

Electrical safety guidance

How safe is your home?



Contents

1	Who is Electrical Safety First?	3
2	Introduction	4
3	Who should carry out electrical work in my property?	5
4	Get to know your electrics	6
5	How old is your wiring?	7
6	Electrical dangers around the home	8
7	Obvious dangers yet we all make these mistakes	9
8	Kitchen safety	11
9	Bathroom safety	12
10	Garden safety	13
11	Organisations that register electricians carrying out domestic electrical installation work	15

1 Who is Electrical Safety First?

Electrical Safety First is the UK charity dedicated to reducing deaths and injuries caused by electrical accidents. Our aim is to ensure everyone in the UK can use electricity safely.

We provide expert information and advice to help people protect themselves from faulty, damaged, sub-standard, and poorly maintained electrical installations and electrical appliances.

We are recognised by government and industry as the leading campaigning charity and technical authority on electrical safety.

For more electrical safety advice, visit our website at [electricalsafetyfirst.org.uk](https://www.electricalsafetyfirst.org.uk)

Electrical 
Safety First

The UK's electrical safety experts

2 Introduction

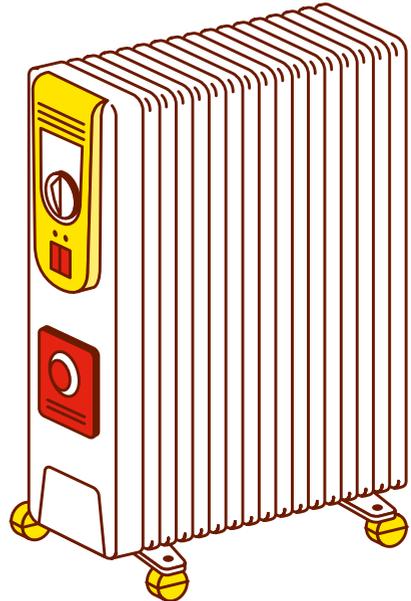
Electricity can kill. Each year, around 70 people are killed and 350,000 seriously injured due to an electrical accident in the home.

Electricity causes more than 20,000 fires a year – that’s almost half of all accidental UK house fires.

Electricity is part of our lives. We use it from the moment we wake up and throughout the day. As a result, we sometimes forget how powerful and dangerous it can be.

Modern living means we are using more and more electrical appliances in the home. Just twenty years ago, the average UK home would have had a hi-fi system and one TV or video. Today, it is more likely that there are at least two TVs, a DVD player, a satellite receiver, games console, microwave, computer and more. So, the risk of electrical accidents in the home is much higher than before.

This booklet will give you simple and effective advice to make your home a safer place.



3

Who should carry out electrical work in my property

Although many incidents are caused by faulty appliances, a properly installed and well-maintained installation can significantly reduce the possibility of accident or injury.

So, it is important that any electrical installation work is carried out by people who are competent. This means people who have the knowledge, skills and experience needed to avoid the dangers that electricity can create.

It's easy to make an electrical circuit work – it's much harder to make it work safely.

We strongly recommend that you use an electrician registered with one of the government-approved schemes to carry out any electrical installation work that you need.

Registered electricians work to the UK safety standard BS 7671 (Requirements for Electrical Installations). They will issue a safety certificate for their electrical work to confirm that the installation has been designed, built, inspected and tested in line with that standard.

All of the scheme operators have a complaints procedure to investigate complaints about registered electricians who may not have kept to this national standard.

The legal requirements for electrical installations in England and Wales are different from those in Scotland and Northern Ireland. Electricians carrying out installation work in England and Wales have to keep to the Building Regulations and in Scotland it is the Building Standards system. At the moment, there is no equivalent legal requirement in Northern Ireland.

For details of the scheme providers that register electricians in your part of the UK, see pages 15 and 16 of this leaflet. Or visit our website at [electricalsafetyfirst.org.uk/findanelectrician](https://www.electricalsafetyfirst.org.uk/findanelectrician)

4

Get to know your electrics

Your property will have some of the following:

Main switch

The main switch in the fusebox allows you to turn off the supply to your electrical installation. Some have more than one main switch. For example, if your home is heated by electric storage heaters, you may have a separate fusebox for them. It should be easy to get to, so find out where your main switch is so that you can turn the electricity off in an emergency.

Fuses

Older homes often have rewirable fuses which automatically disconnect the circuit to prevent danger when a fault or overload current goes above a safe level. The melted fuse breaks the faulty circuit, protecting it against overloading.

Circuit breakers

Newer homes are likely to have circuit-breakers in the fusebox which switch off a circuit if there is a fault. They are similar in size to fuse-holders, but give more precise protection than fuses.

When they 'trip', you can simply reset the switch. However, you first need to find and correct the fault.

Residual Current Devices (RCD)

An RCD is a life-saving device which is designed to prevent you from getting a fatal electric shock if you touch something live, such as a bare wire. It provides a level of protection that ordinary fuses or circuit-breakers cannot.

Under the UK safety standard, almost all sockets in new electrical installations and any new sockets added to an existing installation, must have RCD protection.

If your electrical installation includes one or more RCDs, you should check that they are working properly by pushing the 'Test' button every three months. When you test the RCD it should switch off the power to the areas of the home it protects.

If you press the button and your RCD does NOT switch off the electricity supply to the protected circuits, or if the button does not reset, get advice from a registered electrician.

5 How old is your wiring?

Electricity is usually out of sight and out of mind because cables are conveniently hidden inside walls, switches and sockets. So it's not surprising that we forget to check electrical installations for wear and tear.

Faulty and ageing wiring is a major cause of electrical fires in the home. You can protect yourself by having regular checks carried out on the condition of your cables, switches, sockets and other accessories.

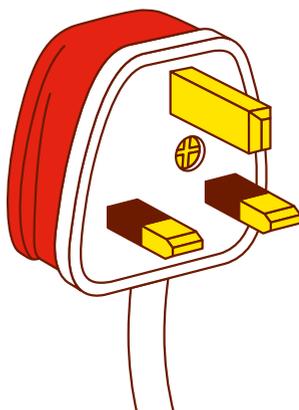
There are clear signs that can help you tell the age of the electrical installation in your home. Look out for:

- Cables coated in black rubber, lead or fabric.
- A fusebox with a wooden back, cast iron switches or a haphazard mixture of fuseboxes.
- Older round pin sockets and round light switches, braided flex hanging from ceiling roses, brown and black switches and sockets mounted in skirting boards.
- Wall-mounted light switches in bathrooms.

These suggest that your installation is over 40 years old and may need rewiring. Contact a registered electrician to get a report on the condition of your installation.

No matter how old your property and its electrical installations, they will suffer deterioration. You should get a registered electrician to check your wiring at least every 10 years, or if you move into a new property.

Do you know when your electrics were last checked?



6 Electrical dangers around the home

Electricity improves our daily lives – but only when used safely. Don't create hazards by overloading sockets and never ignore warning signs like burning smells, buzzing or crackling, fuses blowing or circuit breakers tripping.

Electrical accidents are most likely to happen when equipment is damaged or misused. Failure to correct the problem could have devastating effects. It sounds like common sense, but you would be surprised how many of us fail to follow basic safety guidelines.

When did you last check the condition and safety of your plugs, sockets and flexible cables? If they are damaged, they can cause electric shocks, burns and fires.

All modern appliances in the UK use the familiar square-pin 13-amp plug.

Plugs and cables can suffer damage, particularly if they connect to handheld appliances. With the plug removed from the socket, check the cable from end to end and ask the following questions:

- Is it securely attached to the appliance and the plug?
- Is it cut, worn or damaged in any way?

There should preferably be no joints in the cable, and certainly no repairs with insulating tape.

Make sure that you:

- Check the plug and socket for burn marks, sounds of 'arcing' (buzzing or crackling), fuses blowing, circuit breakers tripping or overheating.
- Remove plugs from sockets carefully. Pulling out a plug by the cable puts a strain on it and could damage the contact between the plug and the socket. This could result in the plug overheating, its wires becoming loose or an electric shock (if the earth wire is disconnected).
- Use plugs with the British Standard safety mark. They have live and neutral pins with insulating sleeves that allow you to put them in and pull them out of sockets safely.
- Check that the cable sheath is firmly clamped in the plug and that no coloured wires are showing. Always replace damaged cables immediately. Touching exposed live wires may give you an electric shock or you could even be killed.

7

Obvious dangers yet we all make these mistakes

Repairing an appliance while it is still plugged in

Always unplug your appliance before trying to do any maintenance. You risk injury from electric shock, burns and mechanical movement if you tackle repairs or maintenance before appliances are unplugged and have cooled down.

Trailing cables under a carpet or rug to keep them out of the way

As well as being a tripping hazard, flexible cables trailed under carpets, rugs or across walkways can be a fire risk.

Drying clothes on an electric heater

This is particularly dangerous and could cause an electric shock or fire. Many electrical appliances, such as heaters, have ventilation slots to prevent overheating. If these slots are covered up the appliance could overheat and catch fire. If water drips in, there is a risk of electric shock.

Installing downlighters

Choosing the wrong downlighters, installing them incorrectly or fitting the wrong replacement lamp can pose a serious fire risk in your home. It is best to use a registered electrician to install your downlighters and then keep instructions for reference when you need to replace lamps.

You should check for visible markings on downlighters indicating lamp wattage and type.

Also check downlighters and their surroundings for signs of overheating such as curled labels and discolouration or scorching.

Storing combustible materials close to electrical equipment

Don't store combustible materials (clothes, papers, cleaning materials etc.) close to your cut-out fuse, electricity meter or fusebox, particularly if these are under the stairs (a means of escape from upstairs in an emergency). There have been a number of serious fires in homes where a fault in this equipment, which could otherwise be contained, has set light to adjacent stored materials.

Hanging pictures and putting up shelves

Don't drill holes or fix nails in walls or partitions without knowing what is hidden behind them. They hide electrical cables and gas and water pipes. Drilling through a live cable is extremely dangerous and could cause electric shock, burns or even fire.

A cable and metal detector will help you find any cables and metal pipes.

In modern electrical installations, cables are normally run in a straight line, either horizontally or vertically, to an accessory such as a switch or socket. Cables may also run within 15cm from the top of the wall or partition or within 15cm of an angle formed by two walls/partitions.

How much do you rely on adaptors and extensions around your home?

You can expect to find around four sockets in an average room in a property. Although this should be enough for most purposes, an increase in the use of computers, games consoles and other appliances has led to an increase in the number of sockets needed.

Extension leads and adaptors can provide a quick and easy solution but, in reality, they are often misused and can present a very real danger. In extreme cases they can overheat and cause a fire.

Are you overloading the sockets in your home?

Use our online calculator to find out:

electricalsafetyfirst.org.uk/overloadingsockets

Our free smartphone app, available on iPhone and Android, will help you to carry out simple visual checks on the electrics in your home. Visit electricalsafetyfirst.org.uk/visualchecks to find out more.

Don't

- Use adaptors plugged into other adaptors.
- Overload adaptors, particularly with high-current appliances such as kettles, irons and heaters. (Low-current appliances include radios, televisions, computers and hi-fi equipment.)
- Buy cheap, substandard adaptors.

The best thing to do is to get a registered electrician to install extra sockets. Ask the electrician to install twin sockets rather than single ones.

8 Kitchen safety

We all know that water and electricity make a lethal combination. So it's important that electrical equipment is installed correctly, and that you use it with care.

- To avoid water coming into contact with electricity, make sure that your sockets or switches are fitted at a safe distance (at least 30cm horizontally) from the sink.
- If appliances such as fridges, dishwashers and washing machines are fitted under worktops, getting to sockets may be difficult. Ideally, these appliances should be controlled by a switched fuse connection unit mounted above the worktop where you can reach it easily.
- If a socket in the kitchen or anywhere else in the house is likely to be used to supply portable equipment outdoors, it should be protected by an RCD.
- Take special care when using electrical appliances in the kitchen. The mixture of water, hot surfaces, flexible cables and electricity can be very dangerous. Check that flexible leads and appliances such as kettles and toasters are in good condition.

Don't

- Use any electrical equipment or switches when your hands are wet.
- Wrap flexible cables around any equipment when it is still warm.
- Clean or try to repair an appliance when it is still plugged in.
- Try to get toast that is stuck out of a toaster while it is plugged in, and especially not with a metal knife as there are often live parts inside.
- Fill a kettle or steam iron when it is plugged in.

9 Bathroom safety

Water carries electricity efficiently. When the two mix, the result can kill. Because of this, from an electrical safety point of view, the bathroom is possibly the most dangerous room in the home.

The consequences of an electric shock are far more severe in a bathroom or shower room as wet skin reduces the body's resistance. There are special requirements for electrical installations in bathrooms.

Don't bring mains-powered portable appliances such as hairdryers, heaters or radios into a bathroom. You could be severely injured or killed.

Sockets

Sockets are not allowed in bathrooms or shower rooms (apart from shaver-supply units) unless they can be fitted at least three metres from the bath or shower.

Shaver-supply units must be a safe distance from the bath or shower to avoid splashes.

Lights

Enclosed ceiling lights are preferable to pendant light fittings (that hang down). All light fittings that are not enclosed should be out of reach of someone using, or still wet from using, the bath or shower.

A ceiling-mounted pull-cord switch with the cord made of insulating material is the safest option for a bathroom. Standard wall-mounted light switches are a possible danger because of dampness and wet hands.

Heaters and towel rails

Central heating is a good way of keeping a bathroom warm. But, if you do have an electric room heater, it must be fixed at a safe distance from the bath or shower.

Electric and gas water heaters in a bathroom must be fixed and permanently wired, unless they are powered by a socket fitted three metres from a bath or shower.

Electric heaters should preferably be controlled by a pull cord or a switch outside the bathroom.

Showers

An electric shower must be supplied on its own circuit direct from the fusebox.

10 Garden safety

Although electricity makes gardening much easier, wet conditions and contact with the ground mean that the risk of injury or death from electric shock is greatly increased compared to using electrical equipment indoors.

Many garden accidents are the result of handling equipment carelessly, lack of concentration and failure to follow the manufacturer's operating instructions. By following simple safety guidelines every time you work outdoors, you can easily avoid a serious accident.

When you are using electrical equipment outdoors, RCD protection can be a lifesaver

Without it, if you cut through an electrical lead, a simple job like mowing the lawn could turn into a deadly disaster. An RCD provides a level of protection against electric shock that normal fuses and circuit breakers cannot. All equipment such as lawnmowers, hedge trimmers and other power tools, when used outdoors, should only be plugged into a socket protected by an RCD.

If you haven't got sockets that are RCD protected, buy a good quality portable RCD from a reputable source.

Whatever the type of RCD you have in your home, you should test it quarterly by using the 'Test' button on the device. You should test portable RCDs every time you use them.

Extension leads, cables and connections

If you do not check the condition of extension leads, cables and connections and use them correctly, you could get an electric shock.

Make sure they are:

- Suitable for outdoor use – weather resistant with moulded connections that prevent moisture seeping in.
- Rated correctly to suit the equipment connected.
- Properly plugged in, especially in-line connectors.
- Uncoiled to prevent overheating.
- Kept clean and free from damage.
- Replaced if damage is found.
- Positioned appropriately to prevent them being damaged.
- Kept dry.

Mowing the lawn and cutting the hedge

Lawnmowers and hedge trimmers have sharp blades and rapidly moving parts, which can damage or cut through electrical cables as easily as they cut through grass. The risk of electric shock from a damaged cable is high.

Make sure that you:

- Do not cut the grass or hedge in wet conditions.
- Wear sensible footwear to protect your feet.
- Check cables, connections and plugs before use.
- Keep the cable clear of the cutting area.
- Unplug the lawnmower or hedge trimmer and wait for the blades to stop moving before clearing blockages or carrying out any maintenance.



11

Organisations that register electricians carrying out domestic electrical installation work

England and Wales

The following organisations are authorised by the Government to register electricians so they can carry out domestic electrical installation work which meets Part P of the Building Regulations.

EC Certification Ltd

t/a Elecsa

Tel 0845 634 9043

elecsa.co.uk

NAPIT Registration Ltd

Tel 0870 444 1392

napit.org.uk

NICEIC

Tel 0870 013 0382

niceic.com

Benchmark Certification Ltd

t/a CORGI membership

Tel 0845 038 0022

corgiservices.com

British Standards Institution

Tel 0845 080 9000

kitemark.com

Limited domestic electrical installations

In addition to those stated above, there are other government-approved scheme operators that register installers who carry out electrical work. This is limited to certain electrical installation work in connection with some other non-electrical work.

Examples of this work and the type of installations that fall within this category are shown below.

- Plumbing.
- Kitchens.
- Bathrooms and bedrooms.
- Security systems.
- Gas heating.
- Loft conversions.
- Telecommunications.
- Oil-fired heating.
- Extensions.
- Door and gate entry.
- Solid-fuel heating.
- Conservatories.
- CCTV.
- Extractor fans.
- Garden installations.
- Maintenance.
- Air conditioning.
- Swimming pools.
- Stairlifts.
- Spa baths.

OFTEC Ltd

Tel 0845 658 5080

oftec.co.uk

The Association of Plumbing and Heating Contractors

Tel 0121 711 5030

aphc.co.uk

Scotland

The following organisations are approved by the Scottish Government to register electricians to carry out domestic electrical installation work which meets the Building Standards system.

NICEIC

Tel 0870 013 0382

niceic.com

SELECT

Tel 0131 445 5577

select.org.uk

Northern Ireland

There are currently no legal requirements for domestic electrical installation work in Northern Ireland. However, the following organisations do register electricians who should be competent to carry out this type of work.

ECA

Tel 020 7313 4800

eca.co.uk

NAPIT Registration Ltd

Tel 0870 444 1392

napit.org.uk

NICEIC

Tel 0870 013 0382

niceic.com

Find out more

For more information about electrical safety visit:

electricalsafetyfirst.org.uk

Electrical Safety First

The UK's electrical safety experts

Electrical Safety First is the UK charity dedicated to reducing deaths and injuries caused by electrical accidents. Our aim is to ensure everyone in the UK can use electricity safely.

electricalsafetyfirst.org.uk

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(Scotland) No. SC039990