

Annexure-IX

Note:- Below drawing for earthing system is given only referential purpose. However, contractor shall install earthing system only after consultation with Engineer-in-charge.

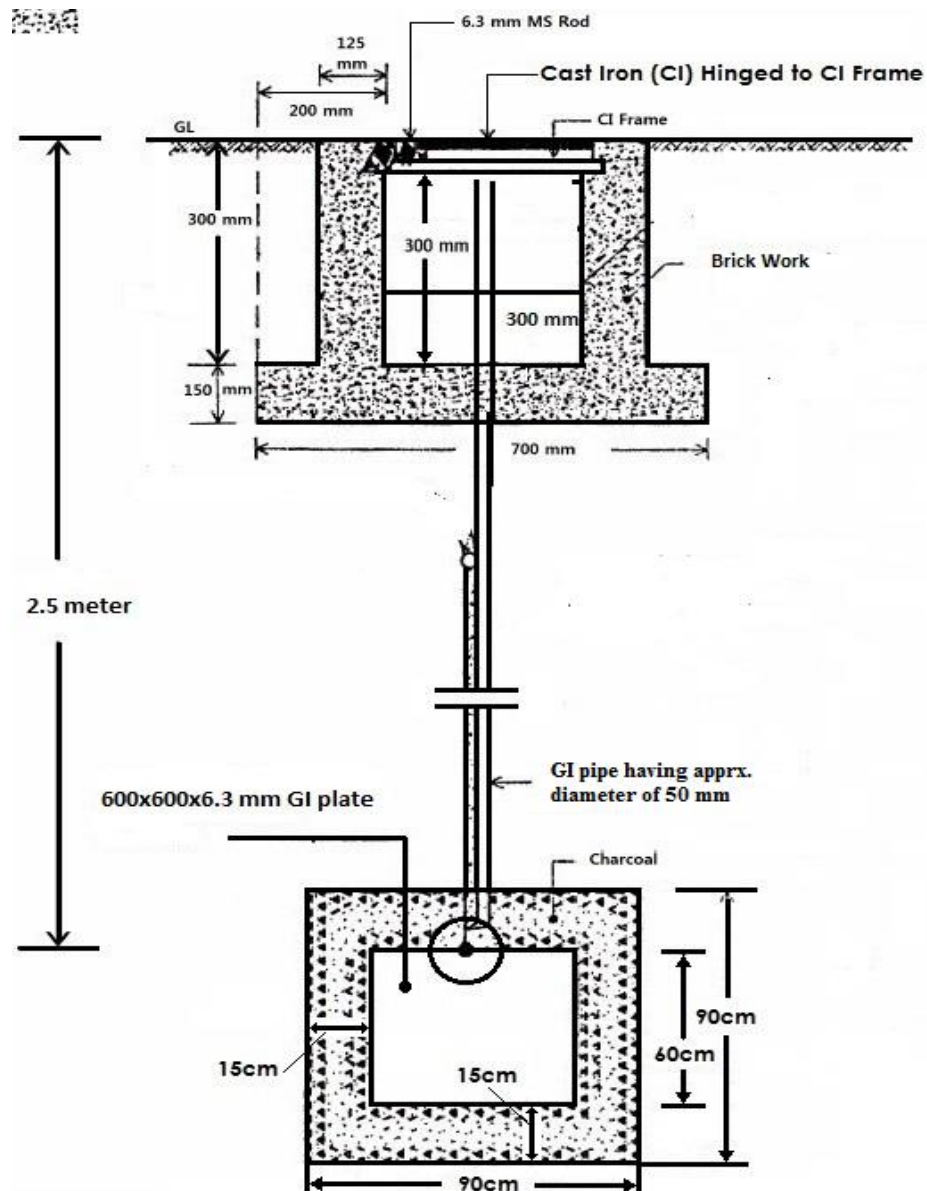
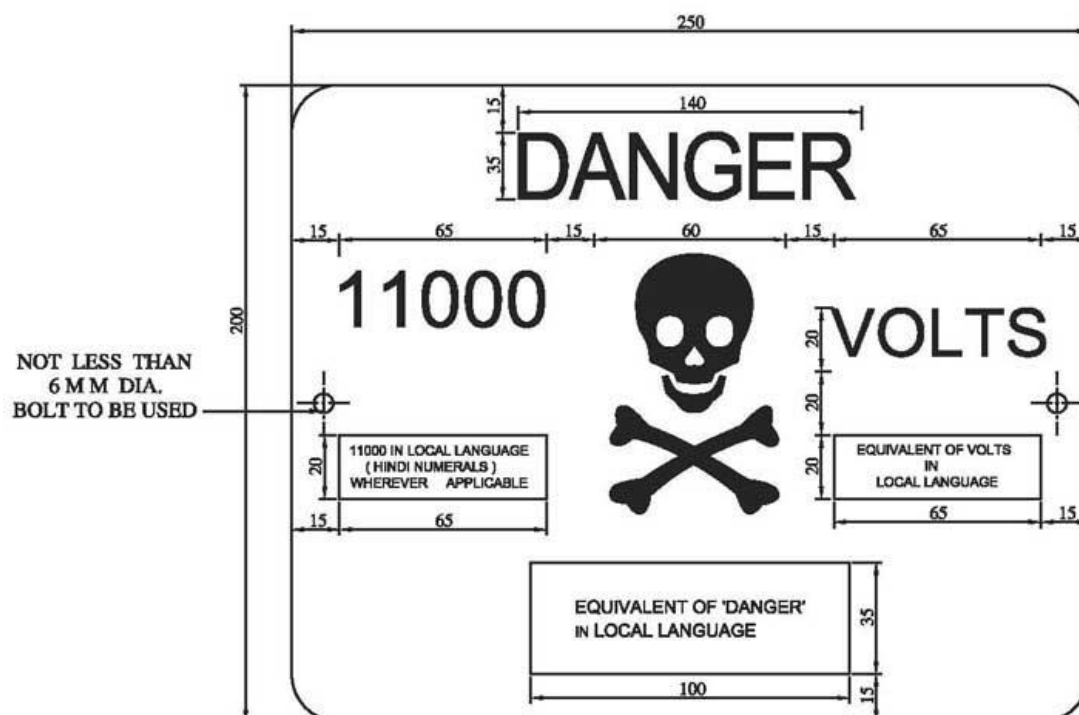


Plate Earthing

'DANGER' NOTICE PLATES



CAT. NO. - CDNP-01

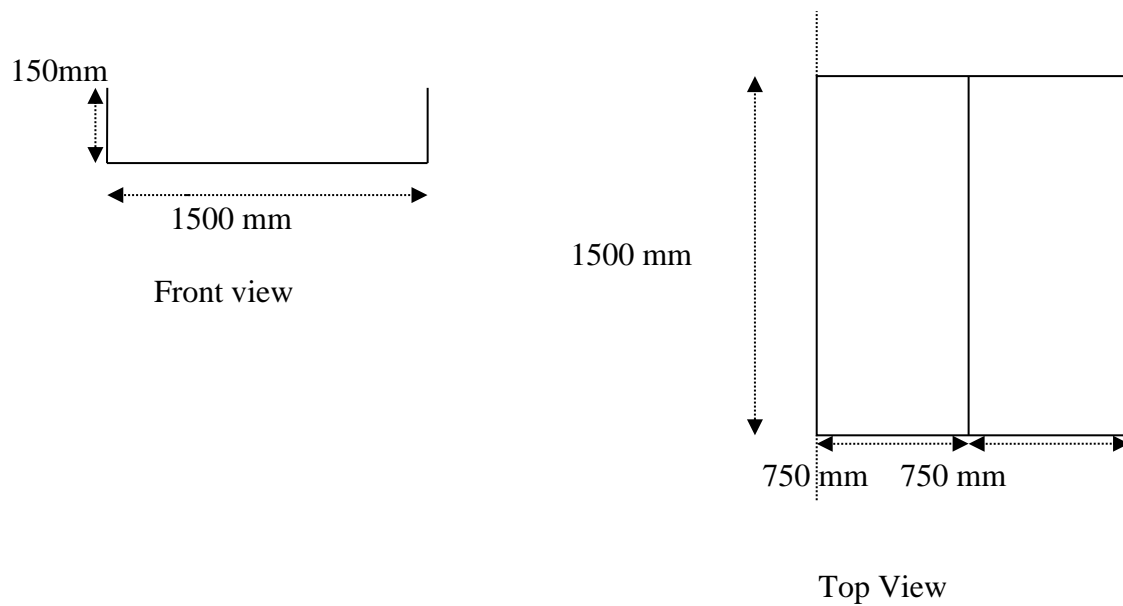
According to Rule No.- 35 of Indian Electricity Rules, 1956 'Danger' Notice Plates in Hindi or English and in addition in the local language with the sign of skull & cross bones are required to be provided on the power line supports & other installations.

The 'Danger' Notice Plates are not required to be provided on supports like PCC, tubular, wood, steel rails, etc. which cannot be climbed easily without the aid of ladder or special appliance. A specification provided by REC & IS: 2551-1982 for 'Danger' Notice Board.

Material & Finish : 1.6 mm (Mini) thick Mild Steel plate of size - a) 250 X 200 mm for display at 11 KV (or higher voltages) installations.
b) 200 X 150 mm for display at 415 V installations.

Finish : Vitreous enameled white, with letters, figure and conventional skull & crossbones in signal red colour (Ref. IS : 5, 1978 on the front side. The rear side of the plate shall also be enameled.

Specifications for guarding arrangement



“Cradle type guarding arrangement”

- 1) At road crossing distance between lacing is approx. **900mm**.
- 2) First lace shall start at approx. 700 mm from the pole.
- 3) Vertical distance between guarding and main conductor shall be minimum 600 mm.

Specifications for Insulator**1) PIN INSULATORS:-**

1	Material	Composite polymer
2	Standard	IEC 61109
3	FRP rod	Boron free ECR
4	Shed Material	Silicon Rubber
5	End fittings	SGCI/MCI
6	Rated Voltage	11 kV
7	Highest Voltage	12kV
8	Dry Power freq. Withstand Voltage	60kV
9	Wet Power freq. withstand Voltage	35kV
10	Creep age distance (min)	320 mm
11	Failing load (Min)	10 KN
12	Dia. of FRP rod (Min)	20 mm
13	Length of FRP rod (min)	165 mm
14	Thickness of housing (Min)	3 mm
15	Method of fixing sheds to housing.	Injection molding
16	Name plate/mark	Required with technical date
17	Duty Condition	Outdoor only

2) **DISC.INSULATORS** :-

1	Material	Composite polymer
2	Standard	IEC 61109 & IEC- 60815/ IS: 13134
3	FRP rod	Boron free ECR
4	Shed Material	Silicon Rubber
5	End fittings	SGCI/MCI
6	End metal connections	Tongue and clevis type only
7	Rated Voltage	11 kV
8	Higest Voltage	12kV
9	Dry Power freq Withstand Voltage	60kV
10	Wet Power freq withstand Voltage	35kV
11	Creepage distance (min)	320 mm
12	Failing load (Min)	40 KN
13	Dia of FRP rod (Min)	16 mm
14	Length of FRP rod (Min)	165 mm
15	Thickness of housing (Min)	3 mm
16	Method of fixing sheds to housing.	Injection molding
17	Name plate/mark	Required with technical date
19	Duty Condition	Outdoor only

3) **Specification For Lighting Arrestor :-**

1	Material	Composite polymer
2	Standard	IEC 60099/IS 3070
3	Type	Gapless Metal oxide
4	Class	Distribution class
5	Construction	Hermetically Sealed, self-supporting.
6	Duty	Outdoor only
7	Rated Arrestor Voltage	9 kV rms
8	Highest Voltage	12kV rms
9	Nominal discharge Current	5kA
10	Max Continuous operating Voltage	7.56 kV rms
11	Partial discharge	less than 10 pC
12	Lightning impulse Voltage	75 kVp
13	High current impulse withstand at 4/10 μ s	65kV/100kV
14	1 min power freq. with stand voltage of housing	28 kV rms
15	Name plate/mark	Required
16	Line disconnecter and suitable terminals	Required
17	Mounting brackets	Required

Annexure-XIII

11kV, 200A, Outdoor Air Break switch/GOD (with earthing provision)

1	AB Assembly	consist of three pole, 9 insulator type with provision of gang operation from ground
2	Material	Composite polymer
3	Standard	IEC 62271, IS 9921
4	FRP rod	Boron free ECR
5	Shed Material	Silicon Rubber
6	Mechanism	Three pole 9 insulator only
7	Contacts	Hard Drawn Electrolytic Copper grade only with Ag/Ti plating.
8	Arcing Horn	Hot Dip Galvanized only
9	Rated Voltage	11 kV
10	Highest Voltage	12kV
11	Rated Current	200 Amp
12	Mounting	Suitable for both vertical & horizontal
13	Ferrous parts	Hot Dip Galvanized only
14	Non ferrous parts	EC grade copper only with heavily Tin/silver protection.
15	Copper braid (if used)	Minimum weight 475 gms
16	Duty Condition	Outdoor only
17	Operating Rod	GI only
18	Phase coupling rod	GI only
19	Operating handle	GI only
20	Base channel	GI only
21	Contact pad	with 2 holes and GI hardware for conductor connection
22	Fixed jaws (Female)	shall be made of EC copper (minimum 95% copper composition) duly silver coated controlled by stainless steel high pressure spring housed in robust G.I. Cover.
23	Handle locking arrangement	Required at both the position ON/OFF
24	Name plate/mark	Required with technical information

Specifications for DO Fuses

1	Fuse pole/post insulators	Composite polymer
2	Standard	IEC 282/IS 9385
3	Type	Expulsion only
4	Construction	lift off type, suitable to operate manually by FRP insulation rod
5	Duty	Outdoor only
6	Rated Voltage	11 kV
7	Highest Voltage	12kV
8	Rated Current	200 Amp
9	One Minute Power Frequency withstand Voltage to Earth (Min)	28kV
10	One Minute Power Frequency withstand Voltage across terminals (Min)	32kV
11	Impulse withstand Voltage to Earth (Min)	60kVp
12	Impulse withstand Voltage across terminals (min)	75kVp
13	Rated Short time current for 1 sec (min)	16 kA
14	Cantilever strength (kN)	6 kN minimum
15	Mounting arrangement	vertical with suitable GI hardware and clamps.
16	Connectors	Bolted type with groove to hold the conductor.
17	Non-ferrous parts	EC grade copper/alloy with heavily Tin/silver protection.
18	Fuse tube	Epoxy resin and fiber glass. (ERFG) with UV inhibitor coating.
19	Fly nuts	Required to tighten the fuse element.
20	Operating hook	required for ground operation/fuse element change.