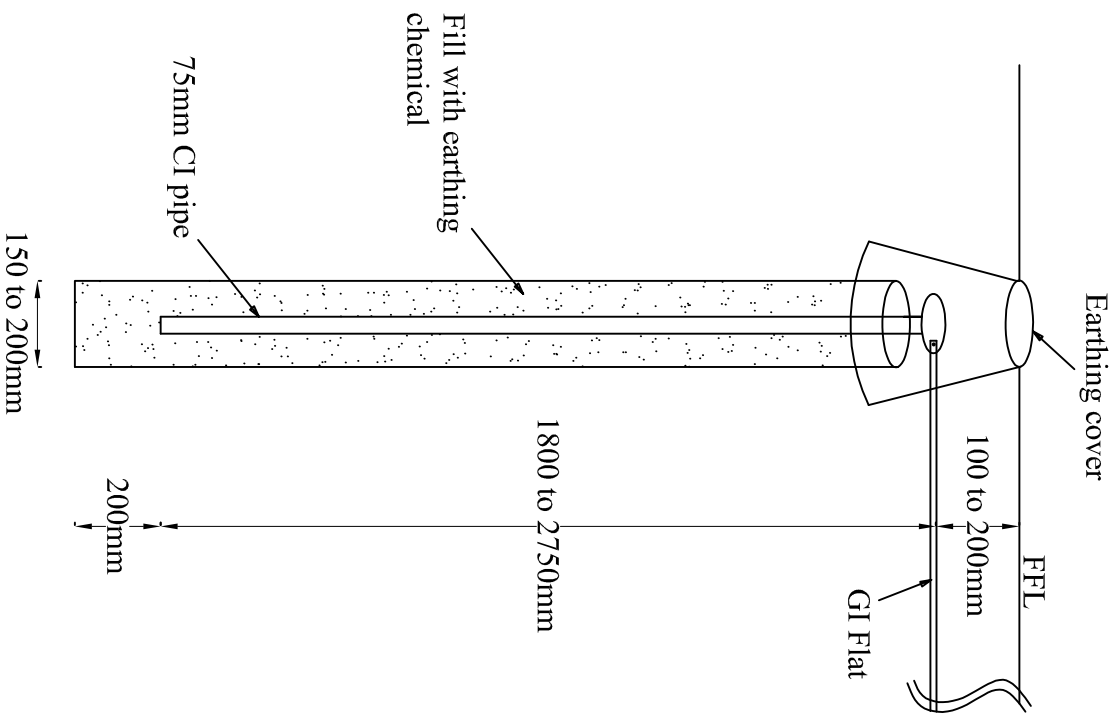
1. Earthing should be provided for different kind of applications as follows:

Transformer (heavy)	-	Two earthing and one neutral.
Panel boards (medium)	-	One neutral must be provided for one electrical room. One earthing must be provided for each panel board with a minimum of two earthings per electrical room.
Lifts (medium)	-	One earthing and one neutral per lift.
Generator(heavy)	-	Two earthings and one neutral per generator.
Feeder boxes in villas (medium)	-	One earthing for each feeder box.
Generator feeder box in villas (light)	-	Nil. Connect to main feeder box earthing.
Within villas (light)	-	One earthing

2. Hereafter earthing and neutral shall be made with CI pipes as under. It is proposed that the older system of providing separate types of neutral and earth is dispensed with. Similar type of CI electrode to be used for earthing and neutral. In order to save cost 3 types of earthing / neutral are being proposed.
 - a. Heavy duty – for transformers and generators – use 100mm x 2750mm CI electrode.
 - b. Medium duty – for lifts and panels / feeder box – use 75mm x 1800mm CI electrode.
 - c. Light duty – for individual flats and villas – use 150mm x 1800mm CI electrode.
3. These have to be installed by making a 600mm to 700mm wide bore of about 200mm deeper than the size of the electrode. The hole should be filled with good quality electrode chemical. About 15 to 25kgs of chemical is required for each electrode. In case the soil is loose or making a bore is not possible, brickwork using 100 x 150 x 400mm solid blocks to be made such that the opening/hole is 300 x 300mm must be made. Earth/neutral should be covered with a PVC/co-polymer an earth pit cover
4. The cost of bore is about Rs. 1,500 to 3,000/- per hole. Rate can be negotiated depending on number of holes.
5. The approximate cost of electrodes and chemical is as under:
 - a. 100 – 2750mm CI electrode – Rs. 2,975 + GST.
 - b. 75 – 1800mm CI electrode – Rs. 1,550 + GST.
 - c. 50 – 1800mm CI electrode – Rs. 1,150 + GST.
 - d. PVC/co-polymer earthing cover – Rs. 550 + GST.
 - e. Electrode chemical – Rs. 1,100 + GST per 25 kg bag.
6. The earth /neutral to be connected to the transformer, generator, panels, flats, villas, lifts, etc., as under:
 - a. Heavy duty – use 50 x 6mm or 25 x 6mm GI strip.
 - b. Medium duty– use 25 x 6mm GI strip.
 - c. Light duty– use 25 x 3mm GI strip.
 - d. Lifts machinery may also be connected with 25 x 6mm GI strip.
 - e. However transformer to neutral may require 25 x 3mm or 32 x 6mm copper strip.

7. Bank of neutrals can be interconnected. A bank of earthings can also be interconnected. However, earthings and neutrals cannot be connected. The earth pits and neutral pits should be spaced at a distance of 10' from each other.
8. In case of villas provide earthing on the rear side of the villa and bolt the GI strip to the nearest wall at a height of 6" above the finished floor level. From there connect with a 7/20 copper wire to the DB.
9. Pit must be watered periodically. Mix 25kgs of salt in 100 ltrs of water. 25 to 50 ltrs can be poured into each pit.
10. Testing: the voltage between neutral and earth should be less than 4 volts. In case the voltage is more than 4 volts then the following steps should be taken.
 - a. Water the earth/neutral pit with about 50 to 100 ltrs of water. Test after one day. If the voltage still remains high, then:
 - b. Add 25 kgs salt to 100 ltrs of water to produce brine. Pour the brine slowly into the earth pit. Wait for 2 days and check voltage. If the voltage still remains high, then:
 - c. Check all connections and if there is no error in connections then earth pit has to be remade at alternate location.
11. Relevant drawing for earth pit is uploaded on website under standard drawings as figure no. 006A.
12. The resistance of earth/neutral for transformer should be less than 5 ohms and for other applications less than 2 ohms.

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Description		Direction	Owners & Developers :		Date :	16.05.22	Promoted by
EARTH PIT DESIGN FIG.NO.006A		 N			Approved By :	Soham Modi	Modi Properties &
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