

Safety Note 52

The Use of Electrical Extension Systems

2nd Edition, January 2022

THE USE OF ELECTRICAL EXTENSION SYSTEMS

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| Summary | | | |
| Information and guidance on the safe use of electrical extension leads for the University of Reading activities. | | | |
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Summary

The number of electrical items of equipment in use at work has proliferated in recent years. However, the number of power points where we can plug in has not kept pace; hence the common use of the electrical extension. Extensions come in many forms; the one common denominator is that they tend to be misused, abused and miss used if not managed appropriately. This Safety Note provides advice on safe use, to avoid the potential risks of fire or electric shock.

Types of extensions

There are a wide variety of types of electrical extensions commercially available, either to increase the distance or to increase the number of items which can plug in. They include multiblock adaptors (***the use of these is not authorised at the University due to fire safety***), cable extensions with a single plug point, multi gang bar extension leads and cable reels. Some types do both tasks and they all have good points as well as bad.

Common Problems

Overloading

The biggest problem with extension leads is overloading. Overloading electrical cables and circuits can cause a fire. Overloading can be caused by plugging in too many high load items or plugging one extension lead into another and thereby creating a chain of extension leads trying to support too many items or too high a load. All items plugged into an extension lead should not exceed 13 amps.

Access to the original power socket should be kept available to enable the extension lead to be isolated should the need arise i.e. not behind a filing cabinet.

Using all the available extension lead sockets or overloading the system could cause the extension to overheat; this is particularly prevalent in with coiled cables. Therefore all coiled cables must be completely unwound before use. If cable reels are not fully extended there is a risk the insulation will melt together.

Damage to cables

The other issue is trapping or damage to the cable as it goes through openings such as doors and windows, or when it is walked on. Cables should not go through windows as this can lead to the internal wires becoming exposed and damaged, with the risk of electrical shock.

Trailing Cables

Trailing cables pose the risk of being a trip hazard and also increases the likelihood of the cable becoming damaged. Cables that are being run across a walkway should be covered by a cable protector. This should prevent cable damage and avoid a trip hazard.

External Power Supplies

If there is a requirement for a power supply outside a building the Estates team should be contacted for advice.

Power supplies that are required outside have the increased risk of exposure to environmental conditions and damage.

The Estates team will assess the requirement and ensure that the electrical system is installed to the correct standard.

If there is a regular requirement for power supplies outside the building for events etc. it is recommended that a weatherproof socket is installed. Contact The Estates HELPDESK can be contacted to arrange installation.

Portable Appliance Testing

All extension leads must be included within the departmental Portable Appliance Testing (PAT) schedule and comply with the requirements established in the University of Reading Code of Practice 12.

<https://www.reading.ac.uk/health-safety-services/health-and-safety-resources/policies-guides-and-notes>

Any item not suitable tested under the PAT arrangements **should not be used**.

Faulty/Damaged Equipment

Should anyone discover a damaged or fault item of equipment they should isolate the equipment at the Main Power Supply Socket (where it is plugged into the wall) and disconnect the extension cable from the Main Power Supply Socket.

The fault item should then be removed and placed into a secure location until it can be inspected and either repaired or disposed of by a competent person with suitable electrical knowledge.

If the item is repaired is **must be retested** as per the Portable Appliance Testing policy before being reused.

If deemed appropriate an incident notification can be raised using the University incident notification system to allow an investigation to prevent a recurrence. See Code of Practice 9 for more information.

<https://www.reading.ac.uk/health-safety-services/emergency-procedures-and-contacts/incident-reporting>

Appendix

| Type | Good points | Common problems |
|--|---|---|
| <p>Multiblock adaptors</p>  | | <p>The use of 'multiblock' adaptors is not permitted in UoR. They should be removed if discovered.</p> <p>'Multiblock' adaptors can fail or become loose in the socket, causing overheating.</p> |
| <p>Single extension leads</p>  | Used to get power to a part of the room where there is no existing outlet. | Very simple system but the weak point is the cable. It is susceptible to damage and is a trip hazard. Never plug a 2 nd extension or a 3 way multiblock adaptor into the end. This would increase the resistance and the possibility of overheating, before the fuse blows. |
| <p>Multi gang bar extension leads</p>  | Often used to extend the outlet point and increase the number of plugs that can be connected. They are often fused and are readily available at low cost. | <p>They permit too many items to be plugged in and the single wall socket may become overloaded.</p> <p>When the fuse blows, the user might be tempted to replace it with a larger capacity one, thereby increasing the load on the internal connection points and increasing the risk of fire.</p> <p>As above the cable is a weak point for damage.</p> |
| <p>Reel cable extension leads</p>  | Used to provide power at longer ranges. They are very useful for providing power in rooms where there is no power i.e. lofts. | They are often not fully unreeled during use – this can cause the cable to overheat. |
| <p>Built-in RCD cable extension leads</p>  | Would not recommend for outdoor use. | There are some types that have the RCD at the reel end instead of at the plug end. The reel end types do not provide protection if the cable of the extension reel is damaged. The preferred type is the one with the plug RCD. |

