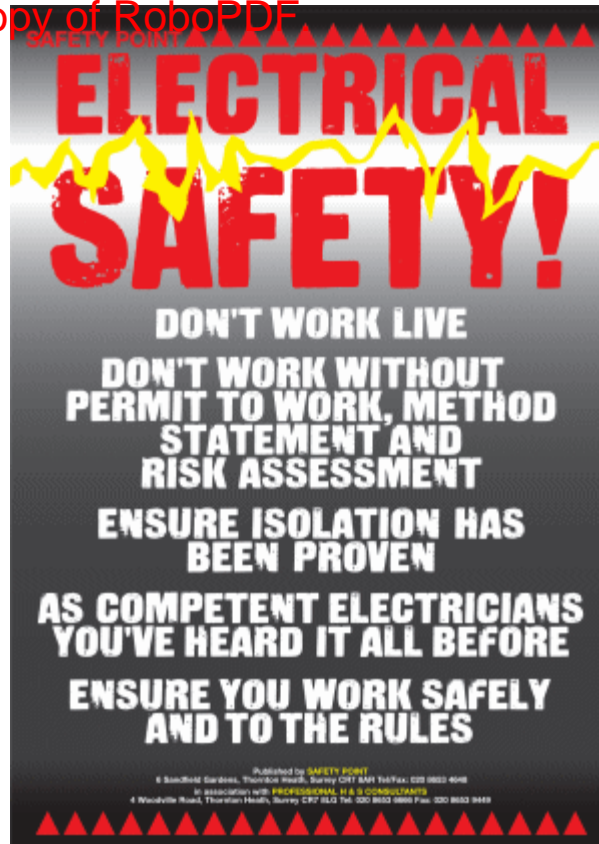


ELECTRICAL SAFETY

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Electricity can kill.

Each year around 1000 accidents at work involving electric shock or burns are reported to the HSE. About 30 of these are fatal. In the UK more than 70% of household fires are caused through electric faults, usually poor or deteriorated wiring.

Remember that non-fatal shocks can cause severe and permanent injury resulting in loss of earnings and negative impact on the quality of family and social life.

The main hazards are:

- Contact with live parts
- Faults that may cause fires
- Ignition of fires and/or explosions in flammable or explosive atmospheres.

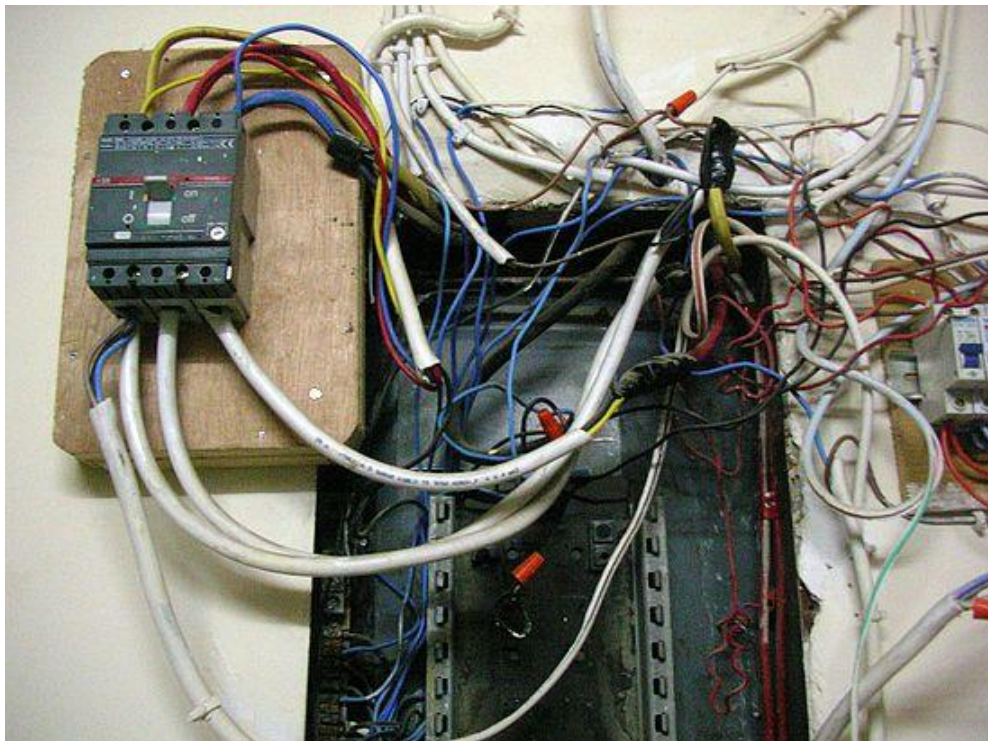
The risks are greatest in such conditions as:

- Wet surroundings
- Out of doors (*outside of the equipotential zone*)
- In cramped spaces close to a lot of earthed metalwork e.g. inside a tank.

To ensure that the electrical installation is safe:
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- Install new electrical systems to a suitable standard, e.g BS 7671
- Existing installations should be properly maintained
- Provide enough socket outlets, do not overload by using adaptors

NOT LIKE THIS...



Provide safe and suitable equipment

- Use equipment that is suitable for its working environment.
- Where possible eliminate risk by using air, hydraulic or battery powered tools. Double insulated equipment is also a very good option.
- Ensure equipment is safe and maintain that condition.
- Regularly inspect and test portable equipment (PAT).
- Provide a clearly identified switch near to each fixed machine to cut off power in an emergency.
- Always inspect flexible cables and plug tops.
- Replace damaged sections of cable completely.
- Use proper cable couplers to join lengths of cable, do not use strip connectors.
- Ensure only correct equipment is used in flammable/explosive atmospheres.

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- You may need specialist advice for this.

Reduce the voltage

One of the best ways of reducing risk of electric shock is to reduce the supply voltage such as:

- Temporary lighting can be run at lower voltages e.g 12, 25, 50 or 110 volts.
- Where electrically powered tools are used, battery operated is safest.
- Portable tools are available which are designed to operate from a 110 volt supply.

Provide a safety device

A *Residual Current Device* (RCD) is best used to provide additional safety on 230 volt supplies.

RCDs for protecting people have a rated tripping current of 30mA.

However - you must remember that:

- An RCD must never be by-passed
- If the RCD trips then there is a fault that will need to be traced and repaired.
- Check the system before using it again.
- An RCD has a test button to check that it is functioning correctly.

GUIDANCE NOTE GS 38

This document is published by the HSE and gives guidance about electrical test equipment used by electricians. The test probes and leads used for testing and repair should be selected to prevent danger as described below.

Probes

- Should have finger barriers to guard against inadvertent hand contact with the live conductors under test.
- Are insulated to leave an exposed metal tip not exceeding 2mm across any surface of the tip or that spring loaded retractable screened probes are used.
- Should be protected with an HBC fuse not exceeding 500mA or a current limiting resistor should be fitted.

Leads

- Are adequately insulated
- Are coloured so that one is distinguished from the other.
- Are sheathed to protect against mechanical damage.
- Are flexible and of sufficient capacity for the duty expected of them.
- Are long enough for purpose.
- Do not have accessible exposed conductors other than the probes or tips, nor live conductors accessible to the person's finger if a lead becomes detached from a probe.

- The test leads are held captive and sealed into the body of the instrument.

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