

NEU Guidance for Reps and Local Officers

This briefing sets out NEU guidance on the law and practical advice on electrical safety in schools, produced in consultation with the Health and Safety Executive (HSE), the Association for Science Education (ASE) and CLEAPSS Schools Science Service.

Legal Responsibilities for Health and Safety

Electrical equipment is found in every school and work with electrical apparatus is a common part of many lessons. While accidents involving electricity are fortunately rare, care must always be taken to ensure the safety of those working with or around electrical appliances.

The Health & Safety at Work etc Act 1974 and the Management of Health & Safety at Work Regulations 1999 impose general duties on employers to ensure the health and safety of employees and others. The Electricity at Work Regulations 1989 also set out specific requirements on electrical safety. All of these apply in schools in the same way as all other workplaces.

School employers must comply with all of these. In community and voluntary controlled schools, the local authority, as employer, has principal responsibility. Governing bodies have certain delegated health and safety functions under local management but must follow their local authorities' policies and procedures. If any school fails to comply with these, the local authority may order maintenance, repairs and remedial work to be carried out and charge the costs to the school's budget.

In academies which are part of a chain, the academy trust is the employer. In stand alone academies, voluntary-aided, foundation and independent schools, the governing body is the employer. The employer has statutory responsibility for health and safety.

Wherever any alleged breaches of health and safety requirements are encountered, however, these should be reported to school management in the first instance and, if not resolved satisfactorily, to the NEU for further action to be taken.

The Law's Requirements

The Management of Health and Safety at Work (MHSW) Regulations 1999 require employers to undertake "suitable and sufficient" risk assessments to identify significant risks to health and safety, and enable measures to be taken to remove or reduce the risks. Risk assessments on electrical safety must take account of provisions of the Electricity at Work Regulations which cover all electrical systems, including electrical apparatus as well as the mains supply.

The following sections set out general guidance on compliance with the Regulations and the general duty to ensure health and safety in schools. More detailed advice on electrical safety in particular areas of school activity can be obtained from specialist bodies whose contact details appear at the end of this briefing.

“Competent Persons”

The Electricity at Work Regulations 1989 emphasise the need for persons undertaking the maintenance or repair of electrical apparatus to be ‘competent’, stating that:

“No person shall be engaged on any work activity where technical knowledge or experience is necessary to prevent danger or, where appropriate, injury, unless he possesses such knowledge or experience or is under such degree of supervision as may be appropriate having regard to the nature of the work.”

The Union’s advice is that:

- teachers cannot be required to undertake any electrical maintenance or repair work; and
- without exception, such work should be allocated to an individual with appropriate training and expertise.

Thus, straightforward, maintenance and repairs, e.g. plug-fitting, can be carried out by competent trained staff. Any day-to-day testing of electrical apparatus could be the responsibility of school science technicians or other support staff who have received the necessary training for this task. Only individuals who have the necessary professional skills should carry out more complex work on testing and maintenance.

The Mains Electricity Supply

Government advice in the past has been that batteries, rather than mains electricity, must always be used in primary science. Mains electricity is, however, needed for science lessons in secondary schools, as well as for general purposes in all schools. All schools will, therefore, need to ensure that the supply is safe and that pupils and staff are protected.

Taking precautions in respect of electricity is essential. Staff and pupils must be properly educated in the principles of electrical safety. In principle, school electrical systems should be as similar as possible to systems that pupils will encounter at home and elsewhere. In science laboratories, craft rooms and similar areas, residual current circuit breakers (sometimes known as ‘residual current devices’ (RCDs)) are often used to provide additional protection. Such devices are commonly used in homes and elsewhere.

Particular care should be taken to ensure that mains electrical circuits and installations are only ever modified by trained personnel and not by untrained staff or pupils. Any modified or ‘home made’ equipment should be inspected and tested for electrical safety by a competent person before use. Regular testing is then required.

Maintenance of Apparatus

Most apparatus used in school will have been designed to comply with modern electrical safety standards and should pose no risk if properly maintained in working order. The HSE recommends that all portable electrical apparatus should be visually inspected, at least once each term but more frequently if the nature of its use or environment suggests this. All earthed portable equipment such as drills, saws, irons, hand lamps etc should be subject to a detailed inspection and test at a frequency dependent upon the use of the equipment and determined by a competent person. Items which are rarely unplugged, e.g. refrigerators, will need inspecting and testing infrequently. Those which are unplugged regularly, e.g. low voltage units in science laboratories, will need checking annually, or even termly, depending

on the frequency of use.

A written record of the tests, in the form of a logbook or register, should be maintained and be available for examination, and the equipment itself should be marked with some form of identification. The date of the most recent test may also be included on a label.

The HSE advises that fixed electrical installations (including the mains system, sockets, lights and heaters) which have been installed in accordance with the Institution of Engineering and Technology's (IET) regulations¹ should be safe for general purposes, provided they have been adequately maintained. The HSE further advises that fixed electrical installations should be inspected by a competent person at least every five years, but that more frequent inspection and testing will be necessary if the installations are subject to damage and abuse, as is sometimes the case in schools or if the installation is in an adverse environment. A test certificate should be prepared showing the date and results of the inspection and test. A copy of the certificate should be kept at the school.

Electrical apparatus is either of earthed (Class 1) construction, double insulated (Class II) construction, or separated extra-low voltage equipment (Class III) construction. Any apparatus with a metal case is best treated as Class I (earthed) apparatus, which requires connection to earth with a low resistance conductor, unless the manufacturer states specifically that it is Class II (double insulated) equipment. Class II equipment has either an all-insulating case or any exposed metalwork is separated from live parts by either double or reinforced insulation – for example the metal chuck of a double insulated drill. Portable appliance test sets are available for testing equipment and tests should be carried out at suitable intervals according to use and/or environment.

Clearly, good sense dictates that equipment should always be visually checked before use as well. In particular, attention should be paid to the condition of power cables and of their terminations, as these are often damaged, wrenched and jerked, which may loosen their connections.

The HSE strongly recommends that when new or replacement electrical equipment is purchased by schools, consideration should be given to equipment such as soldering irons and hand lamps operating at voltages of 50V AC or less.

Working with Live Electricity

Where pupils are working with electrical equipment, including equipment running off larger batteries which can give sizeable shocks and/or serious burns, it is essential that the teachers and technicians should give adequate supervision to the pupils concerned. Those supervising should have adequate knowledge and experience of electrical work, an understanding of hazards and the precautions which need to be taken, and an ability to recognise whether it is safe for work to continue.

Electrical Socket Protectors

Plastic socket protectors, which are designed to fit into plug sockets, can in fact override the safety features of plug sockets, and therefore, should not be used in schools. This is because sockets are most commonly manufactured to British Standard 1363, which specifies that they must have a shutter mechanism which stops the insertion of foreign objects into the socket tubes. As socket protectors are not manufactured to any safety

¹ The IET publishes the Wiring Regulations BS 7671:2008(2011), the industry standard for electrical installations.

standard, the pins may be longer than the socket tubes and therefore cause damage to the socket and defeat the safety design of BS1363. In some cases the insertion of socket covers, or their breakage whilst in use, can allow foreign objects to be inserted directly onto live parts within the socket, thus presenting a high risk of electric shock.

Accidents involving Electricity

Electricity can cause death or injury from electric shock, electric burn, fires or explosions of electrical origin, and electric arcing. The passage of electric current through the body may cause muscular contractions, respiratory failure, fibrillation of the heart, cardiac arrest, brain injury or injury from internal burns. It is essential, therefore, that school first aiders have received training in dealing with an injury involving electricity and receive refresher training at regular intervals.

All accidents, and near misses, involving electricity need to be taken seriously and should be recorded in the school's accident book and reported to the local authority on health and safety reporting forms or via an online reporting system where this exists.

Injuries resulting from an electric shock or electrical burn leading to unconsciousness or requiring resuscitation or admittance to hospital for more than 24 hours must also be reported to the HSE under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR). Injuries, which involve the injured person being away from work for more than 7 days, must also be reported under RIDDOR, as must dangerous occurrences, ie incidents which do not result in a reportable injury but which clearly could have done. Reporting should be done via the online reporting system on the HSE website, at <http://www.hse.gov.uk/riddor/report.htm>². Further information on reporting accidents in schools is contained in the NEU health and safety briefing Accidents and Injuries, available at <https://neu.org.uk/>.

To help prevent accidents, school staff should not accept gifts of second-hand electrical appliances, nor should they bring in their own appliances from home, unless the equipment has been tested by a competent person.

Further Advice and Help

Useful sources include:

- the electricity pages of the HSE website at <http://www.hse.gov.uk/electricity/index.htm>
- the CLEAPSS School Science Service contactable on 01895 251496 or at www.cleapss.org.uk (members only, but this includes all local authorities and hence all their schools and officers, together with many foundation, voluntary aided and independent schools) and
- the Association for Science Education offers advice to members on 01707 283000, email info@ase.org.uk or at <http://www.ase.org.uk/home/>.

² In the case of fatal and major injuries, the Incident Contact Centre should be contacted on 0845 300 9923 (opening hours Monday to Friday 8.30 am to 5 pm).

Action Points for Safety Reps

Make sure that:

- arrangements for testing, maintenance and use of electrical equipment in your school are in accordance with the standards advised in this guidance.

NEU Health and Safety Unit
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