

Managing Risk: support for business Electrical installations

Fires often have major consequences for businesses. Everything from disruption and productivity loss, to injuries to employees and members of the public, along with material costs and the knock-on effects of losing business.

According to Government statistics, out of more than 30,000 fires in the UK in 2017-18, 4,442 were caused by faulty electrical appliances and leads, and 9,451 from misusing electrical equipment or appliances. In other words, 46% of fires were due to electrical causes.

What the law says

Under the **Electricity at Work Regulations (1989)**, you and your employees have a legal duty to make sure you use electricity in the workplace appropriately and safely. You need to know the obvious fire risks electrical equipment poses and understand how to minimise them. The Regulations make maintaining fixed wiring equipment a statutory requirement to prevent danger as far as is reasonably practicable.

British Standard BS7671:2018, often referred to as the IET (Institute of Engineering & Technology) Wiring Regulations, provides guidance on the frequency and scope of inspections. These range from annually to 3 to 5 years depending on the type of premises. Most commercial premises fall into the 5-year category, and industrial premises into the 3-year category.

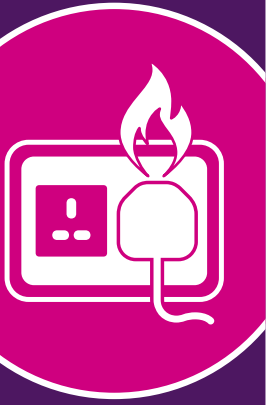
You must maintain electrical equipment if it can cause danger, but the law* doesn't say how, or how often. So it's up to you to decide the level of maintenance based on the type of equipment and the risk of it becoming faulty. Portable electrical appliance testing (commonly known as 'PAT testing') is part of most businesses' fire safety regimes. You can find more guidance on maintaining portable electric equipment on the HSE web site at www.hse.gov.uk

Key risk factors

The main hazards of working with electricity are:

- **Electric shock and burns from contact with live parts**
- **Injury from exposure to arcing, and fire from faulty electrical equipment or installations**
- **Explosions caused by unsuitable electrical apparatus or static electricity igniting flammable vapours or dust (eg, in a spray paint booth).**

Electric shocks can also lead to other injuries, such as falls from height.



Risk control advice

You'll need to carry out a risk assessment of any electrical hazards that includes:

- **Who could be harmed by them**
- **The level of risk**
- **The precautions taken to control that risk.**

The risk assessment needs to consider the type of electrical equipment, how it's used, and the environment it's used in. You'll also need to ensure the electrical installation and equipment is only used for its intended purpose and is suitable in the operating environment.

In wet conditions, unsuitable equipment can become 'live' making its surroundings hazardous. Make sure you correctly rate fuses, circuit-breakers and other devices for the circuit they protect, and keep isolators and fuse-box cases closed or, ideally, locked.

Cables, plugs, sockets and fittings must be tough enough and fit for their working environment. Ensure machinery has an accessible switch or isolator to cut off the power in an emergency, quickly.

Other things to think about

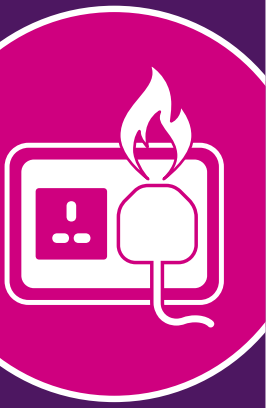
Below are ways you can minimise electrical hazards in your workplace:

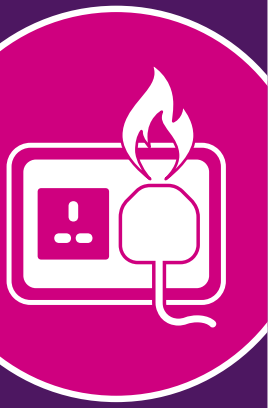
Before use

- Ensure anyone working with electricity has the right skills and training.
- Carry out regular risk assessments and ensure employees carry out a pre-use check of equipment to check for any obvious faults.
- Buy or acquire electrical equipment from a reputable source and always check it has a British/European safety mark.
- Read the manufacturer's instructions before using a device or piece of equipment.
- Only use official chargers, correctly-rated fuses, and cables for devices and equipment, and replace damaged sections of cable completely, rather than repair them with insulating tape.
- Don't charge a battery that looks damaged, and never cover items when charging, and keep them away from flammable materials.
- Fit smoke alarms and test them regularly.

During use

- Don't overload sockets. Remember that outlets, extension leads, and adaptors will have a limit to how many amps they can take.
- Use proper connectors to join cables - don't use connector blocks wrapped in insulating tape or splice wires by twisting them together.
- Consider using a Residual Current Device (RCD) between electrical supplies and equipment, especially if working outdoors, or in a wet or confined environment.





After use

- Always switch off equipment at the mains and unplug it when it's not in use.
- Protect equipment used in hazardous environments – e.g. extreme weather, temperatures, or corrosive conditions.
- Don't leave appliances charging for longer than specified by the manufacturer's instructions, or unsupervised.

Things to look out for

- Keep an eye out for:
 - burn marks or stains around plug sockets – these suggest overheating
 - frayed or worn cables and wires.
 - flickering lights, blown fuses, or circuit-breakers that trip for no apparent reason.
- Remove and label faulty equipment immediately, so no one uses it and arrange to have it inspected by a qualified person.

Following the above and other electrical safety advice laid out by the Health and Safety Executive, will ensure you use equipment safely and minimises the risk of a fire starting.

Other useful information

- **Home Office – Fire Statistics: England April 2017 to March 2018 – published 9 August 2018.**
- **Maintaining portable electric equipment in low-risk environments – www.hse.gov.uk/pubns/indg236.**
- **RISCAuthority – www.riscauthority.co.uk**
- **www.hse.gov.uk/statistics.**