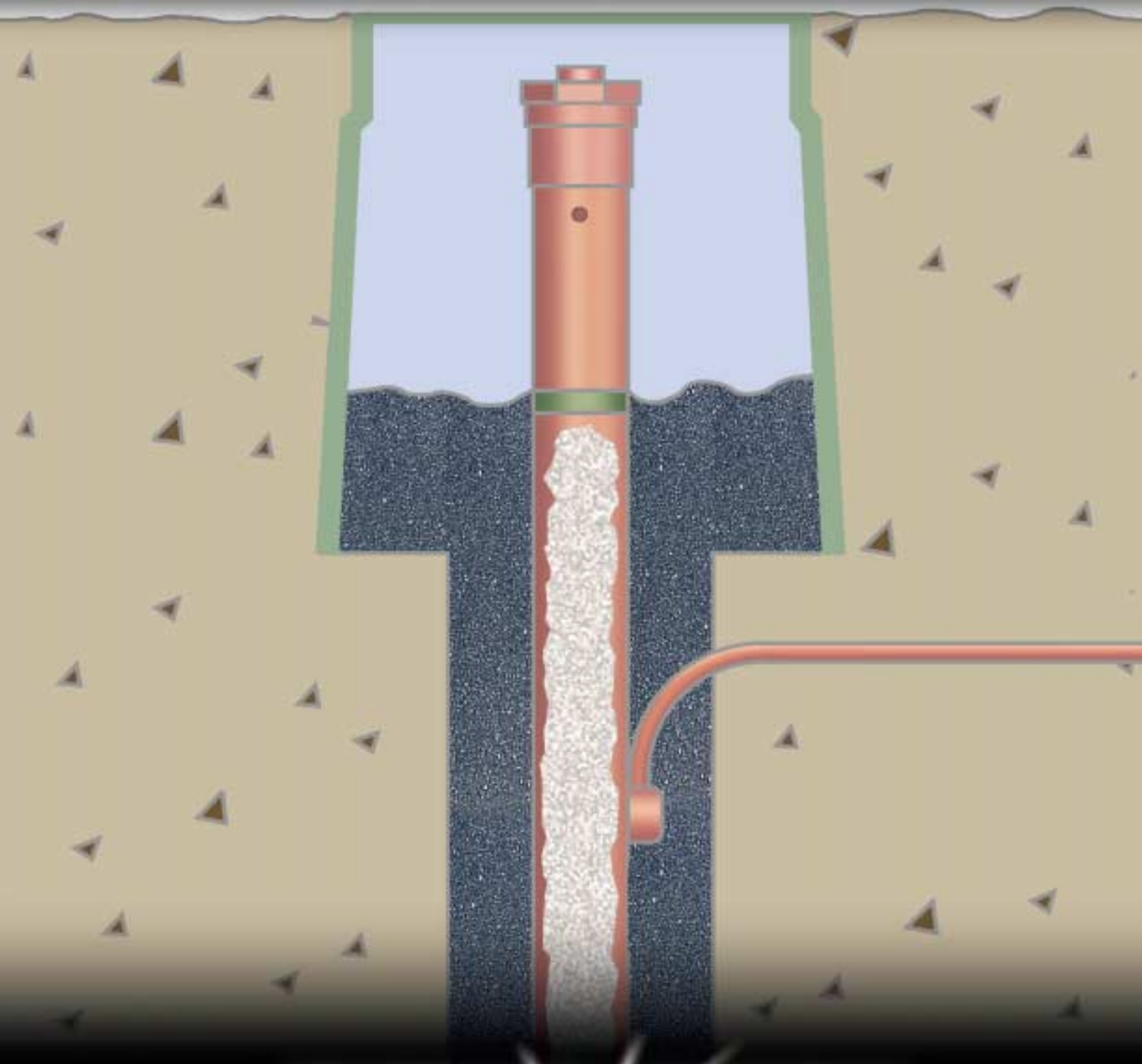


ENHANCED GROUND RODS



HARGER

Lightning Protection • Grounding • Exothermic

What is an Enhanced Ground Rod?

Simply put, an Enhanced Ground Rod is a conductive hollow tube ground rod, usually manufactured from copper. They contain special hygroscopic, electrolytic salts. These salts form a saline solution by absorbing moisture out of the atmosphere. This saline solution leaches out of the bottom of the rod, which gradually lowers resistivity of the surrounding soil, forming “electrolytic roots” over time.

The salt mixture is critical. Harger utilizes a special combination of Sodium Chloride and Calcium Chloride. Calcium Chloride is an “active” salt, which continually draws moisture out of the air and forms the solution. Many other providers of this type of electrode utilize salts such as magnesium chloride, some even use common water softener pellets. These salts do not draw moisture out of the air, they must be activated by adding water. This may lower resistivity initially, however, unless water is continually added, the salts dry out over time and resistivity of the electrode goes back up.

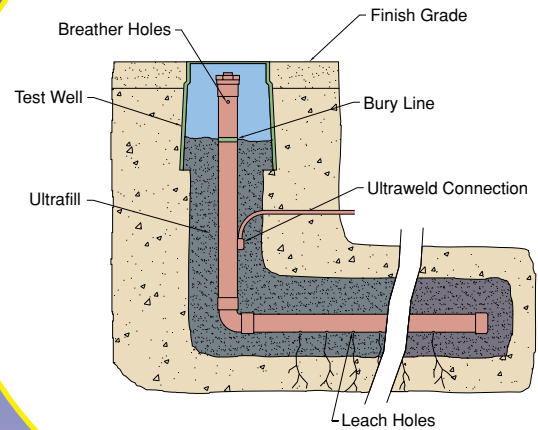
To increase the efficacy of the Enhanced Ground Rod, a very low resistance ground enhancement material is placed around the rod. Harger proudly uses Ultrafill; an ultra-low resistance carbon based material.

Harger exothermically attaches a conductor of your choice to the enhanced ground rod. This conductor is called the tail. The tail direction is very important. Harger provides a design which allows the current, either lightning or electrical fault, to maintain a downward sloping path to ground. Most manufacturers utilize a design which forces lightning to go “uphill” before reaching the ground rod. Some manufacturers claim a superior “x” design.

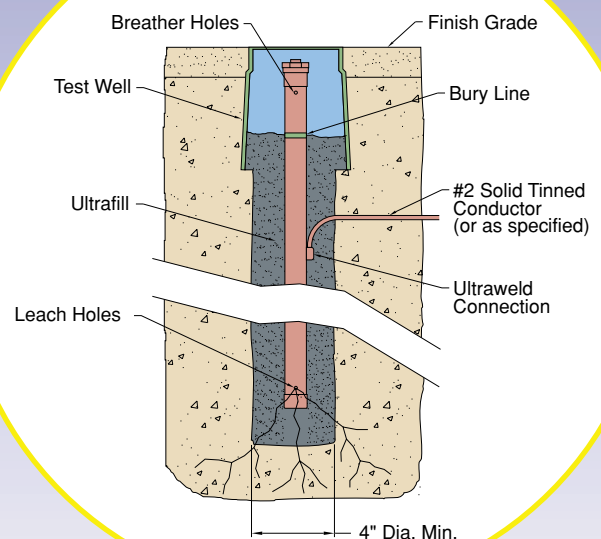
Although at first this sounds good, it causes the contractor to make twice as many connections, thus increasing the cost of installation.

Harger offers two basic styles, vertical and horizontal (L-shaped). We also offer a variety of lengths, sectionals and different kits to meet your specific requirements.

Horizontal “L”



Vertical



& Vertical EGR Applications

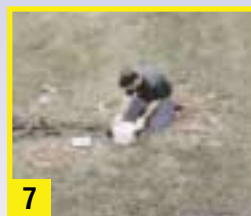
Horizontal EGR Application:

- 1 Digging the horizontal trench
- 2 Pre-fill trench with Ultrafill before installing EGR
- 3 Remove tape from EGR
- 4 Insert EGR into trench
- 5 Cover EGR with Ultrafill
- 6 Connect tail to conductor
- 7 Place ground access well
- 8 Backfill trench
- 9 Finished application



Vertical EGR Application:

- 1 Bore vertical hole
- 2 Pre-fill core with 6" of Ultrafill before inserting EGR
- 3 Remove tape from EGR
- 4 Insert vertical EGR
- 5 Fill with Ultrafill
- 6 Connect tail to conductor
- 7 Place ground access well
- 8 Backfill
- 9 Finished application



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9

Enhanced Ground Rod Numbering System



The Enhanced Ground Rod Numbering System allows you to customize the product to meet your specific needs. In the above example, the product specified is a 10' long, L-shaped ground rod with a #2 solid tinned 5' tail, 2 - 50 pound bags of Ultrafill and an inspection well. The part number is **EGR10LWG2T**.

Technical Support

Since 1960 **HARGER** has been servicing the Lightning Protection and Grounding industries. We have experience in all facets of these markets including engineering, system design, product manufacturing and installation. When confronted with difficult design situations **HARGER** will investigate all avenues to provide you the best system available. Unlike other one dimensional manufacturers whose solutions to poor ground conditions always involve the use of chemical ground rods, **HARGER** offers a complete range of products such as conventional copper clad, stainless steel and galvanized ground rods, copper ground mesh, ground plates, grounding conductors, exothermic and mechanical connections, etc. as well as the enhanced ground rods. With **HARGER** you receive the best products coupled with honest, expert engineering services.

HARGER offers soil testing and ground testing services nationwide. For more information, please contact **HARGER** at the number listed below.

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Lightning Protection • Grounding • Exothermic

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