

## Earthing an electric appliance

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# Introduction to earthing an electric appliance

The terms 'earth' as well as 'ground' have both been in general use to describe the common power/signal reference point and are interchangeable in electro-technical terminology. While the USA and other North American countries favor use of the term 'ground', European countries including the UK and many other Eastern countries prefer the term 'earth'. Grounding an electrical appliance happens by connecting a conducting electric circuit or piece of equipment to the earth or to some other relatively large conducting body instead of the earth.



## What is Earthing?

The earth is made up of materials that are electrically conductive. A fault current will flow to the 'earth' through the live [conductor](#), provided that it is earthed. This will prevent a potentially live conductor from rising above safe levels. All exposed metal parts of an electrical installation or electrical appliance must be earthed.

The main objectives of earthing are to:

- 1) Provide an alternative path for the electrical system to flow so that it will minimize damage from faulty occurrences
- 2) Provide common ground reference potential for all equipment. However, in practice, existing building grounding systems might not provide good enough ground potential for all of the equipment. This might lead to ground potential difference
- 3) Maintain the voltage in any part of an electrical system at a known value. This will prevent over current or excessive [voltage](#) in appliances or equipment.

# Why are electrical appliances earthed?

In the absence of an earth wire, the case of an appliance that suffers damage causing a [short circuit](#) between a high voltage "hot" lead and it would become live. The case would cause an electrical shock to anyone who touched it. If a ground wire is used to earth the case, the same damage would immediately be shorted to the ground. In theory, this would cause the fuse or circuit breaker to open, and thus eliminate the danger of a live case.

## Effects of Moisture

The resistance of a given earth electrode depends upon the electrical resistivity of the soil in which it is installed. Moisture content is one of the controlling factors of earth resistivity. To reduce soil resistivity, it is necessary to dissolve some substance in the moisture that is highly conductive in its water solution and is normally contained in the soil. The most commonly used substances are salt and charcoal in suitable proportion.

Want to know more about earthing electrical appliances? [Click here](#) to schedule a live session with an eAge eTutor!

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## Reference links:

- [http://www.en.wikipedia.org/wiki/Electric\\_current](http://www.en.wikipedia.org/wiki/Electric_current)
- <http://www.wisegeek.com/what-is-an-electrical-circuit.htm>
- <http://www.en.wikipedia.org/wiki/Conductor>

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