DERIVING THE FORMULAS FOR GROUNDING RESISTANCE OF VERTICAL AND HORIZONTAL RODS

By

Dr. P. C. Kalra and Anil Kumar Janagani

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Method of images is used to derive the Grounding Resistance of a Vertical and a Horizontal Rods buried in Ground.

Potential at a point away from the point charge is calculated at a point distance `R'. The total potential is integrated over the length of the Rod and its image.

Resistance is determined from Voltage divided by the Current available in the integral function. The Rods are encased by Ground Enhancing Compound (GEM) and Agricultural Soil.

It's the general impression of some of the user that a thicker encasement of the Grounding Rods with GEM Compound will reduce their grounding resistance values more effectively.

This paper has shown that treating the Earth Pit with some Good Agriculture or Black Cotton Soil will provide better results when clubbed with a limited encasement of GEM Compound.

We have shown that GEM compound encasement can be limited to say 50mm all around.

An Agricultural Soil Surround of say 1000mm thickness after the GEM layer can give us relatively low grounding resistance values when compared to a GEM encasement of 200mm thickness all around.

Certainly, a thicker GEM encasement will increase the Grounding Costs.

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