

**ESSENTIAL  
STANDARD  
no.20**

# **Electrical Safety at Work Portable Equipment**

**Safe People  
Happy People  
Sustainable Business**

## KEY MESSAGES

- Do not use electrical equipment in wet or flammable environments unless it is specifically designed for it.
- Use Residual Current Devices (RCD's) when using portable equipment that is 230v or higher.
- Make sure equipment is regularly inspected and maintained in good condition.
- Make sure when using electrical equipment the correct personal protective equipment (PPE) is worn.

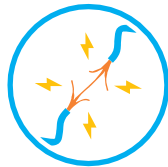
## 1. Introduction

Operating and maintaining electrical power tools within the workplace can be extremely hazardous unless safe working practices, along with the appropriate control measures, are put in place to prevent serious injury. Every year many accidents at work involving electric shock or burns are reported to the Health and Safety Executive (HSE).

The main hazards associated with electricity are:



Physical contact with live parts causing shock and burns.



Faults which could cause fire.



Fire or explosion where electricity could be the source of ignition in a potentially flammable or explosive atmosphere.

## 2. Electrical Equipment

To ensure equipment is safe and suitable, you must:

- Use equipment suitable for the environment.
- Consider eliminating electrical risk by using air, pneumatic or hand power tools.
- Check equipment is safe and well maintained.
- Use socket outlets as close to the work location as possible to allow for quick disconnection in an emergency.
- Replace instead of repairing damaged cable sections.



When using electrical equipment always use the lowest voltage required to get the task done. Battery operated tools are the safest and should be used in external environments; where their use is not practicable 110 volt tools should be used, fed from a tool supply transformer.



If you need to use equipment in an external environment that operate at 230v or higher, you must do a specific risk assessment and involve qualified electrical personnel.

When using equipment at 230v use residual current devices (RCD's), rated at a maximum of 30mA, for protection in the event of damage to equipment.

An RCD is a valuable safety device:

- Never bypass it.
- If it trips it is a sign of a fault. Check the system before using it again.
- Use the RCD's test button regularly to check it's functioning correctly.

### 3. Inspecting Electrical Equipment

You can find many faults with equipment by doing a simple visual inspection:



- Switch off and unplug equipment before checking.



- Check the plug is correctly wired and has the correct rating fuse (only if you feel competent to do so).



- Check the plug is not damaged and the cable is properly secured with no internal wires visible.



- Check the cable is not damaged and has not been repaired with insulating tape or unsuitable connector.



- Check the outer cover of the equipment has not been damaged – this could expose an electrical hazard.



- Check for burn marks or staining which may suggest that the equipment is overheating.

**Competent persons must perform additional formal inspections at regular intervals.**

The table below gives guidance on suggested frequencies for inspection and testing of portable equipment used in a harsh environment e.g. a construction site.

Equipment/application	Voltage	User check	Formal inspection	Combined inspection and test
110v portable and hand held tools, extension leads, site lighting	Secondary winding centre tapped to earth (55v)	Before every use	Monthly	Before first use on site and then 3 monthly
230v portable and hand held tools, extension leads and portable floodlighting	230v mains supply through and RCD (30mA)	Before every use	Weekly	Before first use on site and then monthly
230v equipment such as lifts, hoists and fixed floodlighting	230v supply fuses or MCB	Weekly	Monthly	Before first use on site and then 3 monthly
Equipment in permanent offices	230v office equipment	Monthly	12 Monthly	Before first use on site and then yearly
Temporary offices, toilet and canteens	230v mains supply	Monthly	6 Monthly	Before first use on site and then 3 monthly



Keep records of inspection, testing and maintenance throughout the working life of the electrical system.

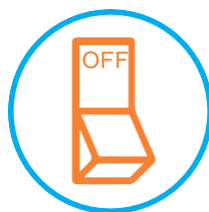
## 4. Working safely

Make sure people working with electricity are competent before they start – even simple jobs, such as wiring a plug, can lead to danger.

Some key tips to working safely:



Make sure suspect or faulty equipment is taken out of use, labelled 'DO NOT USE' and kept secure until examined by a competent person.



Switch off tools and power-sockets before plugging in or unplugging.



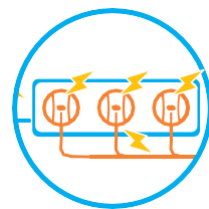
Switch off all equipment before cleaning, doing visual checks or making adjustments.



A trained and competent person must plan, install, maintain and inspect electrical installations (temporary or permanent).

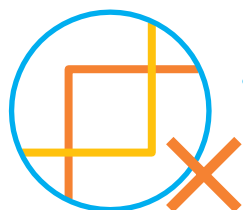


Make sure there are enough socket outlets, because overloading them with adapters can cause fires.



Also avoid using multi-way extension leads and never use more than one in series.

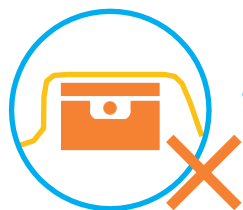
Cables should not:



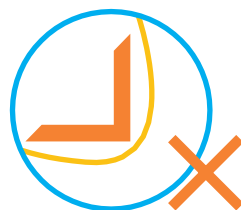
- Cross over footpaths or other areas where it can be a tripping hazard.



- Lay in water.



- Sit on top of equipment that heat up.



- Be exposed to sharp objects and edges.