POEL 38- ELECTRICAL SAFETY AT WORK (including Smarter Working/ Homeworking)

INTRODUCTION

Each year 100's of accidents at work involving electric shock or burns are reported to the Health and Safety Executive (HSE). Between 2017 to 2022, 9 of these were fatal. Even non-fatal shocks can cause severe and permanent injury. Shocks from faulty equipment may also lead to falls from ladders, scaffolds, or other work platforms. Most of these accidents can be avoided by straightforward precautions.

Main Hazards

- **Electric shock** - Contact with live parts causing shock, electrical burns, loss of muscle control and thermal burns (normal mains voltage, 230 volts can kill).
- **Electrical faults** can cause fires and explosions.

The risk of injury from electricity is strongly linked to where and how it is used. The risks are greatest out of doors and in low resistance areas such as workshops, laboratories, and kitchens. Some items of equipment can also involve greater risk than others. Hand - held portable equipment and extension leads are particularly liable to damage - to their plugs and sockets, to their electrical connections, and to the cable itself. Other flexible leads, particularly those connected to equipment, which is moved a great deal, can suffer from similar problems.

Reducing the Risks

Underground cables and overhead power lines

Always assume cables will be present when digging or excavating. Do not carry out this work unless you have been specifically trained. Up-to-date service plans, cable avoidance tools and safe digging practices are needed to avoid danger. For further advice and guidance see HSE

Always check for overhead lines when any work outside is carried out. Do not carry out work beneath or near overhead lines until the safe distances and safe working procedures have been specified by the electricity supply company and your supervisor or manager. Remember that electricity can flash over from overhead lines even though plant and equipment do not touch them. Over half of the fatal electrical accidents each year are caused by contact with overhead lines. For further advice and guidance see HSE

Work safely

Switch off electrical equipment and unplug before cleaning or adjusting and ensure that the socket is switched off before plugging in or unplugging electrical equipment.

Make sure equipment is in good condition
All electrical equipment must be maintained to prevent danger and subject to formal visual inspections and tests by a competent person at appropriate frequencies. Many faults with work equipment can be found during a simple visual inspection.

Carry out pre-use checks on hand - held/ portable equipment such as electric tools, garden and kitchen equipment, fans, irons, Display screen equipment, phone and laptop chargers, powered floor cleaners and extension leads to make sure they are in good condition.

Pre-use checks should be carried out as follows:
- Switch off and unplug the equipment before you start any checks.
- Check that the plug is not damaged and that the cable is properly secured with no internal wires visible.
- Check the electrical cable is not damaged and has not been repaired with insulating tape or an unsuitable connector.
- Check that the outer cover of the equipment is not damaged in a way that will give rise to electrical or mechanical hazards.
- Check for burn marks or staining that suggests the equipment is overheating (Equipment may smell of burning/overheating even if there a no visible signs)
- Check that any trailing wires are postioned so that they are not a trip hazard and are less likely to get damaged.

If you are concerned about the safety of the equipment, you should stop it from being used and report it to your manager or supervisor.

Use a Residual Current Device (RCD)
RCD's must be used to reduce the risk of shocks when using electrical equipment out of doors and in low resistance areas such as workshops, laboratories and kitchens.

An RCD reduces the risk a serious electric shock but should only be used as a back-up; it is not a substitute for suitable equipment or proper maintenance.

The best place for an RCD is built into the main Circuit board, as this means that the electrical supply is permanently protected. If this is not possible, an electrical outlet incorporating an RCD, or a plug in RCD adaptor, can also provide additional safety. Any equipment that causes an RCD to trip should be withdrawn from use and checked out by a competent person.

All RCD's have test buttons to check that their mechanism are free and functioning correctly. These should be operated before use on RCD adaptors, plugs and sockets and quarterly on RCD's built into the main switchboard. (See G18- POEL 38a for guidance on how to check RCD's)

Remember:
- an RCD is a valuable safety device, never bypass it
- if the RCD trips, it is a sign there is a fault. Check the equipment before using it again
- if the RCD trips frequently and no fault can be found in the system, report it to your supervisor or manager (and seek competent advice if within the home setting)

- operate the RCD test buttons before use on adaptors, plugs and sockets and at least quarterly on RCDs in the main switchboard to check that the mechanisms are free and functioning

Electrical safety in the home working environment

With many more of us now working from home due to the Coronavirus pandemic, electrical safety within the home is as important as ever. In the year 19/20 there was approximately 19,300 accidental domestic fires of electrical origin (www.electricalsafetyfirst.org.uk). Faulty appliances and leads accounted for nearly 26% of these accidental fires.

Many of the ways to reduce the risks (as above) can be applied in the homeworking environment. For those staff working from home, the Shine Smarter Working (DSE) assessment must be completed as this may help to identify any risks associated with electricity and/or faulty electrical equipment.

The Working from home guidance includes a section on Electrical safety and Home Fire safety, and this can be found in the Coronavirus section of the Corporate Health & Safety manual on the LCC Professionals website, and on the Health and Safety Hub