How safe is your home?

Important electrical safety information. Please keep this booklet as you may need to read it again.

ELECTRICAL SAFETY COUNCIL

Contents

Who are the Electrical Safety Council?

The Electrical Safety Council is an independent charity committed to preventing deaths and injuries caused by electrical accidents at home and at work.

We are supported by all sectors of the electrical industry as well as local and central government and work to promote safety and good practice.

ELECTRICAL SAFETY COUNCIL

For more advice on electrical safety matters, visit our website at www.**esc**.org.uk .

Introduction

Electricity can kill. Government statistics show that electricity causes more than 20,000 fires a year – almost half of all accidental UK house fires. Each year, about 70 people are killed and 350,000 are seriously injured due to an electrical accident in the home. Because of this we support any initiative that could help to identify unsafe electrical installations or appliances.

Electricity is part of our lives. We use it from the moment we wake up (switch on lights or boil the kettle), through the day (the radio, TV, computer or vacuum cleaner) and while we sleep (alarms and electric blankets). As a result, we sometimes forget how powerful and dangerous electricity can be.

Modern living has meant we use more and more electrical appliances in the home. For instance, just 20 years ago the average UK home had a hi-fi system and one TV or video, whereas today it is more likely that there are at least two TVs, a DVD player, a satellite receiver, games console, microwave and computer. So the risk of electrical accidents in the home is much higher than before.

This booklet will help you put simple but effective procedures into practice for a safer home.

Electricity is now the major cause of accidental fires in UK homes.

What are the dangers?

The main dangers are:

- contact with live parts at 230 volts which can cause shock or burns and if these are severe, death; and
- faults in appliances and installations which can cause fires.

Who should carry out electrical work in my property?

Although many incidents are caused by faulty appliances rather that the electrical installation itself, a properly-installed and well-maintained installation could significantly reduce the possibility of an accident or injury.

So, it is important that any electrical installation work is carried out only by people who are competent. This means people who have the knowledge, skills and experience needed to avoid dangers to themselves and others that electricity can create. It's easy to make an electrical circuit work - it's far harder to make the circuit work safely.

Safety for you in your home is very important and so we strongly recommend that you use an electrician registered with one of the government-approved schemes to carry out any electrical installation work you need to be done.

Registered electricians will work to the UK safety standard BS 7671 (Requirements for Electrical Installations), and 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 where they investigate complaints about registered electricians who may not have kept to the national standard.

The legal requirements for electrical installations in England and Wales are different from those in Scotland and Northern Ireland. Electricians carrying out electrical installation work in England and Wales have to keep to the Building Regulations whereas 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 country, see pages 18 and 19 of this leaflet. Or, visit our website at www.**esc**.org.uk or phone us on **0870 040 0561**.

Get to know your electrics

Your property will have some of the following

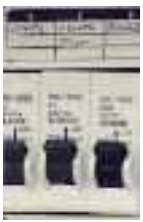
Main switch

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

Fuses

Older homes often have rewireable fuses which automatically disconnect the circuit to prevent danger. When a fault or overload current flows through the fuse wire, it will become hot, and melt when the current goes above a safe level. The melted fuse breaks the faulty circuit so protecting it against overloading.

Circuit-breakers



Newer homes are likely to have circuit-breakers in the consumer unit which switch off a circuit if there is a fault.

Circuit-breakers 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 when you press the test button, 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.

How old is your wiring?

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

Faulty and ageing wiring is one of the major causes of electrical fires in the home. You can avoid these 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 electrical installation in your home.

These are:

- cables coated in black rubber (phased out in the 1960s);
- cables coated in lead or fabric (before the1960s);
- a fusebox with a wooden back, cast iron switches, or a haphazard mixture of fuse boxes (before the 1960s);
- older round pin sockets and round light switches, braided flex hanging from ceiling roses, brown and black switches and sockets mounted in skirting boards (before the 1960s); and
- wall-mounted light switches in bathrooms (before the 1960s).

Do your electrical installations have similarities to those listed?

Yes - it is likely that your installations is over 40 years old and may need rewiring. Contact a registered electrician to give you a report on the condition of your installation.
Electrical installations should always be checked and maintained by registered electricians.

No - your home will probably be wired with cables that have longer lasting PVC insulation.

Remember – 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?

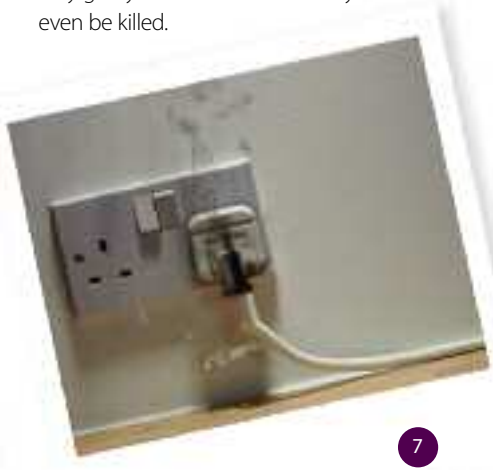
Electrical dangers around the home

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, sounds of arcing (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. This 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?

Damaged plugs, sockets and flexible cables can cause electric shocks, burns and fires. For you and your family's safety:

- Check the plug and socket for burn marks, sounds of 'arcing' (buzzing or crackling), fuses blowing, circuit-breakers tripping or if it feels hot.
- 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.
- Always replace damaged cables immediately. Touching exposed live wires may give you an electric shock or you could even be killed.



Obvious dangers – yet we all make these mistakes

Changing a belt on a vacuum cleaner while it is still plugged in

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

Trailing the cable under the carpet or rug to keep it out of the way

Flexible cables trailed under carpets, rugs or across walkways are not only a major danger in terms of tripping , but also a fire risk.

For more information on electrical safety in the home visit our website at www.**esc**.org.uk

Drying clothes on an electric heater, with water dripping onto live parts

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, or 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 that you keep instructions in a safe place for future reference, such as when you need to replace a lamp.

For your safety you should check for visible markings on downlighters indicating lamp wattage and lamp type.

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

Our free leaflet, available for download on our website, gives advice on how to prevent your downlighters from becoming a fire hazard.

Storing combustible materials close to electrical equipment

Don't store combustible materials (clothes, papers, cleaning materials etc.) close to your service head (cut-out fuse), electricity meter or consumer unit, particularly where these are under the stairs (a means of escape in a emergency). There have been a number of serious fires in homes where a fault in such electrical equipment, the effects of which would otherwise have been contained, has set light to adjacent stored materials.

Having found the perfect spot to hang your picture, you begin to fix it to the wall

Don't drill holes or fix nails in walls or partitions without knowing what is hidden behind them. Walls and partitions hide electrical cables and gas and water pipes. Drilling through a live cable is extremely dangerous, and could cause electric shocks, burns or even fire. A cable-and-metal detector will help 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 15 cm from the top of the wall or partition or within 15 cm of an angle formed by two walls or 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 house. Although this is enough for most purposes, an increase in the use of computers, games consoles and other appliances has led to the number of sockets being needed in an average room to increase to eight. Extension leads and adaptors often provide a quick and easy solution but, in reality, these leads and adaptors are often misused, and can present a very real danger. In extreme cases they can overheat, which can cause a fire.

Don't

- Use adaptors plugged into other adaptors; or
- 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 most sensible action would be to **install extra sockets.** While you are at it, ask a registered electrician to install twin sockets rather than single ones.

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 appliances in your kitchen 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 30 cm 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. Under the national safety standard, almost all sockets in new electrical installations and any new sockets added to an existing installation must have RCD protection.

Don't

- Use any electrical equipment or switches with wet hands;
- Wrap flexible cables around any equipment when it is still warm;
- Clean an appliance such as a kettle while 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 – there are often live parts inside; or
- fill a kettle or a steam iron while it is plugged in.

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.

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.

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.

Don't

Don't bring mains-powered portable appliances such as hairdryers, heaters or radios into a bathroom. You could be severely injured or killed. You can get a fixed hairdryer with hot air delivered through a flexible plastic pipe installed in bathrooms.

Lights

- Enclosed ceiling lights are preferable to pendant light fittings (ones 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 consumer unit.

Supplementary bonding

Supplementary bonding involves connecting together the metal parts of electrical equipment (such as a heated towel rail) and the metal parts of a non-electrical item (such as a pipe) to prevent a dangerous voltage between them, if a fault happens.

- Supplementary bonding is often needed in the bathroom to reduce the risk of electric shock. It can happen as a result of touching the metal casing of electrical equipment (such as a light fitting or heater) and at the same time touching a metal non-electrical item (such as a pipe or radiator) when there is an electrical fault anywhere in the premises.
- An electrician can carry out supplementary bonding by connecting together the electrical and non-electrical items referred to above with a suitable cable (having green and yellow insulation). You may not normally be able to see existing supplementary bonding.
- Supplementary bonding is not needed for new electrical installations if all circuits in the bathroom have RCD protection.

Supplementary bonding should only be installed by a registered electrician.

Garden safety

What are the dangers of using electrical equipment in the garden?

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

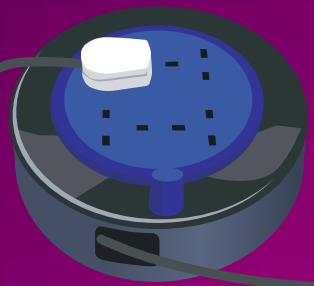
Many garden accidents are the result of handling equipment carelessly, lack of concentration and failure to follow the manufacturer's operating instructions. By following simple safety guidelines every time you work in a garden, you can easily avoid a serious accident.

Why do I need a residual current device (RCD) when using electrical equipment outdoors?

When 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 provide. 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.



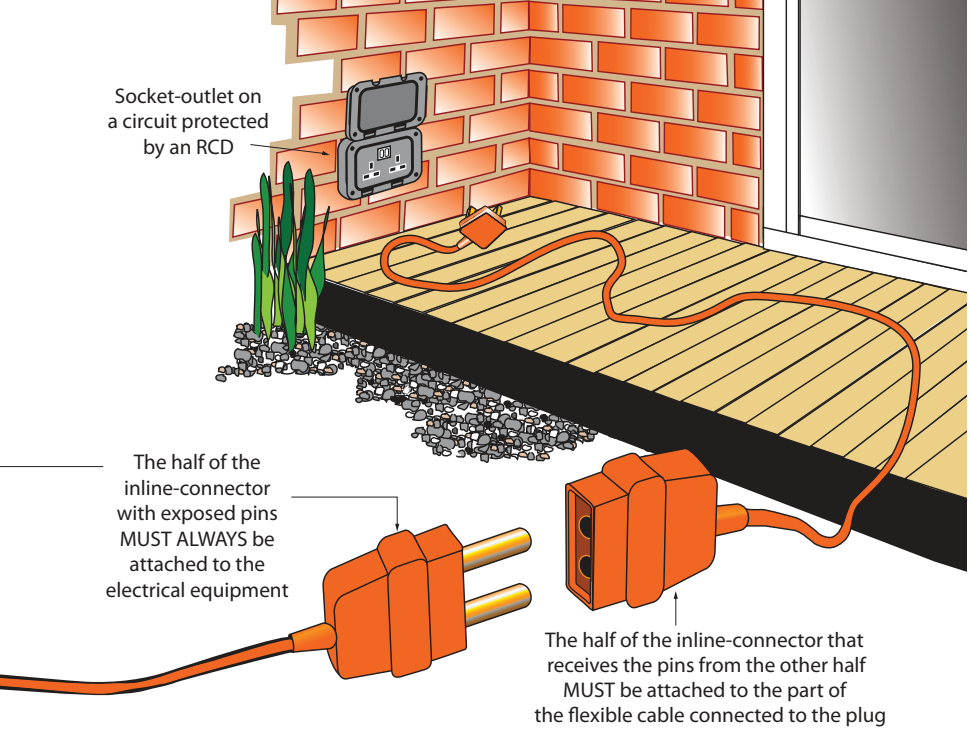
Extension leads, cables and connections

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

For safety 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; and
- Kept dry

If an 'inline-connector' (example illustrated) is required it must be correctly connected to the flexible cable ends by a competent person in order to avoid danger from any incorrect connections being made which might result in serious injury or death!



The plug MUST be UNPLUGGED from the main socket-outlet BEFORE:

OR
- ANY work is carried out on the electrical equipment,
- the 2 halves of the inline-connector are separated.

The plug MUST NOT be plugged back in UNTIL:

AND
- work carried out on the electrical equipment has been correctly completed,
- both halves of the inline-connector are firmly connected together.

Mowing the lawn/ 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 grass. The risk of electric shock from a damaged cable is high.

For safety:

- do not cut the grass or hedge in wet conditions;
- wear sensible footwear to protect your feet;
- check the cables, connections and plugs before use;
- keep the cable clear of the cutting area; and
- before clearing blockages or carrying out maintenance, unplug the lawnmower or hedge trimmer and wait for the blades to stop moving.

Checking a plug

All modern appliances in the UK use the familiar square-pin 13-amp plug. These plugs are used for handheld appliances such as hairdryers and vacuum cleaners, and appliances like microwave ovens. The plug and cable can suffer damage, particularly if they connect to handheld appliances. Checking a plug and its cable does not need a lot of detailed electrical knowledge and these tips should help. With the plug removed from the socket, check the cable from end to end and ask the following questions.

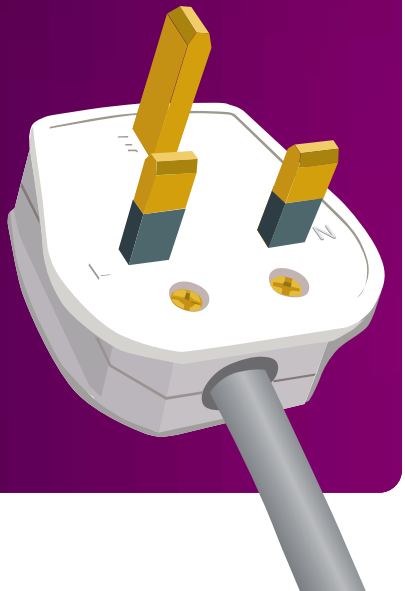
Is the cable securely attached to the appliance and the plug?

Is the cable cut, worn or damaged in any way?

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

Checking the plug

- Remove the plug from the socket and check the plug is not damaged.
- Look for signs of overheating, such as discoloured casing or cable.
- Check that the plug is marked British Standard BS 1363
- Check that the cable sheath is firmly clamped in the plug and that no coloured wires are showing.



If for any reason, you need to check that a cable is correctly wired and fused, do the following:

- Remove the plug from the socket, and remove the cover. Check that:
- the **brown** wire goes to live (L);
- the **blue** wire goes to neutral (N); and
- the **green-and-yellow** wire goes to earth (E).
- Check that the cord clamp holds the cable sheath securely and that both of the screws are tight.
- Check that the screws holding the three wires are tight.
- Check that the fuse is the correct size and meets British Standard BS 1362 - see the manufacturer's instructions if you are not sure what fuse to use. The fuse should clip securely into its holder. It should not be loose and there should be no signs of overheating.
- Replace the cover securely

Correctly wired plug

Most table lamps, standard lamps, televisions, computers, mixers, blenders, power drills, jigsaws, soldering irons will use 700W or less. Larger appliances such as washing machines, dishwashers and toasters, irons and heaters will use more than 700W. For your convenience these are just standard two plug fuse ratings (3A and 13A). For appliances up to 700W, you use a 3A fuse. For those over 700W, you use a 13A fuse.

Details of 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.

Benchmark Certification Ltd t/a CORGI membership

Phone: 0844 8794798

www.corgiservices.com

British Standards Institution

Phone: 0845 080 9000

www.kitemark.com

EC Certification Ltd t/a Elecsa

Phone: 0845 634 9043

www.elecsa.co.uk

NAPIT Registration Ltd

Phone: 0870 444 1392

www.napit.org.uk

NICEIC

Phone: 0870 013 0382

www.niceic.com

Limited domestic electrical installations

In addition to those stated on page 18, there are other government-approved scheme operators that register installers who carry out electrical work. This work 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

Phone: 0845 658 5080

www.oftec.co.uk

The Association of Plumbing and Heating Contractors

Phone: 0121 711 5030

www.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

Phone: 0870 013 0382

www.niceic.com

SELECT

Phone: 0131 445 5577

www.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

Phone: 0207 313 4800

www.eca.co.uk

NAPIT Registration Ltd

Phone: 0870 444 1392

www.napit.org.uk

NICEIC

Phone: 0870 013 0382

www.niceic.com

ELECTRICAL SAFETY COUNCIL

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Registered Charity (England and Wales) No. 257376 (Scotland) No. SC039990

The Electrical Safety Council (ESC) is a charity committed to reducing deaths and injuries caused by electricity.

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