



## **CONTROL OF ELECTRICITY AT WORK**

### **Introduction**

The Electricity at Work Regulations 1989 requires persons in control of work place electrical systems to ensure that they are safe to use and maintained in a safe condition. This document has been developed to ensure that LSHTM complies with these Regulations.

It is the responsibility of the Deans of Faculty, Heads of Professional Services and the Director of Estates to ensure that any activity within their area involving the use of electrical installations is subjected to a risk assessment. The risk assessment shall cover design and installation, maintenance and modification of the system and supervision of work activities. All of these aspects must be undertaken by a competent person. The document provides guidance on factors that must be taken into account during the installation/modification activities, which must be recorded.

The document also provides information on the circumstances under which work on a live system may be carried out (where possible the system should always be isolated before being worked on).

The document is accompanied by guidelines for carrying out inspection and testing of portable appliance equipment and the inspection intervals for general low-risk office equipment.

LSHTM requires that all electrical appliances and systems are maintained in good condition and safe working order, and testing/inspections of such appliances and systems are carried out as required and appropriate.

With regard to the use of electrical appliances and systems, LSHTM will adopt the provisions of the Electricity at Work Regulations 1989 as setting minimum standards.

### **Application**

This document applies to:

- Any contractor that LSHTM hires to apply, suitable controls to ensure compliance with the relevant legislation and good practice guidance during all activities associated with electrical appliances and systems. Routine maintenance requirements of such appliances and systems shall be determined by risk assessment and shall include, where the risk assessment highlights the need, regular visual inspections and/or electrical testing, at appropriate intervals.
- The Director of Estates and
- Those in managerial positions (i.e. Deans of Faculty, Heads of Professional Services and their Managers and Supervisors) as their duties include ensuring that electrical appliances and systems are maintained in good condition and safe working order.

## **Responsibilities**

### **Director of Estates, Deans of Faculty and Heads of Professional Services**

The Director of Estates, Deans of Faculty and Heads of Professional Services are responsible for:

- The implementation of this procedure within their area of responsibility
- Ensuring that risk assessments are undertaken for all tasks involving the use of electrical appliances or systems, including:
  - Installation
  - Procurement of all electrical equipment, ensuring all equipment complies with UK and EU standards
  - Commissioning and acceptance testing
  - Maintenance, regular inspection and performance testing
- Ensuring that risk assessments will address the risks of damage, injury or death from electrical causes, including the following risks:
  - Electric shock
  - Electrical burns
  - Fires of electrical origin
  - Electrical arcing
  - Explosions caused or initiated by electricity
- Ensuring that Statutory Inspections of equipment are undertaken.
- Establishing and maintaining a Register of all portable electrical appliances within their area(s) of responsibility. This Register will contain:
  - A list of all relevant equipment
  - Records of visual inspections and any formal test and examination certificates
  - A record of any remedial action carried out in response to deficiencies identified as a result of inspections or tests
  - A record of any modification and subsequent examination
- Ensuring that the Register is modified when equipment is either acquired or disposed of.
- Ensuring that a Schedule of Visual Inspections covering equipment within their area(s) of responsibility is established and implemented. The Inspection frequency shall follow the schedule in Table 1 unless risk assessment deems more frequent inspections to be necessary.
- Visual Inspections should be carried out by the member of staff responsible for the appliance
- Ensuring that, in addition to the Schedule of Visual Inspections, examinations also take place:
  - Before equipment is used for the first time
  - When there is reason, e.g. due to damage, to believe that the equipment may not be safe or does not conform to legal requirements
  - After equipment has been modified or undergone significant repair
- Implementing suitable and sufficient corrective action to remedy any problems revealed, within an appropriate time limit.
- Ensuring that all portable electrical appliances are formally visually inspected and tested (PAT) by a Competent Person, in accordance with Table 1. These persons will either be:
  - A qualified contractor
  - A member of the Estates Department or Campus Management
  - Or another formally appointed competent member of staff
- Removing the equipment from service when the Visual Inspection or other testing (e.g. PAT) shows that such action is necessary

- Maintaining the Register, Schedule, Visual Inspection and other test Reports, together with any accompanying documentation, for audit and review purposes, for the life of the equipment plus a minimum of three years
- Ensuring that Competent Persons are responsible for all assigned activities, i.e. the assessment, design and installation of controls, maintenance and modification to the system and supervision of work activities
- Record of formal isolation, lock off and test should be implemented e.g. isolation certificates
- Ensuring that a permit-to-work is used in the following circumstances:
  - When the work involves, or is in the vicinity of, live conductors
  - Where it is reasonably foreseeable that the system may become inadvertently energised
  - Where the system has not been isolated.
  - Work may only be carried out on a system that has not been isolated if:
    - It is unreasonable in all the circumstances for the system to be dead
    - It is reasonable in all the circumstances for the installation or equipment to remain live
    - Suitable precautions, including the provision, where necessary, of suitable protective equipment, are taken, including the following:
      - Isolation
      - Locking off
      - Discharge of stored energy
      - Earthing
      - Insulation
      - Test before work commences
      - A Competent Person trained in emergency response actions accompanies the person assigned to the task
      - Arrangements have been made for the provision of emergency resuscitation and first aid

**Note:** Such work may only be carried out by Estates

**Note:** The Director of Estates, Deans of Faculty Deans and Heads of Professional Services may delegate the above tasks to specific Managers, within their area of authority, as appropriate.

Responsibility for health and safety forms part of managerial responsibility, through the management chain, even if not formally specified in the job description. The supervision of health and safety can be delegated, but the responsibility cannot.

### **Competent Person**

The Competent Person is responsible for:

- Ensuring that electrical system design or modification activities take into account the following factors:
  - The user's requirements of the equipment/installation
  - The manufacturer's assigned or certified rating of the equipment
  - The likely load and fault conditions, taking account of the contribution to the fault level from connected electrical loads
  - The ability of the equipment and protective devices to prevent excess current and handle likely fault conditions
  - The requirement for earthing and other suitable precautions

- The environmental conditions under which the equipment could be used
  - The suitability and mechanical strength of connections
  - The requirements for electrical insulation, protection or placing of conductors in order to prevent danger
  - The provision of means of cutting off the supply and isolation
  - The manner in which commissioning, testing and subsequent maintenance may need to be carried out
- Ensuring that electrical system design or modification activities are recorded (in the building health and safety file), in order to aid future activities on the system
  - Recommending appropriate control measures, in the form of a written report, to remedy any problems revealed. When making recommendations for control measures, the general preferred hierarchy of risk control principles must be followed.

## **Definitions**

### **Portable appliance**

This is equipment that is not part of a fixed installation but is, or is intended to be, connected to a fixed installation by means of a flexible cable, plug and socket. It includes equipment that is either hand-held or hand-operated while connected to the supply or is intended to be moved, or is likely to be moved, while connected to the supply. This includes all portable electrical appliance equipment such as electric water kettles and radios that have been brought on to the premises by individual members of staff.

## Guidance for Undertaking Visual Inspections of Portable Electrical Appliances

**NB:** It must be remembered that **NO** member of staff is to repair any piece of electrical equipment, or to take an appliance or plug to pieces, unless specifically contracted to do so by LSHTM.

**Contractors shall, on an annual basis (unless otherwise stated):**

### 1. Visually check:

- The plug sockets to ensure that there are no signs of excessive heat - for example, burn marks or melted plastic
- The cable and wires going into the plugs to ensure that no wires are loose and that the cable sheath is not frayed, split, taped or missing
- That the plug is not cracked and the pins are not bent - if applicable and the plug is removed from the socket as a matter of course
- That all switches are clean and in good condition
- That equipment is operated with covers in place
- The outer cover of the equipment for obvious loose parts or screws and signs of overheating, burns, marks or staining

If any defects are found through the visual checks above then the equipment will be removed.

*Table 1 - Intervals for the Inspection of Portable Appliances in Offices and Other Low-Risk Environments<sup>1</sup>*

Equipment	User checks	Formal visual inspection	Combined inspection and testing
Battery operated (less than 20 volts)	No	No	No
Extra low voltage (less than 50 volts), e.g. telephone equipment, low voltage desk lights.	No	No	No
Information technology, e.g. desktop computers, DSE screens	No	Yes, 2 - 4 years	No, if double insulated - otherwise up to 5 years.
Photocopiers, fax machines NOT hand held and rarely moved.	No	Yes, 2- 4 years.	No, if double insulated - otherwise up to 5 years.
Double insulated equipment not hand held and moved occasionally, e.g. fans, table lamps, and slide projectors.	No	Yes, 2- 4 years.	No
Double insulated equipment HAND-HELD, e.g. some floor cleaners.	Yes	Yes, 6 months - 1 year.	No
Earthed equipment, e.g. electric kettles, some floor cleaners.	Yes	Yes, 6 months - 1 year.	Yes, 1- 2 years.
Cables and plugs connected to the above.  Mains voltage extension leads.	Yes	Yes, 6 months - 4 years depending on the type of equipment it is connected to.	Yes, 1 - 5 years depending on the type of equipment it is connected to.

<sup>1</sup> Source: *Maintaining Portable Electrical Equipment in Offices and Other Low-Risk Environments*, HSE, INDG 236, April 2004

## Further Information

- Electricity at Work: safe working practices HSE HSG85
- Maintaining portable electric equipment in low-risk environments HSE INDG236(REV3)
- Electrical safety and you: A brief guide HSE INDG231(REV1)
- Memorandum of guidance on the Electricity at Work Regulations 1989. Guidance on Regulations HSE hsr25
- <http://www.hse.gov.uk/electricity/faq.htm>