

ELEMENTS OF ELECTRICAL ENGINEERING



NECESSITY OF EARTHING AND ITS TYPES

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Necessity of Earthing and its Types



To connect the metallic (conductive) Parts of an Electric appliance or installations to the earth (ground) is called Earthing or Grounding.



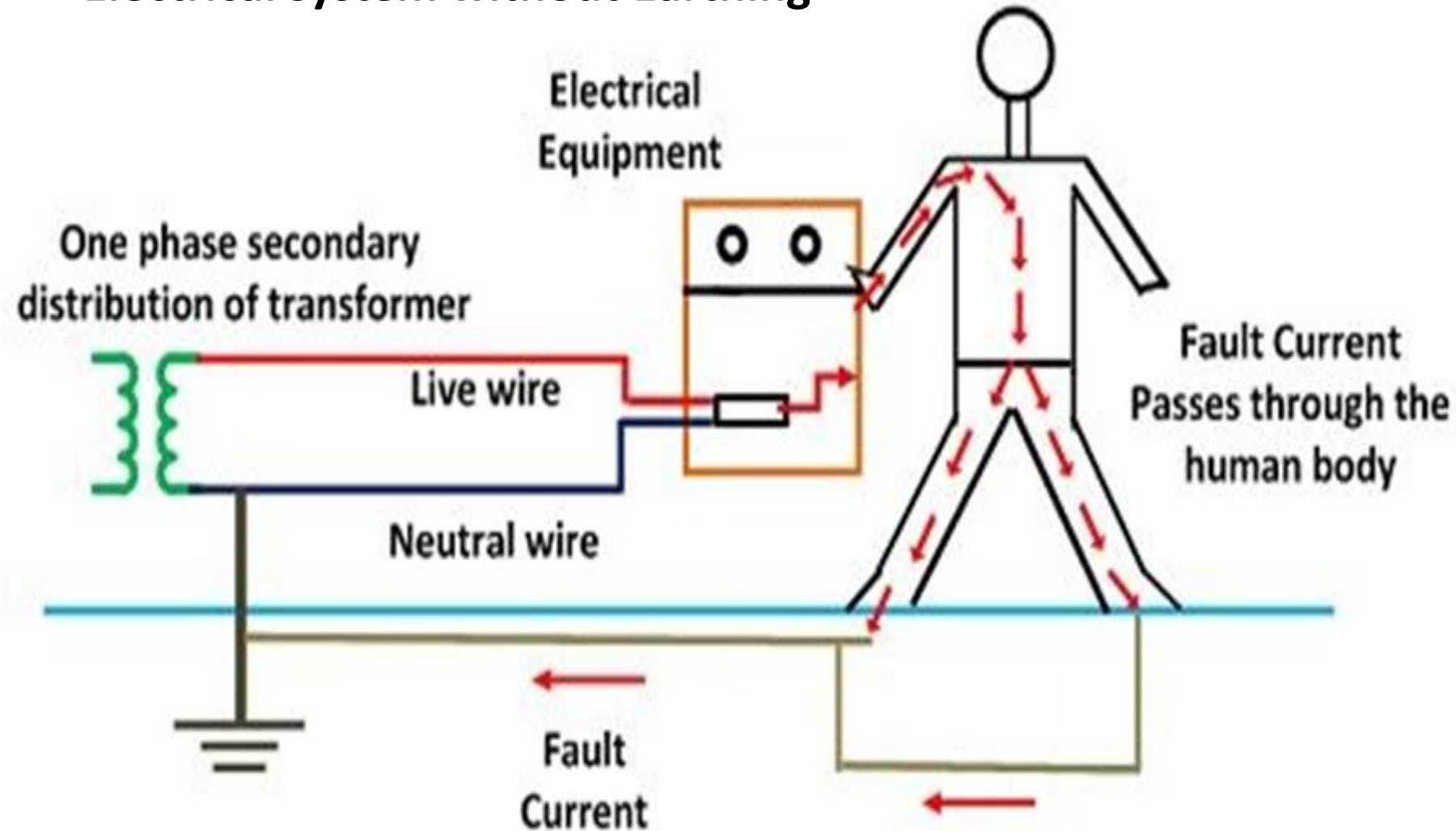
Need of Earthing



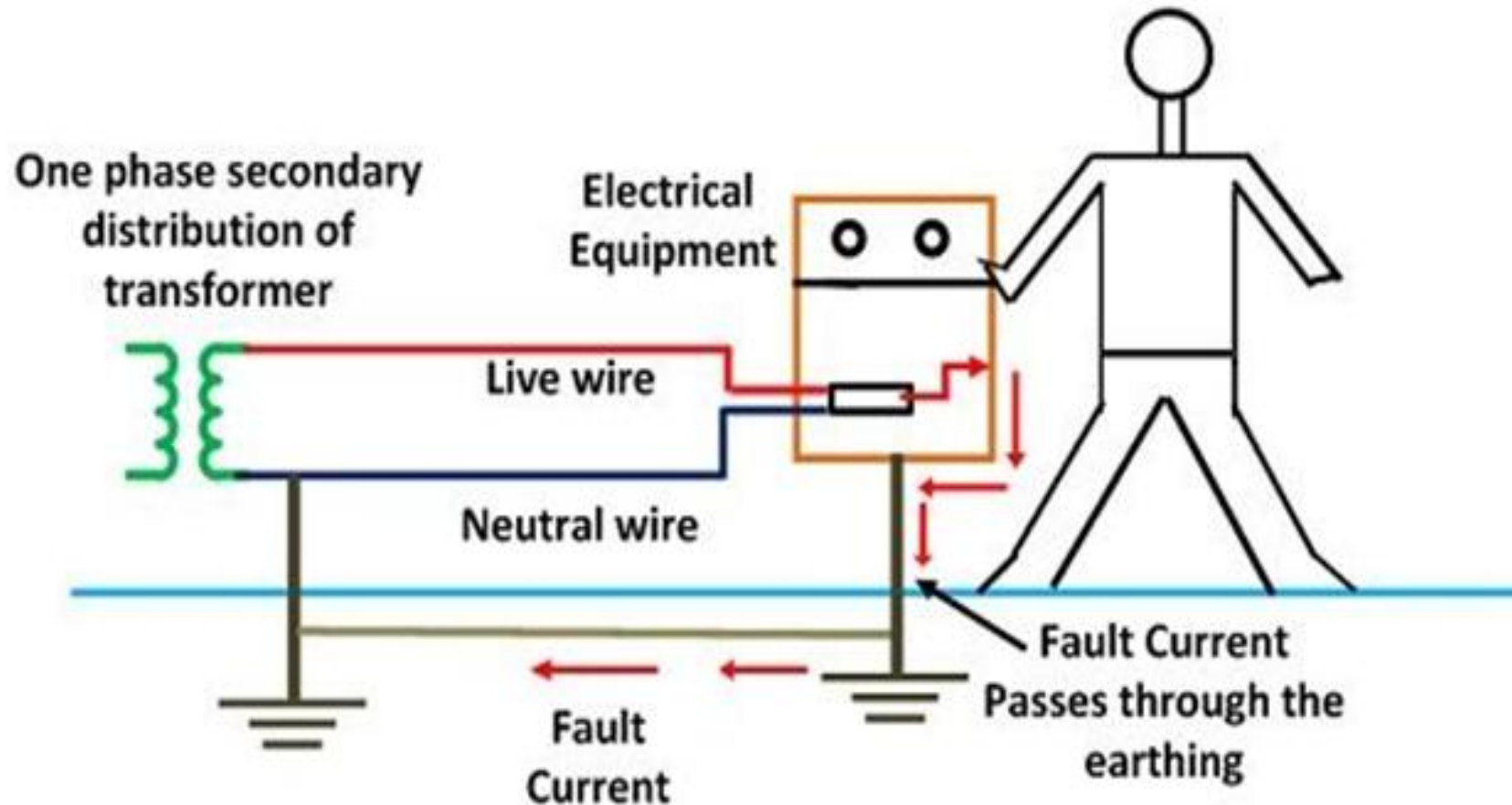
Basic needs of Earthing

- To protect human lives as well as provide safety to electrical devices and appliances from leakage current.
- To keep voltage as constant in the healthy phase (If fault occurs on any one phase).
- To Protect Electric system and buildings from lightning.
- To avoid the risk of fire in electrical installation systems.

Electrical system without Earthing

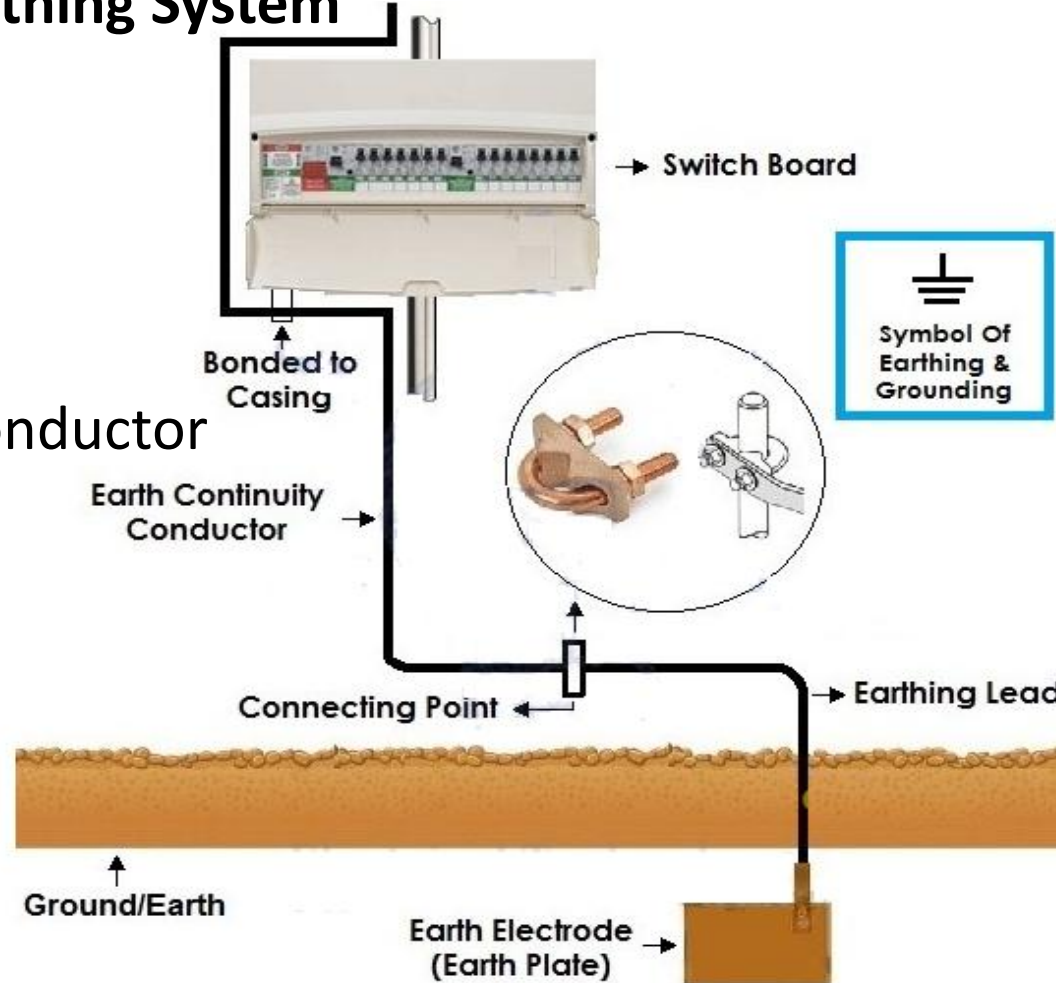


Electrical system with Earthing



Components of Earthing System

- Earth Continuity Conductor
- Earthing Lead
- Earth Electrode

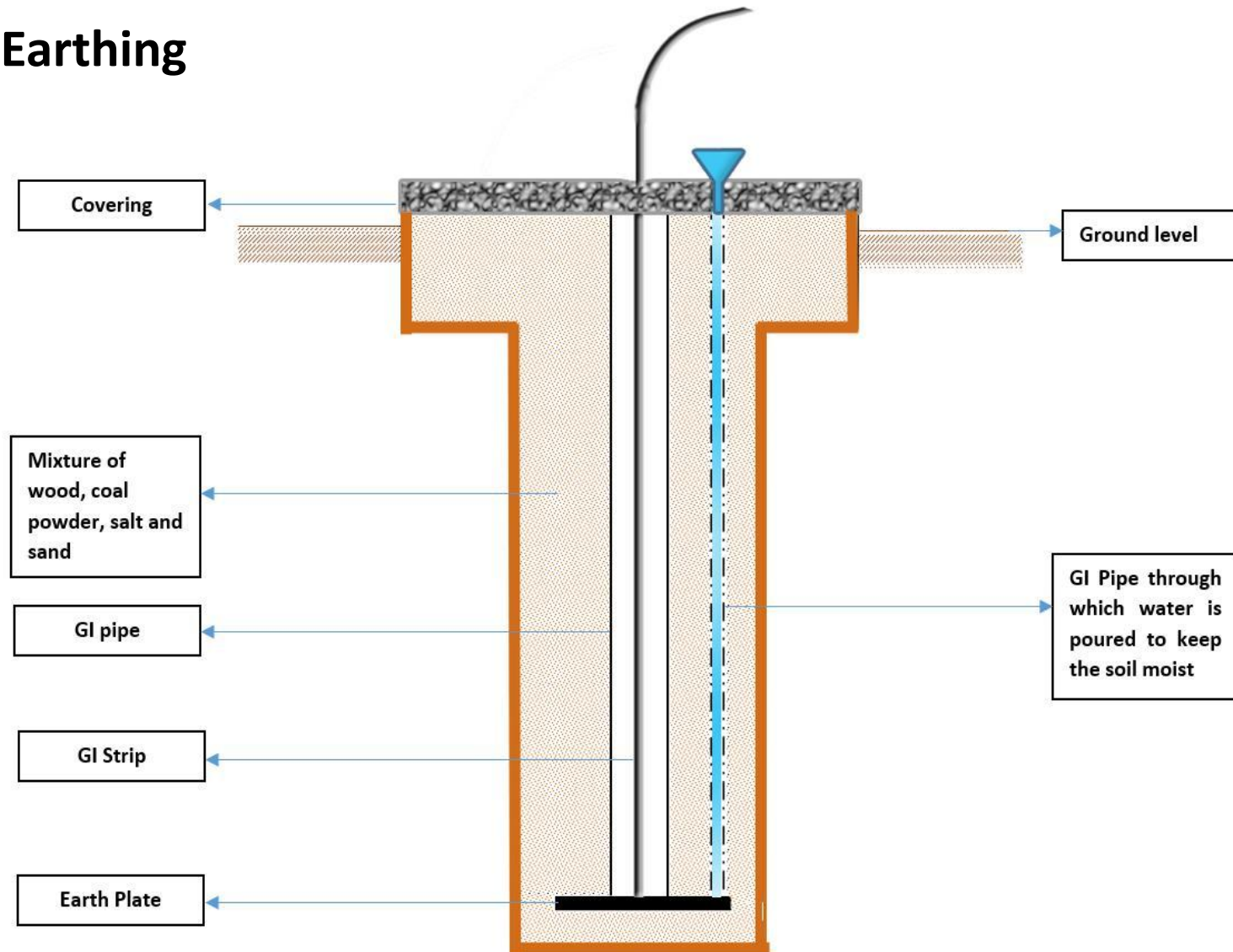


Components of an Earthing/Grounding System

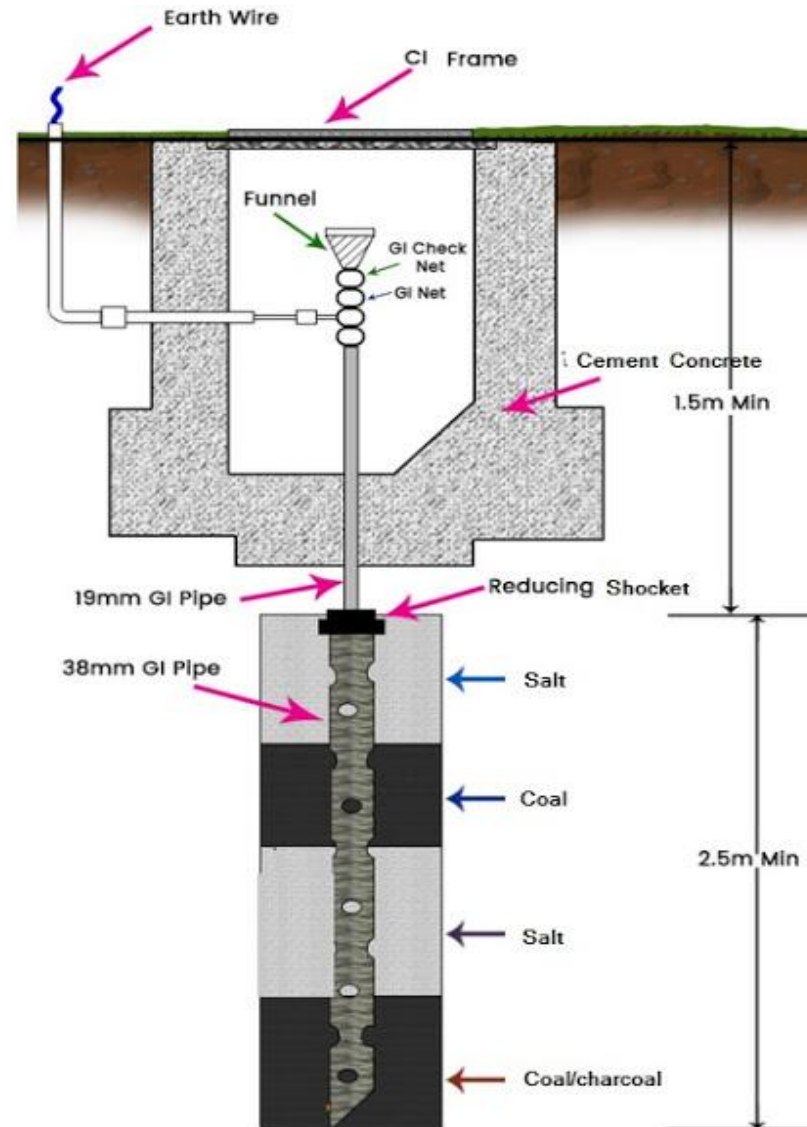
Methods of Earthing / Types of Earthing

- Plate Earthing
- Pipe Earthing

Plate Earthing



Pipe Earthing



Text Book:

1. “Basic Electrical Engineering” S.K Bhattacharya, 1stEdition Pearson India Education Services Pvt. Ltd., 2017
2. “Basic Electrical Engineering”, D. C. Kulshreshta, 2ndEdition, McGraw-Hill. 2019
3. “Special Electrical Machines” E G Janardanan, PHI Learning Pvt. Ltd., 2014

Reference Books:

1. “Engineering Circuit Analysis” William Hayt, Jack Kemmerly, Jamie Phillips and Steven Durbin, 10th Edition McGraw Hill, 2023
2. “Electrical and Electronic Technology” E. Hughes (Revised by J. Hiley, K. Brown & I.M Smith), 12th Edition, Pearson Education, 2016.



THANK YOU

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