

Electrical Safety Briefing Note

Extensions and Leads

Extension leads should only be used when it is not possible to reach a wall socket with the equipment cable.

When the use of an extension cable is unavoidable – follow these simple suggestions:

- Only use an extension lead which was bought from a reputable supplier and ready-assembled.
- It is recommended that no extension lead is more than 15 metres long.
- Only use extension leads fitted with suitably insulated connectors and plugs. (Never join two lengths of flexible cable by twisting the bare ends of wires together.)
- Position an extension lead carefully to prevent any risk of damage or tripping hazard.
- If the cable has to cross a pathway, cover it with a rubber protector strip.
- Always check that leads, plugs and sockets are undamaged prior to use.
- Always check the extension lead plug contains the correctly rated fuse for the equipment being used.
- If using a cable extension lead, it should be completely unwound to avoid overheating.
- For general use, 2-core extension leads should not be used.

Each Faculty and Service Department is responsible for purchasing their own extension leads and for ensuring the extension lead has a valid Portable Appliance Test (PAT) prior to use.

Dispose of and replace damaged extension leads – never repair them. Sticky tape isn't enough. It's not strong enough and won't provide enough protection from electric shock.

Types of extensions

There are a wide variety of types of electrical extensions, either to increase the distance or to increase the number of items we can plug in. They include:

- multiblock adaptors
- cable extensions with a single plug point
- multi gang bar extension leads
- cable reels.

Common Problems

Overloading The biggest hazard when using extension leads is overloading. This can be caused by plugging too many items into the extension bar or plugging one extension lead into another.

It should always be remembered that that they ultimately plug into a wall socket that is rated at a maximum of 13 amps or 3kW. Using all the available sockets and overloading the system can cause the extension to overheat; this is particularly prevalent in systems with coiled cables.

There is a chance that in fault conditions and with added resistance due to multiple fuses and heavy duty cables in the system, the fuse will not activate until a fire is well alight.

For this reason the University does not recommend using multi- block adaptors or cable reels, unless they can be fully unwound.

Use our [online calculator](#) on the Health & Safety web page to check that you are not overloading the sockets

Exposure to weather/moisture - Any extension that goes outside the building must have a protection device such as a Residual Current Device (RCD) fitted to the point where it enters the mains power system.

The RCD is a device that constantly compares current in and out. When it detects a change i.e. when the cable is cut or the current finds a better path to earth via the user, it will trip out and cut the supply fast enough to prevent death in normally healthy humans.

To reduce the likelihood of injury the RCD must have a tripping current of not more than 30 milliamps (mA). RCDs with a higher tripping current are used to protect against fire. RCDs must be regularly tested by pressing the 'test' button, and by making sure that the RCD operates. Faulty RCDs must be removed from use.

The preferred system is to have a dedicated weatherproof RCD supply. If one is not available and a power supply is frequently needed (such as for regular end-of-term social events, maintenance etc.) an exterior mounted supply point should be installed.

For very infrequent and one-off use out of doors, as a minimum users **MUST** use a portable RCD device. This is only acceptable as a temporary measure.

Chargers

The chargers that you receive with your mobile phone or tablet provided by the University will be sourced from a reputable supplier, so you can be confident that they are of good quality.

However, sub-standard and counterfeit electrical chargers can be deadly.

There has been an increase in the number of incidents being reported about faulty electrical goods, particularly fake, cheap and unbranded chargers.

Many imported chargers do not satisfy UK safety regulations and can cause serious electric shock, injury or fire – such items should not be used on University premises.

With that in mind, it's important to be aware of the risks when using a plug-in charger.

The 3-point safety check

Plug pins

Check that there is at least 9.5 mm between the edge of the pins and the edge of the charger (9.5 mm is about the width of a ballpoint pen). If the distance between the edge of the pins and the edge of the charger is less than 9.5 mm, there is a risk of electric shock when plugging in and unplugging the charger from a socket.

Plug the charger into a socket but don't switch it on or connect it to your appliance.

Does it plug in easily? If the charger does not easily plug into a socket, the pins may be the wrong size or length, or the distance between the pins may be wrong. If pins do not fit properly into the socket, overheating, arcing and mechanical damage can occur to both the socket and the charger, which can be dangerous.

Markings

Look for a manufacturer's brand name or logo, model and batch number.

Check for a CE mark

Check that the output voltage and current ratings marked on the charger and your electrical device are the same.

Do not rely on a CE mark alone as a guarantee of safety – it's simply a declaration by the manufacturer that the product meets all the safety requirements of European law, but they can be easily forged.

Warnings and instructions

Adequate warnings and instructions must be provided. As a minimum, user instructions should provide information on conditions and limitations of use, how to operate the charger safely, basic electrical safety guidance and details of how to safely dispose of the charger when it is no longer required.