



St Peter's College

ELECTRICAL SAFETY

References:

- A. Peninsula Business Services Guidance Note 4-1, Electrical Safety.
- B. University Safety Office Policy Statement S4/10, "Working safely with Electricity".

Introduction

1. The Electricity at Work Regulations 1989 impose a legal framework specific to electrical safety and is applicable to all work activities with electricity. There are no voltage limits and the scope of the Regulations extends from the smallest, simplest battery systems such as torches etc, to the national transmission systems. The aim of the Regulations is to prevent injury from whatever source of electrical energy.
2. Whilst limitations of resource limit direct involvement of College staff with electrical work, there are, nevertheless, important policy matters that must be taken into account.

Legal Duties

3. The Electricity at Work Regulations 1989 require heads of house to ensure that electrical systems and equipment for which they are ultimately responsible are designed, operated, maintained, modified and extended in such a way which avoids danger. This responsibility is likely to be devolved to the Bursar.

Definitions

4. Whilst not all of the following will come into everyday use, it is important to be aware of their existence and meaning:
 - a. **An electrical system** is a system in which all the electrical equipment is, or may be, electrically connected to a common source of electrical energy.
 - b. **Electrical equipment** includes anything used, intended to be used or installed for use, to generate, provide, transmit, transform, rectify, convert, conduct, distribute, control, store, measure or use electrical energy.
 - c. **The Person in Control of Electrical Danger** is the **Duty Holder** – this person must be competent by formal training and experience and with sufficient knowledge to avoid electrical danger. The level of competence will differ for different items of work.

Work on College Fixed Electrical Systems

5. Any major work on the College's electrical system will be contracted out to a suitably qualified contractor. When any electrical work is initiated, and this includes design, the person in control of the work must comply with all relevant legislation, the requirements of relevant statutory safety policies and all relevant electrical safety standards. Persons involved in design, construction and operation of electrical systems must be fully aware of the requirements of all relevant legislation and standards to ensure that safe systems can be established and maintained. It will be the responsibility of either the Bursar or Facilities Manager to ensure, either directly or through a

managing contractor, that contracted parties are qualified prior to commencing works on any College site.

6. At the commencement of works on any College main electrical system, the contractor will be in CONTROL of electrical danger ie only that contractor has the authority to determine when a supply should be turned off or on. The contractor is referred to as the legal “duty holder” in accordance with the Electricity Regulations.

7. Regular Inspection Regime. Every new or extended electrical system should be given an initial test of integrity before being taken into use. A record of this initial test of integrity should be made on the Electrical Installation Certificate (or equivalent) form approved by the trade bodies such as the ETCI, NICEIC, SELECT or ECA. At this time, the interval to the first inspection of the system should be agreed between the designer of the system and the installer and entered onto the installation certificate before it is issued. Subsequent routine test and examination of the electrical system should be based on your own assessment of the potential risks and the recommendation of the competent qualified electrician inspecting the system. The electrician’s recommendation will be based on guidance issued by the competent authorities tempered by their own assessment of risk factors at the workplace including:-

- the type of installation and connected equipment
- the use and operation of the installation
- the frequency and quality of the maintenance regime
- the external influences to which the installation is subject.

The inspection regime pertinent to the College is as follows:

Type of installation	Maximum period between inspection and test
Domestic (may apply to Joint Equity properties)	<p>1. Inspection & earth testing of socket circuits and RCD instrument tests at change of occupancy.</p> <p>2. Combined inspection and test every 10 years.</p>
Working and living accommodation	5 years
Chapel	5 years
Lightning protection	11 months
Emergency lighting	1 year
Fire alarms	6 months

Purchase or Disposal of Electrical Equipment

8. The Electrical Equipment (Safety) Regulations 1994 require electrical equipment to be safe and constructed in accordance with good engineering practice. Equipment purchased from outside the EC must always be verified as electrically safe by the importer or supplier and CE marked. Purchasers are advised that CE marking does not always provide the requisite assurance. Where there is doubt, the device/equipment should be PAT tested (and see below).

9. Electrical equipment that is to be sold on, or which is to be donated by an external agency or person, must also be safe and meet legal safety requirements in relation to its design and construction. This must be verified before being offered for sale or donated. Written instructions for safe operation of the equipment must also be provided for the intended recipient. Electrical equipment that is hired out or contracted in is also within the scope of the Regulations.

10. End of life disposals of electrical equipment must be in accordance with the EU's Waste Electrical and Electronic Equipment Directive (WEEE Directive). This minimises the impact on the environment, by re-using, recycling and reducing the amount of WEEE going to landfill. Advice should be sought through the Bursar's office prior to disposing of any of the College's electrical equipment.

Portable Electrical Equipment

11. General. The College is required to ensure that portable equipment, like the fixed installation, is properly maintained and safe for use. Portable equipment will require regular maintenance and checking to ensure continued safe use. Some portable equipment may need an electrical safety test to confirm that they are safe to use (and see above at paras 8 and 9). If the electrical integrity of portable equipment is not maintained, it exposes the user to the risk of electric shock, electrical burn and of secondary accidents eg a fall from a ladder. Faulty portable electrical equipment also exposes the College to the risk of fire; in many industrial and commercial fires, a faulty portable appliance is found to have been the initial source of ignition.

12. Reducing the Risk. Line managers at the College must assess the risk to employees from the use of portable electrical equipment. When compiling the risk assessment (and see the College policy), the assessor should take into account the different types of portable equipment, where it might be used and the conditions under which it might be used. Possible actions that might arise from the assessment may include:

- using self-contained battery powered tools wherever possible.
- connecting all portable electrical equipment to the power supply through a residual current device (RCD).
- using low voltage, 125 volts or lower, hand tools supplied through an isolating transformer. The transformer should have a power cord no longer than 2 metres and be plugged into a mains socket. The transformer should never be plugged into an extension cable.
- using 25 volts ac or 50 volts dc portable hand lamps in construction work and work in damp or confined spaces.
- training and instructing the workforce to check for faults before use on a daily basis or before 'plugging-in' and using portable equipment.
- ensuring that the portable equipment and extension cables are routinely inspected and tested for electrical integrity.
- the replacement of equipment that is unsuitable for its working environment.
- as equipment comes to the end of its viable working life replacing it with safer and more suitable equipment.
- the elimination of electrical hazards by using air, hydraulic or hand-powered tools.
- providing additional socket outlets to reduce the need for or length of trailing extension leads.
- replacing damaged cables and using heavy duty rather than lightweight cables; and
- using proper connectors or cable couplers to join lengths of cable (not strip connector blocks covered in insulating tape).

- routing cables away from areas where they are prone to damage (walkways, etc) and securing cables in situation to prevent them spilling into walkways or hazardous areas.
- making sure that extension reels are fully unwound when in use. (If they are used whilst wound up the coils of cable can overheat and start a fire).

13. Inspection and Maintenance of Portable Electrical Equipment. It is a legal requirement that portable electrical equipment should be properly maintained to prevent danger. A regime of daily visual inspections supported by more detailed periodic examination, and **sometimes** a test, is necessary. Employees should visually check portable electrically operated equipment on a daily basis or before it is used. They should be instructed and trained to visually check for:

- obvious damage on the equipment enclosures and insulation.
- obvious damage to the cable or lead supplying the equipment.
- evidence of any temporary repairs such as taped connections.
- loose connections or loose cabling.
- damage to the plug tops or sockets being used.
- scorch or burn marks on the equipment, leads or plug tops.

Employees discovering a defect in portable equipment during these checks should not use the equipment and should report the defect to their Supervisor. The following table details the inspection regime to be adopted by the College:

Type of Equipment	User Checks Daily or before use	Formal visual inspection (frequency depends on usage and operating conditions)	Combined inspection and test (frequency depends on usage and operating conditions)
Hired equipment	Yes	Before issue and return	Before issue
Light industrial	Yes	Before initial use and then 6-monthly	6-12 months
Office IT	No	1-2 years	None if double insulated otherwise up to 5 years
Double-insulated equipment <i>not</i> hand-held, e.g. fans, table lamps	Yes	2-3 years	No
Hand-held, double-insulated (Class II) equipment, e.g. some floor cleaners, kitchen equipment and irons	Yes	6 months – 1 year	No
Other earthed (Class I) equipment not listed elsewhere, e.g. electric kettles, some floor cleaners	Yes	6 months – 1 year	1-2 years
Equipment used by the public, e.g. in bed & breakfast	By member of staff	3 months	1 year

Cables and plugs, extension leads	Yes	1 year	2 years
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