

Education Department Policy

Title	Electricity at Work Policy To ensure the safe working within Education with regard to electrical energy
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1 INTRODUCTION

This guidance is provided to assist Head Teachers, Centre Managers and Heads of Departments in the Education Department in providing a place of work free from risks to health and safety, and to ensure that work activities do not adversely affect the health and safety of employees and any others affected by work activities, particularly young people.

It should be read in conjunction with the guidance on the Provision and Use of Workplace Equipment.

Electricity at Work

The Health and Safety at Work (Jersey) Law 1989 and the Electricity at Work Regulations 1989 (EAWR) impose duties on both employers and employees with regard to electrical safety.

Employers are required to ensure the safety of their employees and others, including contractors and members of the public under Article 3 and 6 of the Health and Safety at Work (Jersey) Law 1989. Employees are also required to take care for their own health and safety and that of others (Article 4; of Health and Safety at Work (Jersey) Law 1989.

EAWR requires employers to assess work activities involving electricity in terms of any associated risks; employers must ensure that electrical equipment is properly constructed, installed and maintained and that installations are suitable for the environment in which they are used.

If found necessary suitable personal protective equipment should be provided and maintained in good condition.

Employers are also required to ensure that work activities, including maintenance, are carried out safely and that persons carrying out electrical work must be competent and on the JPH approved contractors' list for the tasks which are assigned to them.

Fuller details of the requirements of the EAWR 1989 are given at Appendix 1 and several definitions relating to electricity are given at Appendix 2.

Policy

Education is committed to providing a safe working environment for employees and others affected by work activities. It acknowledges that work on electrical equipment can be hazardous and will reduce the risks as far as is possible. It will therefore take all reasonable steps to secure the health and safety of employees who use, operate or maintain electrical equipment.

Education's Head Teachers and Heads of departments, sections or services are responsible for implementing this policy and employees have a responsibility to comply with it. Where a problem related to electricity at work arises, employees must inform their line manager or responsible person immediately and action will be taken to investigate and rectify the situation without delay.

Contractors working on Department property or sponsored projects are required to comply with this policy.

Responsibilities

The following is not intended to be a comprehensive list but is provided as guidance to Education's Managers in order to help them meet their duties to provide a safe place of work.

Head Teachers, Heads of Services and Managers must ensure that:

- Electrical installations and equipment are installed in accordance with the current Institute of Electrical Engineers (IEE) Wiring Regulations (advice shall be sought from the States of Jersey Property Holdings Department if required).
- All work undertaken on electrical installations is undertaken by an approved contractor from the JPH list, and the organisation must be endorsed by the NICEIC (National Inspection Council for Electrical Installation Contractors).
- All electrical work is undertaken by electricians approved by the NICEIC or Electricity Training Association (ETA).
- The fixed installation is maintained in a safe condition by carrying out routine safety testing.
- Portable and transportable equipment is visually inspected by the user on a regular basis (HSE guidelines regarding frequency shall be used as best practice) (see Appendix 4).
- Portable and transportable equipment is tested as frequently as required (the frequency will depend on the environment in which the equipment is used and the conditions of usage, *ibid.* HSE Guidelines).
- All work carried out using, maintaining, inspecting or testing a system or equipment is undertaken using a safe system of work (see Appendix 3 for 'SSW's).
- Electrical equipment is suitable for use by identifying and assessing operational needs prior to its purchase, obtaining advice and assistance from a competent person (the States of Jersey Property Holdings Department, Principal Maintenance Manager) (ESC's Approved Contractor) where necessary.
- Work on live systems is undertaken only by approved contractors and only when all the following are in place: Projects involving live working shall only be controlled and managed by the States of Jersey Property Holdings Department. Live working will only be permitted as follows:
 - Live work cannot be avoided and
 - A 'permit to work' is issued by the contractor prior to work commencing and
 - A risk assessment is undertaken and attached to the permit to work. (Copies of this paperwork are to be given to the person in charge of the site and made available on request).
- Employees who carry out electrical work are competent to do so (see Paragraph 6 below).
- Any work on equipment or systems above 240 volts is only carried out under contract by approved contractors who are competent, trained and equipped for this work.
- Contractors receive safety information and are fully aware of (and prepared to abide by) the Education Department's and site health and safety arrangements;

- Suitable Personal Protective Equipment is provided where necessary and is maintained in good condition.
- Detailed records of all the above are maintained (see Appendix 6 for a list).

Employees

All employees shall:

- Ensure that all electrical equipment and systems are treated with care and not misused in any way.
- Not attempt to repair electrical equipment and systems. All defects must be reported to the designated manager without delay.

Never use electrical equipment in damp surroundings or where flammable vapours may be present, unless you know that it is suitable for that purpose.

The States of Jersey Property Holdings (JPH) Department

JPH is responsible and accountable for monitoring electrical safety across the Education Department.

Information and Training

Information, instruction and training must be provided to all employees so that they may work safely without risk to their health and safety.

Education employees will not undertake PAT and this task will be carried through the JPH cyclical maintenance programmes.

Operators and users of electrical equipment will need to understand:

- The dangers of electrical shock, burns, fire and explosion;
- The most common causes of electrical accidents and the means of preventing them;
- Any particular electrical hazards which are most likely to occur in the industry and environment in which they work;
- Department and local policy relating to the operation, use and maintenance of electrical equipment;
- The importance of reporting equipment defects promptly and not using equipment once a defect has been found.

In addition to the above, managers and supervisors must understand the limits of their competence and how and when to seek technical assistance.

Safe Systems of Work

Most people are aware of the health and safety hazards associated with electricity. In order to prevent injuries and fatalities safe systems of work should be in place. Appendix 3 outlines safe systems of work to be followed and Appendix 4 gives details of portable electrical testing requirements. Each School / Service/ Centre should draw up its own safe systems of work taking into account local conditions.

Further Information

Free publications available from the UK Health and Safety Executive (HSE) are listed below (Internet references given where applicable): Note: publications are also available from the States of Jersey HSI on request.

- Maintaining portable electrical equipment in offices and other low risk environments (Ref. INDG236), 1996 <http://www.hse.gov.uk/pubns/indg236.pdf>
- Maintaining portable electrical equipment in hotels and other tourist accommodation (Ref. INDG237) <http://www.hse.gov.uk/pubns/indg237.pdf>
- Electrical safety and You (Ref. INDG231) , 1996 <http://www.hse.gov.uk/pubns/indg231.htm> Do you use a steam / water pressure cleaner? You could be in for a shock! (Ref.INDG68 rev), 1997

Priced publications available from the HSE include:

- Electricity at Work: Safe Working Practices (Ref. HSG85), 1993
- Maintaining portable and transportable electrical equipment (Ref. HSG107), 1994
- Memorandum of guidance on the Electricity at Work Regulations 1989 (Ref. HSR25), 1989

Health and Safety Executive:

Mail Order: HSE Books, PO Box 1999, Sudbury, Suffolk CO10 2WA Tel: (01787) 881165

Home page: <http://www.hse.gov.uk>

Sources of Advice and Assistance

- The States of Jersey Property Holdings Department - Provision of advice and information relating to fixed electrical systems, electrical appliances and contracted electrical work;
- CLEAPSS School Science Service (*Consortium of LEAs for the Provision of Science Services*)- Provision of advice and information relating to electrical equipment in science and design and technology curricula and related generic risk assessments. Helpline –(01895) 251496

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APPENDIX 1

MAIN REQUIREMENTS OF THE ELECTRICITY AT WORK REGULATIONS, 1989

(See Appendix 2 for definitions of the terminology)

- All electrical systems are to be constructed and maintained so as to prevent danger at all times, so far as is reasonably practicable.

The design and safe system of work must take into account the future operation, maintenance and any other work affected by the system. All required protective equipment must be provided, be suitable for the intended use, properly used and suitably maintained.

- The safe working limits of electrical equipment are not to be exceeded.

Unusual working conditions that might cause safe working limits to be exceeded are to be identified and appropriate safeguards provided. These may include; electrical and mechanical faults; power surges; heating; electromagnetic effects.

Electrical equipment must be constructed to prevent, so far as is reasonably practicable, any danger arising from foreseeable to adverse exposure.

This could include; mechanical damage; the effect of weather; wet, dusty, dirty or corrosive conditions; contact with flammable or explosive substances.

- All conductors in a system must be insulated or protected with a suitable material or be sited/ isolated so as not to present danger.
- Any conductor must either be earthed to discharge the electrical energy or have some other suitable precaution to prevent danger arising as a consequence of the conductor becoming charged. Such conductors may include metal casings, ionic salt solutions in the vicinity or conductor that does not form part of the system, but is within the electrostatic or electromagnetic field of the system.
- Every joint and / or conductor in every system must be suitable for its intended use.
- Suitable forms of protection must be installed within the system so as to protect all parts of a system from foreseeable excess currents. This must take the form of fuses, circuit breakers etc.
- Suitable means of cutting off (switching off) and isolating (includes the prevention of inadvertent connection) the electrical energy supply to equipment must be available. Where it is not possible to cut off or isolate the equipment (as in live working for example) all possible precautions, so far as is practicable, must be taken.
- Precautions must be taken to ensure that dead equipment does not become electrically energised, if this would create a danger. All conductors should be proved dead before the commencement of work.
- All live conductors must be suitably insulated. Work may not be carried out on or near any live conductor which would give rise to danger unless:
 - Suitable precautions (including protective equipment) are taken to prevent injury;
 - It is unreasonable for the conductor (in all circumstances) to be made dead;
 - It is reasonable (in all circumstances) for the conductor to be live whilst the work is carried out on or near it.
- Adequate means of access, lighting and sufficient working space must be provided and maintained to all electrical equipment on which work is being carried out, to allow the operative to stand back from the conductor without hazard and where necessary allow persons to pass each other without risk.
- Only persons having the appropriate technical knowledge, suitable training and experience are permitted to undertake electrical works.
- No 'live' work is to be carried out under any circumstances unless special permission has been sought and a full risk assessment, with adequate control measures established.

APPENDIX 2 DEFINITIONS

System

Means an electrical system in which all the electrical equipment is or may be, electrically connected to a common source of electrical energy and includes such source and such equipment. (i.e. all parts of a circuit and not just the functioning instrument.)

Conductor

Everything capable of carrying an electrical current, not just those things intended to carry current.

Danger

Risk of injury from the use of electricity, the types of risk of injury covered in the Regulations are:

- electric shock or burns
- fires of electrical origin
- electric arcing
- explosions initiated or caused by electricity

Electrical Equipment

As defined in the Regulations 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.

Electrical Engineer

Refers to a person appropriately qualified and/or a competent person who possesses sufficient technical knowledge, experience and skills to be able to carry out the specific task and prevent danger or injury arising during the course of the work, or as a result of the work.

Note

Only approved contractors listed within The States of Jersey Property Holdings Department Approved Contractors list are to be employed within The Education Department controlled or sponsored sites.

APPENDIX 3

SAFE SYSTEMS OF WORK FOR ELECTRICAL EQUIPMENT

This should be developed to take account of local conditions and given to every employee using and / or maintaining electrical equipment.

Faulty Equipment

- Report faults immediately. Do not use or continue to use faulty equipment.
- Ensure precautions are taken so no-one else can use / come into contact with faulty equipment.
- Do not carry out repairs, etc., or even fit plugs, unless you are authorised to do so.

Portable and Transportable Electrical Equipment

- The user should visually inspect personal issue equipment at least once a week and make a written record of the inspection at least once a month (see Appendices 4 and 5).
- Portable electrical equipment should be thoroughly tested on a regular basis.
- Equipment used outdoors should be 110 volt or be supplied via a residual current device (RCD)
- Avoid using long extension leads wherever possible. If their use is unavoidable, ensure that the connector is manufactured to BS 4343 or the more recent standard BS EN 60309-2.

Temporary Installations

- Temporary wiring must be as safe as a permanent installation and must be replaced by a permanent installation as soon as practicable if it is likely to be needed for a period longer than three months.

Electrical Work — High Voltage

- Do not carry out work on equipment or systems above 240 volts.
- Only contractors from The States of Jersey Property Holdings Department Approved Contactors list are authorised to carry out this work.

Electrical Work — Voltages up to 240

- All work on electrical equipment or systems which involve the exposure of conductors must be carried out with the supply switched off, isolated and secured against re-energisation.
- A proving test to ensure isolation must be completed before starting work and an approved test instrument must be used for this purpose.

Live Working

- Live working must be avoided wherever possible. Work on or near live conductors is only permitted when essential for equipment fault diagnosis.
- Only competent persons can be authorised to carry out live working.
- A permit to work is required before working live.
- All practicable precautions must be taken when working live to ensure the safety of persons, including:
 - The use of special tools, rubber mats and gloves
 - The presence of another authorised person who understands the activity and who is able to handle an emergency (e.g. remove the victim from further danger, administer first aid)
 - The erection of safety barriers to keep unauthorised persons out of harm's way.

APPENDIX 4

INSPECTION AND TESTING OF PORTABLE ELECTRICAL APPLIANCES

- Risk assessment shows that inspection and testing of portable electrical appliances are the most effective methods of undertaking safety checks. Visual inspections are extremely important in identifying faults. However, inspections should be supplemented by full testing where appropriate, especially for equipment in frequent and heavy use such as hand tools used in maintenance activities and other equipment subjected to heavy usage in certain environments which can impact on the integrity of the appliance.
- About 25% of all electrical accidents involve portable electrical apparatus (i.e. a piece of equipment connecting to the electricity supply via a plug). These are generally attributable to faulty flexible cables, extension leads, plugs and sockets. Examples include:
 - Earth wires being pulled out of plug terminals due to loose or inadequate cord grips exposing the live terminal
 - Badly made cable joints in flexible cables pulling apart under strain
 - Incorrect connections in plugs or apparatus
 - Damaged or missing covers exposing bare conductors
 - Insulation failure leading to leakage currents
 - Cables damaged due to various reasons including overload and mechanical damage
- Many of these can be detected by routine visual inspections. Electrical testing should only be undertaken where recommended by the manufacturer or identified by risk assessment as a suitable method of identifying faults or verifying freedom from danger based on HSE (UK) guidelines.

Factors which need to be taken into account include:

- Equipment age
- Foreseeable conditions of use and abuse
- Effects of modifications and repair
- Analysis of previous records of tests / inspections / repair

Records should be reviewed on an annual basis to determine whether:

- The frequency of checks is adequate
- Equipment is unsuitable or inadequate for the purpose for which it is used

All portable electrical equipment within Education should be identified by a unique identification number and recorded in a register which contains:

- A description of each item
- Its normal location
- Required inspection and / or test details
- Inspection and / or test history
- Who carried out each inspection / test
- Date of next inspection / test and details of the test / inspection based on:
- Equipment condition
- Conditions of use
- Manufacturers' recommendations
- Inspector's experience

The following should be noted

- Portable electrical heaters are not allowed on site *except* with written permission of the States of Jersey Property Holdings Department or the School site supervisor or manager.
- Computer and other electronic equipment may be severely damaged by electrical testing. The manufacturer's / suppliers advice should be adhered to; it may be advisable to undertake visual checks only. Further information can be obtained from ISD.

The frequency of testing/inspection will be based on the HSE guidance note INDG 236 (Summary table below).

Offices and other low-risk environments (based on current and historical data, Schools, Colleges, and Leisure Services are assessed as low)

Suggested Initial* intervals

Equipment/Environment	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 AC) e.g. telephone equipment, low voltage desk lights	No	No	No
Information technology: e.g. desktop computers, VDU screens	No	Yes, 2-4 years	No. if double insulated – otherwise up to 5 years
Photocopiers, fax machines: NOT hand-held. rarely moved	No	Yes, 2-4 years	No. if double insulated – otherwise up to 5 years
Double insulated equipment: NOT hand-held. Moved occasionally, e.g. fans, table lamps, 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 (Class 1): e.g. electric kettles, some floor cleaners	Yes	Yes, 6 months – 1 year	Yes, 1-2 years
Cables (leads) and plugs connected to the above.	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
Extension leads (mains voltage)			

*NB: Experience of operating the maintenance system over a period of time, together with information on faults found, should be used to review the frequency of inspection.

It should also be used to review whether and how often equipment and associated leads and plugs should receive a combined inspection and test.

- A checklist for the visual inspection of electrical equipment is given below. It is recommended that visual inspections are undertaken in accordance with the above table and the frequency of visual inspection is recorded initially on an annual basis. This frequency is above legal compliance criteria and requirements. All faults identified will be recorded and the frequency of visual inspections adjusted accordingly based on obtained data and trends.
- If testing is carried out by a contractor, one from the Approved List shall be appointed.
- Full Electrical Testing should cover:
 - Insulation resistance between live parts and earth.
 - Earth continuity, during which a test current as recommended by the manufacturer is applied between the plug earthing pin and any exposed appliance metalwork.
 - Flash testing must only be carried out as recommended by the manufacturer as this may damage equipment.
 - Operational test to check that the equipment is working satisfactorily prior to being returned to service.

APPENDIX 5
CHECKLIST FOR VISUAL INSPECTION OF ELECTRICAL EQUIPMENT

(Frequency as indicated at HSE guidance note INDG 236: Appendix 4)

SCHOOL / SERVICE _____

Equipment inspected by _____

Signature and date of Inspector/Inspection _____

Checklist given to Manager _____

(PLEASE NOTE: Where the inspection identifies a fault the equipment must be taken out of service immediately)

-
- | | | |
|-----|--|----------|
| 1. | Does the socket supplying the equipment appear damaged?
<i>(If YES do not use - report to Manager.)</i> | YES / NO |
| 2. | Does the plug supplying the equipment appear damaged?
E.g. is the casing cracked or the plugs bent?
<i>(If YES do not use - report to Manager)</i> | YES / NO |
| 3. | Does the plug become hot when the equipment is switched on?
<i>(If YES do not use - report to Manager)</i> | YES / NO |
| 4. | Is the outer sheath of the cable supplying the equipment effectively secured at the plug end and the equipment end i.e. is the coloured insulation of the inner cables visible?
<i>(If NO - report to Manager)</i> | YES/ NO |
| 5. | Is the cable supplying the equipment protected where necessary along its length - I.e. to stop chair legs etc. from damaging it?
<i>(If NO - report to Manager)</i> | YES/ NO |
| 6. | Is the cable supplying the equipment free from defects, temporary joints or kinks along its length i.e. is the outer sheath undamaged and continuous for its full length?
<i>(If NO do not use - report to Manager)</i> | YES/ NO |
| 7. | Is the cable supplying the equipment as short as possible i.e. are enough sockets supplied?
<i>(If NO - report to Manager)</i> | YES/ NO |
| 8. | Is there damage to the external casing of the equipment, or are there any loose parts or loose/ missing screws?
<i>(If YES do not use - report to Manager)</i> | YES / NO |
| 9. | Is there any evidence of the equipment or the cable supplying it overheating?
<i>(If YES do not use - report to Manager)</i> | YES / NO |
| 10. | Does the equipment operate satisfactorily - i.e. with no evidence of intermittent or continuous fault?
<i>(If NO do not use - report to Manager)</i> | YES / NO |

APPENDIX 6 RECORD KEEPING

Records of the following should be kept:

- Inspections and tests of the following (detailing date tested, name of tester and date of the next test) plus details of any modifications or repairs made to:
 - Fixed electrical installations
 - Portable and transportable appliances
 - Personal protective equipment.
- Instruments and test equipment used for electrical work.
- Matters relevant to personal competence and training in respect of persons who carry out, supervise, manage or assess electrical work.
- Copies of any permits to work issued for work on electrical equipment.
- Contractor's safety information.
- Safety information provided to contractors.

This information must be available to The States of Jersey Property Holdings Department on request.