

Metal Sheds Need To Be Earthed



Metal sheds, especially those with electrical systems, should be earthed. Earthing is a preventive measure that protects many from electrocution. It gives electric current an alternative route towards the earth such that when you touch live metal, you will not get electric shocks.

Protecting yourself and others from fatal incidents is essential. Reading this article may give you an insight on the importance of earthing, how it works, why you should have your metal shed earthed, and how you can have it earthed.

What Is Earthing?

Earthing connects electrical systems to the earth through low-resistance wires. Thus, when stripped wires or other damages cause faults, the electric current will not build up and cause electric shock. It also helps dissipate static electricity or lightning.

Electrical grounding or earthing operate on the same concepts and purposes. They aim to minimize fatal damage to humans, electrical systems, and appliances. They provide alternative routes for leaking currents to return to the source or go to the ground.

Grounding vs. Earthing

Various sources show that the difference between grounding and earthing is minor. Some sites state that it is a difference in conventions – the UK uses earthing while the US prefers grounding. Grounding also protects electrical systems while earthing prevents humans from getting shocked.

Meanwhile, other differences can be very technical and legal. A source states that earthing connects dead or non-current carrying parts to the earth while grounding is the pathway for current-carrying wires, like the neutral wire, to the earth.

But for this article, there is no need to get technical. The point of both processes is to divert excess or leaking electricity to the ground to prevent damage. However, you may want to discuss the finer details about their differences with a local electrician since some countries have strong distinctions between the two.

Why Should You Earth Your Metal Shed?

Metals are great conductors of electricity. Given that, a metal shed would be pretty susceptible to currents should there be damage to its electrical system. Thus, earthing is needed for human safety, and equipment protection should a fault occur in the shed's electrical system.

Is Earthing Necessary?

Certain countries also have regulations that require earthing of structures, including metal sheds. These earthing systems also need to be checked by licensed professionals. Thus, in some instances, earthing may be a requirement.

In general, however, most structures, especially those with electricity, need to have grounding or earthing systems. It is an important preventive measure against sudden voltage surges, system damages, and fire.

How Does Earthing Work?

Earthing works by letting electricity flow on a conductive, low-resistance wire towards the earth. These wires may lead towards earth rods, electrodes, or pipes buried deep in the ground. Because the wire is low-resistance, the change in current causes the breaker to trip and stop the flow.

How Does Earthing Divert Leaking Electricity

In normal conditions, electricity would flow towards an object then go back into a circuit. This circuit usually makes use of only two wires – the neutral and the live or hot wire. These wires are insulated; thus, electricity cannot escape to metal casings or metal parts that you might touch.

However, damaged wires allow electricity to escape to other metal parts not part of the regular circuit. These parts may be exposed and can cause electric shocks when touched. As such, it is crucial to prevent these parts from getting charged.

A ground wire is used to do so. Ground wires do not normally carry currents because they are connected to exposed parts, like metal cases. But when electricity escapes, this wire serves as an alternative route that takes the excess current to the earth or back to its source.

See this video for a great explanation:

https://www.youtube.com/watch?v=zLW_7TPf310&t=2s

How Does Earthing Help Reduce Lightning Risks

Systems with ground rods provide lightning with a pathway to the ground. Instead of flowing towards the whole system and damaging equipment, it flows directly towards the earth.

Why the Earth?

The earth is an ideal site for diverting charges because it is large and conductive. Small areas like metal cases would become easily charged because electrons are constricted. However, when diverted to the ground, the vast area leaves little room for interaction; thus, the earth remains neutral.

Earthing Methods

There are many different ways to earth structures like metal sheds. These can be done through pipes, electrodes, plates, loops, or even fences (source). For this section, we will only discuss three methods: Plate earthing: A galvanized iron or copper plate is buried vertically in the ground. The depth must be at least 3 meters (10 feet). It is then covered with charcoal and salt.

Pipe earthing: Pipe earthing is the most common type. In this method, a pipe is buried into moist ground. It may be made of galvanized iron, with the dimensions depending on the soil condition – drier soil would need bigger pipes.

Rod earthing: The rod can be made of copper, galvanized steel, or galvanized iron. It is buried deep into the ground like the pipe earthing. The rods have electrolytic roots or embedded electrodes that help reduce the ground's resistance.

Should You DIY Metal Shed Earthing?

Unless you are an electrician, you should not DIY metal shed earthing. Handling electricity is risky when you are not an expert. Furthermore, some regulations need to be followed that electricians are familiar with.

Earthing metal sheds on your own without consultation with an electrician might cause more harm than good. You expose yourself to hazards during the process, your setups may not be done right, and your work may not pass local regulations. Unless you are an electrician, I do not advise working on your own.

Final Thoughts

Earthing metal sheds is a protection against many risks and prevents incidents, like electric shocks or fire. It helps ensure that despite damages within the shed's electrical system, there are no exposed charged areas that can harm humans. In planning and earthing metal sheds, consult with electricians to minimize hazards and abide by regulations.