

ELECTRICAL SAFETY POLICY

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POLICY SPONSOR	Chief Finance Officer
POLICY AUTHOR	Deputy Director Projects, Assurance and Sustainability

EXECUTIVE SUMMARY:

This Policy applies to the Estates and Facilities Department.

The policy aims to set out the process for the Electrical Safety management for all properties owned, managed, leased, rented or shared by the Trust.

This Policy has been developed in accordance with BS 7671: Requirements for Electrical Installations, IET Wiring Regulations (Current Version) and the Department of Health Technical Memorandum 00: Policies and Principles of healthcare engineering.

If you require this document in another format such as large print, audio or other community language please contact the Communications Team on 01903 843129.

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1.0 INTRODUCTION

1.1 Purpose of Policy

This Electrical Safety Policy sets out how Sussex Partnership NHS Foundation Trust (The Trust) will comply with all relevant health & safety legislation regarding the safe operation and maintenance of electrical equipment and systems.

This document details what steps will be undertaken by the Trust to ensure that all persons who may be concerned with the operation of, or who work on, the electrical equipment and systems within Trust owned, maintained or occupied buildings is adequately managed, so that as far as reasonably practicable all work is conducted in a manner so as to prevent danger or injury to themselves and/or others.

The Policy details the responsibilities of the Trust and its employees, contractors and regular building users. All procedures outlined in this document are mandatory for all parties involved.

This Policy requires the cooperation of all employees, all staff, building users and contractors who also have responsibilities to ensure a safe and healthy working environment is maintained at all times.

1.2 Definitions

Designated Person

Is an individual appointed by a healthcare organisation (a board member or a person with responsibilities to the board) who has overall authority and responsibility for the low voltage electricity system within the premises and who has a duty under the Health and Safety at Work etc Act 1974 to prepare and issue a general policy statement on health and safety at work, including the organisation and arrangements for carrying out that policy. This person should not be the Authorising Engineer (LV).

Authorising Engineer (LV)

An Authorising Engineer (LV) is appointed in writing by the Designated Person to take responsibility for the effective management of the safety guidance (LV). The person appointed should possess the necessary degree of independence from local management to take action within HTM 06 guidance.

Duty Holder

A person on whom The Electricity at Work Regulations (1989) impose a duty in connection with safety.

Electrical Equipment

Anything used, intended to be used or installed for use in order to generate, provide, transmit, transform, rectify, convert, conduct, distribute, control, store, measure or use electrical energy.

Injury

Death or personal injury from electric shock, electric burn, electrical explosion or arcing, or from fire or explosion initiated by electrical energy, where any such death or injury is associated with the generation, provision, transmission, transformation, rectification, conversion, conduction, distribution, control, storage, measurement or use of electrical energy.

LV Logbook

A book in which all matters relating to the electrical system should be recorded.

Management

The owner, occupier, employer, general manager, chief executive or other person in a healthcare organisation, or their appointed responsible contractor, who is accountable for the premises and who is responsible for issuing or implementing a general policy statement under the Health and Safety at Work etc Act 1974.

Permit-To-Work (Electrical LV)

This is a safety document, which is a form of declaration, signed and issued by an Authorised Person (LV) to a Competent Person (LV) in charge of work to be carried out. It defines the scope of the work to be undertaken and makes known exactly what equipment is dead, isolated from all live circuit conductors and safe to work on.

System

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.

Senior Operational Manager (SOM)

The SOM may have operational and professional responsibility for a wide range of specialist services. It is important that the SOM has access to robust service-specific professional support which can promote and maintain the role of the “informed client” within the healthcare organisation. This will embrace both the maintenance and development of service specific improvements, support the provision of the intelligent customer role and give assurance of service quality.

Voltage Categories:

Extra Low Voltage

A potential not exceeding 50V ac or 120V ripple free dc whether between conductors or to earth;

Low Voltage (LV)

A potential not exceeding 1000 volts ac or 1500 volts dc between conductors or 600 volts ac or 900 volts dc between a conductors and earth;

High Voltage (HV)

A potential normally exceeding low voltage.

(All definitions above are referenced from Health Technical Memorandum (HTM) 06-01: Electrical services supply and Distribution 2017, as the primary reference documents).

The Trust

Sussex Partnership NHS Foundation Trust.

HTM

Health Technical Memorandum.

1.3 Scope of Policy

Provide and maintain in safe and healthy working condition, electrical equipment and systems of work for all staff and visitors, and to provide such resources, information, training and supervision as needed for this purpose.

Manage the safe operation and maintenance of low voltage equipment in accordance with; The Electricity at Work Regulations (1989) which impose duties on “employers” to comply with these insofar as they relate to matters that are within their control. These duties are in addition to those imposed by the Health and Safety at Work etc Act 1974.

High Voltage equipment and systems of work is omitted from the scope of this Electrical Policy as the Trust currently does not own or maintain any such equipment or systems.

Provide all resources deemed necessary to manage the safe operation and maintenance of low voltage equipment, including the appointment of an Authorising Engineer (LV). See item 3.10.

Use as the primary reference documents, Health Technical Memorandum HTM 06-01: Electrical services supply and Distribution: 2017, HTM 06-02: Electrical Safety Guidance for Low Voltage Systems and HTM 06-03: Electrical Safety Guidance for High Voltage Systems issued by Department of Health (DH) Estates and Facilities Division in 2006.

Develop, implement and monitor safe systems of work to protect the safety, health and welfare of employees, building users and third-party contractors.

Undertake regular training of relevant managers and staff and inform third party contractors where necessary to ensure that information is effectively disseminated.

In order to ensure compliance with all relevant health and safety legislation regarding the safe operation and maintenance of electrical equipment and systems of work on behalf of the Trust, the Director of Estates & Facilities will be given the resources (time, staff and funds) to discharge the following duties. If not, details will be logged in the Trust Corporate Risk Register.

1.4 Principles

The Trust will therefore:

Conform to the Electricity at Work Regulations (1989), taking into account the complete life cycle of an electrical system, from design, construction, operation, maintenance, modification, dismantling, disposal and associated record keeping.

Systematically and proactively undertake throughout its estate to conduct periodic inspection and testing of all fixed Low Voltage electrical systems in accordance with BS 7671:2018 Requirements for Electrical Installations, IET Wiring Regulation (Current Version) for each property owned or maintained by the Trust.

Undertake regular reviews of the periodic inspection and testing thereafter to re-assess the onsite risks identified in order that the frequency of inspection and testing of final circuits shall not exceed 5 years. The frequency of testing of certain circuit's may be reduced based on risk assessment.

Rectify any identified defects (C1, C2 and FI's) identified in the periodic testing and inspection and re-test (issue Minor Works Test Certificate where appropriate) on completion.

The Regulations apply to all electrical systems of any voltage and are designed to prevent injury.

Audit other building owners or maintenance providers where Trust employees occupied a building to ensure compliance with periodic inspection and testing of all fixed Low Voltage electrical systems in accordance with BS 7671: Requirements for Electrical Installations, IET Wiring Regulations Current Version, or most current version.

2.0 Safety Policy Statement

The Trust recognises its duties under the Health and Safety at Work etc Act, 1974 and The Electricity at Work Regulations (1989).

The Trust attaches the greatest importance to the safety of its employees and will pursue policies designed to ensure that, so far as is reasonably practicable, all employees are provided with a safe and healthy environment and with safe methods of working. This policy cannot operate without full consultation and full co-operation. It places a high priority on accident prevention and on staff working together to identify and prevent potential hazards.

The promotion of safety is seen by the Trust as being a joint responsibility of management and employees. Management's responsibilities include the promotion of safety in the working environment, safe working methods, training in safe working methods, supervision in safe working methods, and the provision of information on safety. The employee's responsibility includes taking care of their own safety, their colleagues and other people affected by their work, co-operating with management in safe methods and participating in safety training.

The Trust will provide training for its staff, together with provision of safety devices, equipment and instrumentation in order to carry out all electrical works in a safe and proper manner.

The Trust will provide means of investigating and resolving safety problems within their overall responsibility as defined by the Health & Safety at Work etc Act 1974.

3.0 Duties

The following information sets out the Duties and Management arrangements for the Electrical Safety Management for the Trust.

3.1 Sussex Partnership NHS Foundation Trust (Duty Holder)

The Trust, as the employer, has the ultimate responsibility for health and safety and is a Duty Holder.

The duty to manage electrical safety is contained in provision 3 (1) a, of The Electricity at Work Regulations (1989). It requires every employer and self-employed person to comply with the provisions of these Regulations in so far as they relate to matters within their control.

3.2 Chief Executive

The Chief Executive has the overall responsibility for health, safety and welfare of staff and others affected by the work activities of the Trust and for the effective implementation of Electrical Safety management policies and procedures.

3.3 Director of Estates & Facilities (Designated Person)

The Chief Executive has nominated the Director of Estates & Facilities to carry the specific responsibility for the effective implementation of Electrical Safety Management policies and procedures.

Within Electrical Services Health Technical Memorandum 06-01 2017 and HTM 06-02: Electrical safety guidance for low voltage systems this role is defined (page 9, paragraph 4.6) as the Designated Person and is responsible for appointing in writing an Authorising Engineer (LV) for all systems and installations for which the Trust has responsibility.

Additionally, annually review the Authorising Engineer (LV)'s appointment in order to ensure the Authorising Engineer (LV)'s duties have been carried out in accordance with the HTM 06-02.

Agree any local variations from the HTM 06-02 guidance.

3.4 Deputy Director Estates & Facilities Services (Senior Operational Manager)

The Deputy Director Estates & Facilities Services has delegated responsibility for the operational implementation and monitoring of Electrical Safety Management Policies and Procedures and under Health Technical Memorandum 00: Policies and principles of healthcare engineering this role is defined as Senior Operational Manager and has operational and professional responsibility for a wide range of specialist services. Acting as the Trusts "informed client".

3.5 Deputy Director of Project Management & Design Services

The Deputy Director of Project Management & Design Services is responsible for all capital and new large scale development projects and ensuring that:

Any Electrical Consultants and Contractors specifically engaged in relation to installation of new Electrical Installations related project work associated with the Trust, are competent and are adequately qualified.

For all capital and large scale development projects, ensure electrical systems are designed, constructed, commissioned and handed over, meeting the most recent Electrical Safety legislative requirements including BS7671 IET Wiring Regulations; 2018 (or most recent publication) and in accordance with Health Technical Memorandum (HTM); 06-01: Electrical Services Supply and Distribution 2017, HTM 06-02: Electrical safety guidance for low voltage systems and HTM 06-03: Electrical safety guidance for high voltage systems.

3.6 Deputy Director Property Management

The Deputy Director Property Management is responsible for ensuring that for all new acquisitions, including fully purchased, leased, rented and shared properties, a Periodic Inspection and Testing Report inclusive of details of any remedial actions undertaken to correct any C1 or C2 issues identified, going back at least 5 years, plus Logbook and any other relevant information for registration and retention are available.

If this is not available an Electrical Contractor is to be engaged to conduct a full Inspection and Test Report of the property, to be used initially in the process of reviewing the potential suitability of the property and finally so that when the acquisition is completed a Periodic Inspection and Testing Report, including log book will be in place and any identified defects have been rectified and satisfactorily passed a re-test.

3.7 Estates Manager/Estates Team Leader

All Estates Managers and Estates team Leaders have under the requirements of the Health & Safety at Work etc Act 1974 and the Electricity at Work Regulations (1989) to ensure so far as reasonably practicable, the following are adhered to:

Provision of adequate information, supervision and instruction to ensure work on electrical systems can be carried out safely.

Provision of a safe place of work, including adequate working space, access and lighting.

The design and purchase of new equipment and extensions to existing equipment and extensions to existing electrical systems shall be carried out by persons with appropriate technical knowledge, experience and understanding of current regulation, standards, (British and harmonised European), and established Codes of Practice.

All electrical equipment will be selected to take account of the environment in which they are to be installed and used.

All new electrical installation work shall be inspected and tested prior to handover or putting into service. The inspection and test results shall be recorded and held on the Estates Database/Register.

All equipment shall be clearly labelled, particularly switchgear and fuse boards, for circuits and identification purposes.

Circuit diagrams and plans shall be maintained to provide a comprehensive record of all electrical systems, and arrangements shall exist for updating following system modifications.

All electrical systems shall be periodically inspected and tested and appropriate records held on the Electrical Safety Database/Register.

All electrical systems shall be maintained as appropriate to prevent danger so far as is reasonably practicable.

Strict guidelines shall be established for the purchase, use and maintenance of portable electrical equipment. All portable electrical equipment shall be periodically inspected and tested and records maintained.

3.8 Electrical Safety Group

This is a committee comprising of:

- Deputy Director Estates & Facilities Operational Services
- Authorising Engineer (LV) - Chair
- Electrical Safety Coordinator/Lead
- Estates Managers
- Capital Project Managers
- Estates Services Team Leaders (Maintenance)
- Risk, Health and Safety Representative

The Electrical Safety Group shall meet every three months, following written and agreed group Terms of Reference, to review the current Trust Electrical Safety Policy and Procedures, the Electrical Safety Register and on-going Action Plan and discuss any issues/incidents that have happened in between the previous meeting that needs to be brought to the attention of the Group.

Act on any Department of Health Safety Alerts concerning electrical equipment and systems, responding appropriately.

3.9 Electrical Safety Coordinator/Lead

The Electrical Safety Coordinator/Lead for the Trust will be The Head of Estates or their Deputy designated to lead on Electrical Safety.

The current nominated lead name and contact details can be obtained by contacting the Estates and Facilities

Help Desk on:

- 0300 304 0040

The Electrical Safety Coordinator/Lead will be responsible for producing and maintaining the Trust wide Electrical Safety Register and Action Plan and reporting on its progress at the regular Electrical Safety Group Meetings.

The Electrical Coordinator/Lead will be responsible for ensuring that Contractors engaged to carry out Electrical Safety duties are competent and adequately insured.

3.10 Authorising Engineer - Low Voltage (LV)

The Authorising Engineer (LV) is appointed in writing by the Designated Person to take responsibility for the effective management of safety guidance (LV). The person appointed should possess the necessary degree of independence from local management to take action within the guidance.

Is a Chartered or an Incorporated Engineer with practical and relevant technical engineering experience of the types of systems and equipment relative to their appointment.

Has satisfactorily completed an approved Authorising Engineer training course in the last three years or within six months of a first time nomination.

Has satisfactorily completed an approved Authorised Person (Low Voltage) training course in the last three years.

The Authorising Engineer (LV) will be responsible for implementing, administering and monitoring the requirements of the HTM 06 guidance document.

The Authorising Engineer (LV)'s roles include the following:

- a. Assess and recommend in writing sufficient Authorised Persons (LV) required to provide the necessary cover for all systems and installations for which the Trust has responsibility.
- b. Define the exact extent of the systems and installations for which each Authorised Person (LV) is responsible and where appropriate any part of the system which is excluded from the Authorised Person (LV)'s responsibilities.
- c. If necessary, recommend the suspension or cancellation of the appointment of an Authorised Person (LV) and withdraw the certificate.
- d. Maintain a register of all Authorised Persons (LV).
- e. Ensure candidates for appointment as Authorised Persons (LV) satisfy the qualification, training and familiarisation requirements. Can demonstrate adequate knowledge of each system, installation and type of equipment for which authorisation is sought. Demonstrating their competence and ability.

3.11 Authorised Person (LV)

An Authorised Person (LV) is appointed in writing by the management on the recommendation of the Authorising Engineer (LV) in accordance with HTM 06 safety guidance with regard to work on, or the testing of, defined electrical equipment.

Once appointed they are responsible for, the implementation of the Electrical Safety Policy, the practical implementation and operation of HTM 06-02 Electrical Safety Guidance for Low Voltage and electrical installations for which they have been appointed.

3.12 Competent Person (LV)

A Competent Person (LV) is approved and appointed in writing by an Authorised Person (LV) for defined work,

possessing the necessary technical knowledge, skill and experience relevant to the nature of the work being undertaken, who is able to prevent danger or, where appropriate, injury and who is able to accept a permit-to-work from an Authorising Person.

Additional duties are defined on page 12 of HTM 06-02: Electrical safety guidance for low voltage systems.

3.13 Accompanying Safety Person (LV)

Is a person not involved in the work or test that has received training in emergency first-aid for electric shock and who has adequate knowledge, experience and the ability to avoid danger, keep watch, prevent interruption, apply first aid and summon help. The person is to be familiar with the system or installation being worked on or tested, and is to have been instructed on the action to be taken to safely rescue a person in the event of an accident.

4.0 Development, Consultation and Ratification

This policy has been developed through consultation with the Risk, Health and Safety team, Information Governance team, Equality and Diversity Reference Group and Estates and Facilities.

This policy shall be ratified by the Estates and Facilities Executive group using the defined route as described in the Trust's Policy for the Development and Management of Procedural Documents.

5.0 Equality and Human Rights Impact Assessment (EHIRA)

An EHRIA shall be undertaken and any issues identified addressed as part of the policy development stage.

6.0 Monitoring and Compliance

This policy will be reviewed annually to ensure it meets current legislation and guidance and bi-annually to ensure that the procedures identified within this policy are being adhered to and the identified and documented business processes are retained.

Where there is a significant change to legislation related to that affects this policy a review will be implemented ahead of any plan reviews.

Where works/services are procured checks shall be made to ensure that those persons undertaking that work/design meet or are qualified to the relevant standard applicable to the area of responsibility for which their services have been procured.

7.0 Dissemination and Implementation of the Policy

The policy will be uploaded onto the Trust's website by the Governance Support Team.

7.1

Publication will be announced via the Communications Department using Trust Bulletins.

8.0 Document Control and Archiving Arrangements

8.1 The Health and Social Care Governance Team will control the uploading of the policy document onto the Trust's website as per the Trust's Policy for the Development and Management of Procedural Documents.

Archiving will be carried out as described in the Trust's Policy for the Management of Corporate Administrative Records.

9.0 Reference Documents

- 9.1 Health Technical Memorandum 00: – Policies and principles of healthcare engineering.
The Stationary Office 2013
- 9.2 Health Technical Memorandum 06-01: – Electrical services supply and distribution.
The Stationary Office 2006
- 9.3 Health Technical Memorandum 06-02: – Electrical safety guidance for low voltage systems.
The Stationary Office
- 9.4 BS 7671:2018 IET Wiring Regulations

10.0 Bibliography

- Health & Safety at Work etc Act 1974
The Stationary Office 1974
- Management of Health & Safety at Work Regulations 1999 SI 1999/3442
The Stationary Office 2007
- Memorandum of guidance on The Electricity at Work Regulations (1989),
Guidance on Regulations
The Stationary Office 2011
- Electricity at work
Safe working practices
The Stationary Office 2013

A0 Appendix A – SAFE WORKING PRACTICES

SAFE WORKING PRACTICE: 1

ELECTRICAL SAFETY – COMPETENCY OF EMPLOYEE’S

Every employee, whilst at work, has a duty to take reasonable care for the safety of themselves and of other persons who may be affected by their acts or omissions, and to co-operate with their employer or any other person to enable any relevant statutory duty or requirement to be performed or complied with.

In order to prevent danger or injury for any Electricity at Work activities, only those persons who have appropriate technical knowledge or experience, or have received specific safety training, or are under such degree of supervision as may be appropriate, shall carry out work on electrical installations or equipment.

SAFE WORKING PRACTICE: 2

COMPETENCE OF ELECTRICAL CRAFTSPERSON

The Electricity at Work Regulations require that adequate, safe methods be employed for all work on electrical equipment and systems and that the work shall be carried out by persons who are competent, knowledgeable and experienced in these methods. All electricians must be certified as having successfully completed a training course on the latest edition of the IET Regulations for Electrical Installations (Current Version).

If the electrician does not achieve a pass on such a course they must be closely supervised until the course has been retaken. Sussex Partnership NHS Foundation Trust shall give its employees every assistance with training to enable them to reach the required standard.

Competency of SPFT Craftsperson will be assessed as detailed in the HTM 06-02 by the Trust Authorised Person(s), the Craftsperson will then be issued with an appointment certificate outlining their areas of competency every three years. The following shall be completed:

- a. A CP Register requires compiling and populating to record details of each Competent Person in terms of appointment date, competency, first aid and receipt of HTM 06-02 hand book.
- b. A CP File is required for each Competent Person to contain records of relevant training and appointment certificates.
- c. A system of 12 monthly monitoring of all Competent Persons should be implemented and recorded to the Operational Procedure Manual and Site Logbook.
- d. A copy of HTM 06-02 Electrical Safety Handbook is to be issued to each CP and recorded in the LV Logbook.

Contractors should be able to show evidence that their staff have undertaken training to enable them to carry out work and testing to the standards set out in the IEE Regulations. Competency of electrical contractors will be assessed & certified as detailed in the HTM 06-02 by the Trust Authorised Person(s) in conjunction with the Manager Electrical Co-ordinator/Lead

SAFE WORKING PRACTICE: 3

ISOLATION REQUIREMENTS

No one shall work on electrical equipment unless all supplies to that equipment are isolated in accordance with Chapter 7 of HTM 06-02 Electrical Safety Guidance for Low Voltage Systems.

The only exception to this is for carrying out testing, fault finding or adjustments where practicalities dictate Live Working to be essential when no disconnections or connections are made. **An accompanying safety person must be present at all times.** Refer to Safe Working Practice: 9.

A Craftsperson employed by Sussex Partnership NHS Foundation Trust Hospitals who are under formal instruction, instructing them to proceed and who are certified as competent in that area can switch off and isolate the equipment themselves, either by removing the fuses and retaining them on their persons and fitting suitable locking mechanism, or by removing any locking key and again retaining it on their person and in accordance with Safe Working Practices 4, 5, 6 and 7.

A Mechanical Craftsperson shall be permitted to isolate and lock equipment as above for mechanical isolation, provided that they have received training and have the necessary technical knowledge and experience required to prevent danger. They must not expose any live electrical terminals in the work they are undertaking, and the isolator must be adjacent to the equipment and must isolate that equipment alone.

Contractors shall not under any circumstances operate any isolator or live switch.

For all contractors and direct labour other than above, equipment shall be locked off and made safe by an Authorised/competent person employed by the Trust.

When working on a complex system having two or more sources of supply, all contractors competent persons and direct labour, shall ensure the equipment is locked off and made safe by an Authorised Person employed by the Trust who shall operate a Permit to Work and lock-out system.

SAFE WORKING PRACTICE: 4

SWITCHING OFF ELECTRICAL CIRCUITS

It is ESSENTIAL that all departments which will lose an electrical supply are warned and the authority agreed with relevant Nursing / Medical staff signature given.

Should there be any element of doubt as to the extent of isolation then those departments which could possibly be affected must be warned in advance, particularly if a medically sensitive area is likely to be involved.

The responsibility for warning these departments rests with the person who will isolate the circuit.

Dependant on the circuits to be isolated HTM 06-02 'Permission for Disconnection / Interruption of Electrical Services' can be used.

PROCEDURE

- 1) Ensure as far as is reasonably practicable that the correct circuit is identified.
- 2) Having identified the correct circuit with certainty, inform the staff of the appropriate department; advise them of the length of time the planned work is expected to take, and obtain their agreement to proceed.
- 3) If the identified circuit is serving a medically sensitive or secure area eg ICU, Theatres etc, a further check is to be made with Estates Team Leaders and medical staff before isolating the circuit to avoid any danger.
- 4) If it is not possible to identify a circuit with certainty the staff of departments which may be affected shall be warned and the situation explained.
- 5) With the extensive use of computer equipment within the Trust's premises, care should be exercised in isolation of circuits that could result in the loss of data to departments.

SAFE WORKING PRACTICE: 5

WORK ON MULTI-WAY BOARDS WHERE COMPLETE ISOLATION IS NOT PRACTICABLE

All work shall be carried out in accordance with HTM 06-02, Where a tool or key is required to gain access to fuses or mcbs, the following procedure shall be adopted when isolating a circuit:

MCBs

- 1) To be locked off and the key retained by the person carrying out this work. Lock out tag or ID label to be fitted by person carrying out the work.

Fuses

- 1) Complete form LFT 1
- 2) Fuse carrier to be removed and retained by person carrying out work.
- 3) Fuse lock out to be fitted if available.
- 4) Fuse base to be taped over and marked with Company name, dated and name of person isolating the circuit.
- 5) If blanks exist, fit blank fuse base with similar information as (2) above, on blank.

Boards which do not require a key or tool to gain access must be reported to the Estates Team Leader, to isolate circuits on these boards:

To be locked off and the key retained by the person carrying out this work. Lock out tag or ID label to be fitted by person carrying out the work.

Fuses

- 1) Fit lock to board.
- 2) Procedure as items in fuses section (1), (2) and (3) above to be followed.

SAFE WORKING PRACTICE: 6

WORK ON EQUIPMENT WHERE ISOLATION IS PRACTICABLE

Isolators

- 1) Isolator to be locked off with a personal padlock and a "CAUTION SIGN" attached.
- 2) Prove dead – see Safe Working Procedure 7.

Fuse Isolators

- 1) Fuses to be removed.
- 2) Isolator to be locked off with a personal padlock and a "CAUTION SIGN" attached.
- 3) Prove dead –see Safe Working Procedure 7.

SAFE WORKING PRACTICE: 7

PROVING DEAD ELECTRICAL CIRCUITS / EQUIPMENT

- 1) Plan Job
- 2) Securely isolate equipment / circuit and fit CAUTION SIGN
- 3) Prove test instrument (only GS 38 approved test equipment shall be used)
- 4) Prove the equipment / circuit has been made dead
- 5) Re-prove test instrument
- 6) Attach proprietary earth gear if available (i.e. feeder pillars)
- 7) Post DANGER SIGN if appropriate (i.e. to warn of adjacent live equipment)
- 8) Consider the need for additional precautions
- 9) Ensure understanding of the job before the work starts
Neutral

SAFE WORKING PRACTICE: 8

LOCKING OFF FINAL CIRCUITS FOR CONTRACTORS

In most instances, electrical contractors working on site are responsible for the safe isolation of final circuits within their area of work. However, in some circumstances the Estates department may be requested to isolate final circuits for contractors.

If a Competent Person is required by an authorised person to isolate final circuits for a contractor they should follow Safe Working Practice 4 – switching off electrical circuits and fit a Safety Lock and CAUTION SIGN.

The contractor is to fit their own safety lock to the isolation point by the means of a multi locking device.

Upon safe isolation, the key shall be returned to the authorised person who will place the tagged key in a locked cabinet to which access is restricted to authorised persons. They will also complete the LV log book with details of the circuit locked off, the person/company requesting the isolation, a contact number, the date, the unique ID tag reference number and the competent person's name.

SAFE WORKING PRACTICE: 9

LIVE WORKING – INCLUDING LIVE TESTING

All work on electrical equipment and systems shall be carried out DEAD. It is not acceptable to implement live working procedures without the approval of the Authorised Persons (Low Voltage). At all times the requirement for live working shall be tested against Regulation 14 of the EAWR (1989).

The assessment procedure should consider the requirement of Regulation 14 of the Electricity at Work Act (1989) which states:

No person shall be engaged in any work activity on or so near any live conductor (other than one suitably covered with insulating material so as to prevent danger) that danger may arise unless:

- (a) it is unreasonable in all the circumstances for it to be dead; and
- (b) it is reasonable in all the circumstances for him to be at work on or near it while it is live; and
- (c) suitable precautions (including where necessary the provision of suitable protective equipment) are taken to prevent injury

The Authorised Person shall attend the site with the Competent Person (electrical) and together they should:

- Determine the location of the live exposed conductors.
- Determine the area where the work has to be carried out.
- Agree whether temporary barriers can be safely fitted to make the proposed work safe.

A Certificate of Authorisation for Live Working must be issued by an Authorised Person to the competent or skilled person before any work is commenced. Authorisation to issue this certificate shall be sought from the AE (LV).

Only when suitable screening and all other appropriate means to avoid danger from inadvertent contact with live conductors or earthed metalwork have been applied and insulated tools are available shall work commence.

An accompanying safety person shall be in attendance. That person must have adequate knowledge and experience to be able to recognise and avoid danger and be able to render assistance in the event of an emergency.

Authorised Persons (LV) should consult their Authorising Engineer before undertaking any work (except for a work on a battery below 25v and/or 10 Ah) which will require them to issue a Certificate of Authorisation for Live Working. Permission should be obtained if a decision is taken to go ahead.

The only exceptions to this rule are:

- a) All forms of testing, fault-finding or adjustment where practicalities dictate live working is essential.
- b) The removal and replacement of fuse carriers in final circuits.
- c) The removal and replacement of plug-in components.
- d) Basic battery maintenance (cleaning/topping up only).
- e) Work on battery systems if less than 25 V and/or 10 AH (ampere-hours).

These tasks must only be carried out by a competent or skilled person, and only approved test instruments and approved insulated tools are to be used. Where these items are undertaken a LFT 1 document shall be completed.

Complete LFT 1 form prior to commence of work. (see Appendix 6)

Out of Hours Working

Where a Craftsperson working out of normal hours considers that live working must be necessary he shall contact the manager/officer 'on-call' who will contact an Authorised Person who will attend site and make a risk assessment prior to any work being carried out.

SAFE WORKING PRACTICE: 10

ELECTRICAL TEST EQUIPMENT

Electrical test equipment for use on low voltage systems and equipment normally embraces test probes, leads, potential indicators, voltage and current measuring devices etc. In order to ensure personal safety only suitably constructed and properly maintained test equipment should be used.

Test probes used with voltmeters and potential indicators should have finger barriers or be so constructed as to guard against inadvertent hand contact with live conductors under test, (see appendix 3).

Leads used with such testing devices should be flexible and robust, adequately insulated, colour coded for easy identification, and should not be of undue length.

All testing equipment shall be GS38 compliant.

Testing devices should be suitably rated for the voltages and current involved.

Potential indicators must be tested before and after use on a known source of similar voltage to the circuit under test, or alternatively tested on a portable test source.

Test leads used with multi meters for voltage detection or measurement should have a suitably sized fuse incorporated.

Where tong test instruments are used it is essential to ensure that:

- a) the insulation on the instrument is not damaged in any way
- b) there is adequate physical clearance to clip the instrument over the conductor under test

All test equipment, whether centrally held, or issued on a personal basis, shall be inspected prior to use by the user. Also annually inspected by the Authorised Person and recorded.

All test meters etc shall be calibrated annually by an independent body, unless a Risk Assessment dictates otherwise.

No home-made test leads, test lamps or potential indicators may be used under any circumstances.

SAFE WORKING PRACTICE: 11

TOOLS FOR USE ON ELECTRICAL EQUIPMENT

General

Unsatisfactory or unsafe tools can result in injury to the user. It is essential that the correct tools for the particular job in hand should be used and that they are of good quality. Tools should be inspected on a regular basis and any faulty or damaged tools should be discarded immediately.

Live Working

Where live working is necessary and it has been properly authorised, it is imperative that tools specifically designed for live working shall be used. They must be to the appropriate IEC, EDF, ESI, or other internationally recognised standard which call for insulation to be suitable for extremes of temperature, be highly impact resistant, and for the insulation to be applied in a specific manner. The shape of the insulation shall be such that the risk of a hand slipping down the handle and onto bare live metal is minimised. A record of annual inspection should be available

Dead Working adjacent to Live Conductors

Where work is being carried out on a dead installation, but in close proximity to exposed live terminals, tools as specified for live working shall be used.

It must be noted that the Trust's "Safety Rules for Low Voltage" systems require that for work adjacent to exposed live terminals such terminals must be so shrouded so that they cannot be touched accidentally.

Use only the proper tools for the job.

SAFE WORKING PRACTICE: 12

MAINTENANCE OF ELECTRICAL SAFETY EQUIPMENT

It is a statutory requirement to maintain safety equipment in a proper manner.

The following rules shall be applied to safety equipment.

1) Low Voltage Potential Indication

- a) A visual examination shall be carried out to ensure that the insulation or any other part is not damaged.
- b) They shall be tested on a separate voltage source before they are used and immediately afterwards so that it is established that they are working correctly to confirm the state of a circuit.

2) Insulating Mats:

- a) In certain circumstances electricians undertaking live testing, or live working on 400 volts or less, shall stand on an insulating mat. This mat shall have been manufactured to BS 921.
- b) Immediately prior to use these mats shall be physically examined to ensure that they are not damaged in any way that would significantly reduce the electrical path from the top surface to earth, and testing with a portable appliance tester and subjected to an insulation, load, earth leakage and flash test, the results of which shall be recorded. Only if these tests are satisfactory shall the mat be used.
- c) When not in use these mats shall be rolled up and stored where they are not subjected to mechanical damage or to extremes of temperature.
- d) Should a mat fail any of the above tests it should be taken out of service immediately and discarded.

3) Testing Insulated mats

The following method detailed below should be carried out prior to the mat being used:

- a) Ensure that the test area (floor space) is clear of all debris - i.e. sweep clean. The tests are normally within a workshop environment and care should be taken to see that it is free of metal filings etc.
- b) Lay out the mat to be tested and visually inspect it on both sides for mechanical damage and for any deposits e.g. oil. Confirm that the mat is a proprietary mat to the appropriate British Standards.
- c) Using a metal plate of half the size of the mat, lay on top of the mat and fold over the mat to form a sandwich with the plate in the centre.
- d) Flash test the mat using a portable appliance tester connected to the plate with the other lead connected to the moveable flash probe and monitor results. Flash testing should be performed in numerous positions in a grid type sweep.
- e) Turn mat over and repeat for side lying face down on the floor.
- f) Record the results and provide test certificates which should be filed.

SAFE WORKING PRACTICE: 13

REPAIR OF ELECTRONIC EQUIPMENT

It is recognised that to repair electronic equipment it is normally essential to have to apply full working voltage to the equipment and that it may be impractical to shield most of the exposed live conductors with insulating material whilst testing is being carried out.

The following rules shall therefore apply:

- 1) No television or piece of electronic equipment shall be worked upon unless the supply is through an isolating transformer feeding into a non earthed socket outlet.
- 2) In all workshop areas the work bench shall be of wooden construction and fitted on the top surface with a resilient skin which is not a natural conductor of electricity.
- 3) All areas adjacent to the workbench where staff could stand whilst working on such equipment shall be covered with an insulating mat.

Test Meters

These shall have test probes to the appropriate British Standards. The test leads should be examined daily by the user to ensure that their insulation is not damaged, conforming to GS38.

SAFE WORKING PRACTICE: 14

PORTABLE EQUIPMENT USED FOR INSTALLATION OR MAINTENANCE WORK

Where power tools are used the primary choice for equipment shall be battery operated.

All portable equipment using electricity shall either be fed from a 110 volt transformer centre tapped to earth.

OR

Through a Residual Current Device (RCD), complying with BS 7071. **(Only with the agreement of the Authorised Person).**

The British Standard requires that the following parameters are met:

- i This unit must trip when earth leakage current is equal to 30mA, with a tolerance of –50% and + 0%.
- ii With an earth leakage of 30 mA the units must trip within 200m sec.
- iii With an earth leakage current of 150 mA the unit must trip within 40m sec.
- iv In addition, particular care shall be taken to confirm that the device will operate on both positive and negative cycles and for portable devices to have double pole switching. Tested prior to use.

2. All portable equipment shall be:

- a) Double Insulated
- b) Registered on the portable appliance database.
- c) Individually numbered on the appliance.
- d) Examined and certified as safe at regular intervals.

3. Any contractors working on Sussex Partnership NHS Foundation Trust premises must only use portable electrical equipment that has been tested for safe use and be within its certification period. They must also allow for random checks to be carried out on any electrical equipment which they may be using on site. Such tests will be made without notice and shall be carried out, or witnessed, by Sussex Partnership NHS Foundation Trust staff.

SAFE WORKING PRACTICE: 15

TEMPORARY ELECTRICAL INSTALLATIONS

In certain circumstances temporary electrical supplies or installations may be required, such as during upgrading works, in the event of a cable fault, demolition etc

Any such installations must be inspected and tested by a Competent Person with a written record kept by an Authorised Person.

The registration should detail the location, reason for the temporary installation, date inspected, and due date of next inspection. A Temporary Installation Register form shall be completed and retained in the Operational Procedure Manual

The maximum period between inspections shall be three months, but it is recommended that monthly inspections are carried out.

TEMPORARY INSTALLATION

REGISTRATION

This certificate must only be used for registering **TEMPORARY INSTALLATIONS**. These must be re-inspected at least every three months but preferably more frequently e.g. monthly.

- 1) LOCATION
- 2) REASON FOR THE TEMPORARY INSTALLATION
- 3) DETAILS OF THE TEMPORARY INSTALLATION
- 4) TEST CERTIFICATE NUMBER

TEST BY..... COMPETENT PERSON

- 5) AUTHORISATION

Authorised Person:

Signed: Date:

- 6) RE-INSPECTED
Authorised Person:

Signed: Date

AMTECH TEST CERTIFICATE NUMBER

TEST BYCOMPETENT PERSON

Signed: Date:

TEST CERTIFICATE NUMBER

TEST BYCOMPETENT PERSON

Signed: Date:

SAFE WORKING PRACTICE: 16

ELECTRICAL INSTALLATION WORKS

All electrical installation work shall be carried out in full compliance with BS: 7671. IET Wiring Regulations or most current edition.

The work shall only be executed by competent electrical Craftsperson (see Safe Working practice: 2).

All electrical contractors working within the Trust's premises shall be on the roll of the National Inspection Council of Approved Electrical Installation Contractor ((NICEIC) or the ECA or other approved monitoring body and on the Trust's Approved Contractors list.

On completion of the works and prior to the installation being brought into service the following shall be carried out:

- 1) Electrical tests carried out in accordance with the IET Regulations (BS: 7671) Test results to be recorded.
- 2) Inspection and Test Certificates to be obtained / completed for the works.
- 3) A minor works certificate to be obtained / completed for works involving modification to existing circuit.
- 4) Circuit identification chart to be updated.
- 5) All electrical accessories to have current I.D. reference labels fitted where practical.
- 6) Electrical installation drawing to be updated to include new works.

SAFE WORKING PRACTICE: 17

TESTING OF FIXED ELECTRICAL INSTALLATIONS

The Electricity at Work Regulations (1989) requires that all electrical systems should be designed and installed so as to be safe. Furthermore, it requires that all electrical systems be maintained in order that they remain safe.

The most effective way to achieve this is to inspect and test the installation on a regular basis to assess its safety in accordance with BS7671

BS7671 Wiring Regulations & Guidance Note 3 itemises specific requirements for the initial and periodic inspection and testing of electrical installations.

Inspection and Testing

Inspection is an important part of any system verification, but it is of greater significance on a periodic check. For a new installation a large part of the inspection may have been carried out during installation and therefore additional inspection is only to support testing. For a periodic inspection, the installation is already in use and testing is therefore unlikely to show up major defects apart from perhaps earthing. The inspection would however, highlight deterioration to connections, corrosion of conduit etc. overheating of cables and so on, things that are more likely to occur after use and not normally discovered by testing alone.

For a periodic check, a sample of approximately 20% of every circuit should be inspected. If problems are found, this sample should be doubled, after which, if more problems are found, a 100% inspection should be performed.

BS7671 & Guidance Note 3 provides a list of areas that the inspection should be concentrated on.

Following the visual inspection a series of tests should be carried out as listed in BS7671 & Guidance Note 3.

Certification

On completion of a new installation or addition to an installation, an electrical installation certificate must be issued. An inspection schedule, a test schedule and a schedule of test results should accompany this certificate.

For periodic inspection and testing, a condition report, complete with installation schedule is to be issued. This document does not suggest that the installation complies with BS7671. It indicates that the required tests and test methods used are in accordance with BS7671 and verifies that the installation is safe and the earthing is adequate.

A Minor Works certificate should only be issued where new work being carried out that does not effect circuit parameters.

SAFE WORKING PRACTICE: 18

EXTENSION LEADS (230V)

All extension leads shall be kite marked and BS compliant. It is important that extension leads are only used for the purpose for which they have been manufactured. Unless by direct permission through the Estates and Facilities Department extension leads shall not be daisy changed.

1) Extension Leads for (multi plugs) non-medical use:

Portable extension leads are considered to be a potential hazard and should be avoided at all times. Every effort should be made to provide an adequate number of fixed installation socket outlets. Where, however, extension leads have to be used they shall be tested in accordance with safe working practice: 19, suitably fused to the load, and shall be installed and protected so as not to introduce a physical tripping hazard. In some instances an extra protective conductor is to be installed with connections on the approved extension lead (multi plug) metal body and an electrical earth.

Where leads exceed 3 metres in length the lead must incorporate an RCD plug.

2) Extension Leads (Multi Plugs) for Medical Equipment attached to Patients:

Electrical equipment attached to patients have completely separate criteria for safety compared with the requirements of the latest edition of the IEE Regulations.

Extension leads are not to be used with medical equipment as they may compromise patient safety.

When medical equipment is required to be used in a position where there is no, or insufficient socket outlets the Estates Department should be consulted to determine a satisfactory solution.

Wherever possible, extra switch socket outlets shall be provided, at the expense of the department, to facilitate the use of patient attached equipment.

Any multiblock leads Estates approved which are affixed to medical equipment (ie crash trolleys) should be considered as an inherent part of the equipment. Any spare socket must not be used for any other equipment as this may compromise the safety of the system.

Extension leads must not be retrospectively fitted to equipment in an attempt to solve a particular problem. Modifications of this nature could compromise the product liability of the devices, as well as presenting a potential hazard.

SAFE WORKING PRACTICE: 19

PORTABLE APPLIANCE TESTING

Introduction

Portable electrical appliances account for a large proportion of the electrical accidents reported to the Health & Safety Executive.

It is essential that all portable appliances are recorded in the Asset Register and Inventory, are clearly labelled, and are Inspected and Tested on a regular basis.

Testing shall be carried out at intervals to suit equipment and location, but depending on manufacturer's recommendations, the environment in which the appliance is used, type and frequency of usage, etc more frequent testing may be recommended.

Testing of portable appliances shall be performed by a suitably trained person.

Responsibilities – New Equipment

It is the responsibility of the 'Head of Department' to inform the appropriate authority (i.e. Estates and Facilities Department) of any new electrical equipment that requires testing prior to it being used.

Any new piece of non-medical electrical equipment, whether fixed or portable, should be commissioned by the Estates Department prior to being taken into service and recorded on PAT Database.

If there is any doubt about the suitability of the equipment then the appropriate technical department should be contacted for advice prior to the equipment being ordered.

Responsibilities – Existing Equipment

The user must ensure that the equipment has an up to date PAT label indicating the equipment is within its permitted test period. If not, the user should not use the equipment and should call the relevant department to arrange a re-test.

It is all users responsibility to ensure that equipment is visually checked prior to use. Areas of inspection should include the following:

- a) There is no damage to the cable sheath.
- b) The plug is not damaged or has bent pins.
- c) The plug (13A) has insulated live and neutral pins.
- d) There are no joints, including taped joints in the supply cable.
- e) The outer sheath of the cable is effectively secured where it enters the plug or the equipment. Obvious evidence would be if the coloured insulation of the internal cable cores were showing.
- f) The equipment has not been subjected to conditions for which it is not suitable, e.g. wet or excessively contaminated.
- g) There is no damage to the external casing of the equipment and there are no loose parts, screws or fixings.
- h) There is no evidence of overheating (burn marks or discoloration).

- i) Only proprietary manufacturer equipment shall be used with equipment, e.g. Dell laptop, use a Dell power supply unit.
- j) The equipment is kite marked and has a relevant BS stamp

Any faulty equipment identified must NOT be used and should be labelled as faulty, reported to the appropriate department and withdrawn from use. Effective steps should be taken to ensure that the equipment is not used again until repaired.

Responsibilities – Non NHS Portable Equipment

In some circumstances patients may bring into hospital or healthcare premises personal items of equipment which requires an electrical supply. A visual inspection and test shall be undertaken by Estates Department staff to prevent connection of any item which could cause danger. A label will be fitted on successful completion of a test. No equipment shall be put into use before tests are carried out. A record of the equipment checked will be kept.

Estates Department Commissioning / Testing processes

The commissioning process will consist of the following:

- a) Detailed inspection of equipment and its installation to determine its suitability, safety and compliance with all appropriate statutory and other regulations.
- b) It is important when purchasing/installing new electrical equipment that the electrical supply in the area concerned is suitable for the safe operation of the equipment and a 13A socket is available.
- c) A full range of electrical tests appropriate to the equipment or installation shall be carried out and the test results recorded and filed.
- d) Operational checks shall be carried out to ensure satisfactory performance. These checks shall be performed in conjunction with the user wherever possible.
- e) Equipment details, which should include such details as manufacturer, model, serial etc, shall be recorded.
- f) All new equipment shall be recorded in the Schedule of Portable Equipment, Asset Register or other PPM inventory.
- g) Detachable mains leads will be classed as a separate piece of equipment and as such will be given its own identification and number and be subject to its own tests: at the same test frequency as the equipment it supplies.

3 core flexes - Class 1 Test

2 core flexes - Class 2 Test

The inspection and testing regime shall be as follows:

1. Inspection

A careful physical inspection shall be carried out prior to applying any electrical test and should include:

- suitability of appliance for its environment
- condition of plug top
- plug is correctly wired up, correct polarity etc
- the plug has insulated live and neutral pins
- correct fuse size is fitted for the equipment loading
- condition of flexible cord and its suitability

- condition of the appliance
- class of appliance, Class 1, Class 2 or Class 3

2. Earth Bonding

This applies only to Class 1 appliances. The continuity of the earth conductor and its resistance should be measured.

3. Insulation

This test should only be carried out following a successful earth bond test.

For a Class 1 appliance, the test is performed between the earth pin and the combined live and neutral pins on the plug.

For a Class 2 appliance, the test is carried out between the combined live and neutral pins on the plugs and the probe of the tester is applied to the outside of the appliance case/ body with the appliance on/off switch in the "on" position.

4. Flash Testing

A flash test involving high voltages can cause weakening of the insulation and premature breakdown. This test should only be applied when an appliance has been repaired or where it is considered that it could be in an unsafe condition following impact or exposure to moisture.

Extreme care should be exercised in carrying out this test due to the high voltages involved.

5. Function Test

To ensure correct operation of the equipment before it is issued for use.

Note: Where new equipment or non-bar-coded equipment is to be tested the specific tests to be carried out on each individual item, shall be determined by the competent person carrying out the testing.

Tests shall normally be carried out using a proprietary Portable Appliances Tester e.g. Robin Smart PAT 5500 or similar instrument owned by the Trust or testing agency. Such instruments contain a data bank capable of storing a larger number of test results. These test results shall be down loaded at least weekly and kept as a permanent record of each item tested.

Following completion of a successful test, the appliance shall be labelled with the date of test and frequency or the date of re-test and initialled by the person who carried out the test.

Hired Equipment

All equipment hired, leased or loaned will have been tested prior to issue. A test certificate should be obtained and a copy retained in the Estates Departments. If no proof of Test is available then a further Test must be carried out.

Power Tools

All power tools should have a visual examination and test when being issued from Estates Stores and comply with one of the following:

- a) be supplied from a 110 volt transformer, centre tapped to earth
- b) be supplied via an RCD protected plug to BS 7071
- c) be supplied via an RCD protected socket to BS 4293-1983
- d) battery operated

All power tools shall have formal Combined Inspection and Test at a frequency as detailed in Schedule 1, unless a risk assessment indicates the need for more frequent tests.

Medical Equipment

All medical equipment in use in Sussex Partnership NHS Foundation Trust Hospitals, whether owned, on loan to, or hired by the Trust shall be electrically safety checked at commissioning prior to first use and at least annually thereafter. The checks will usually be carried out by the appropriate technical department; however, in some cases the manufacturer or their agent or a third party may be assigned this responsibility. In all cases the record keeping will remain the responsibility of the appropriate technical department.

Contractors Portable Equipment

The following requirements apply to all contractors carrying out any electrical work with Sussex Partnership NHS Foundation Trust premises:

Faulty tools and equipment must not be brought onto site.

Power tools, should be 110 volts or battery operated. Extension leads, when permitted, must be fully tested, correctly terminated and free from any joints or damage.

All portable electrical equipment must have been tested and be within its certification period. A visual inspection prior to use should be carried out.

Extension Leads – Non medical use

Portable extension leads are considered to be a potential hazard and should be avoided at all times. Every effort should be made to provide an adequate number of fixed installation socket outlets.

Where, however, extension leads have to be used, they must be tested in accordance with schedule 1, must be suitably sized to the load, and shall be installed and protected so as not to introduce a physical tripping hazard.

Where leads exceed 3 metres in length the lead should incorporate an RCD plug and of a manufactures/type approved by the Estates department. For application see Safe Working Practice:18.

Extension Leads for Medical Equipment attached to patients

Electrical equipment attached to patients have completely separate criteria for safety compared with the requirements of the latest edition of the IET Regulations.

Extension leads are not to be used with medical equipment as they may compromise patient safety.

When medical equipment is required to be used in a position where there is no, or insufficient socket outlets the Estates department should be consulted to determine a satisfactory solution.

Wherever possible, extra switch socket outlets shall be provided rather than long term use of extension leads.

Any multiblock leads which are affixed to medical equipment (i.e. crash trolleys) should be considered as an inherent part of the equipment. Any spare socket **must not** be used for any other equipment as this may compromise the safety of the system.

Extension leads should not be retrospectively fitted to equipment in an attempt to solve a particular problem. Modifications of this nature could compromise the product liability of the devices, as well as presenting a potential hazard. For application see Safe Working Practice:18.

Repaired Equipment

Any portable electrical equipment that is subject to a repair should undertake the appropriate portable appliance test before being re-issued for use.

Portable Appliance Testing Data and Results

All portable appliance test results will be held centrally by the appropriate technical department.

If a department requires copies of the results or certificates for various items of equipment, these can be requested by calling the Estates and Facilities departments helpline.

Schedule 1

Portable Appliance Testing - Frequencies (unless Risk Assessment dictates otherwise)

Main Kitchens

Trust owned food trolleys	12-monthly
Hand held Class 1 or 2	12-monthly
All other equipment excluding IT (see IT below)	24-monthly

Workshops (Estates)

Hand held tools and equipment	12-monthly
All other equipment excluding IT (see IT below)	24-monthly

Stores

All equipment issued. Test on issue (basic safety test)	
All equipment (full test)	12-monthly

Wards

Kitchen hand held Class 1 or 2	12-monthly
Rest of equipment excluding IT(see IT below)	24-monthly

Residences

Hand held class 1 and class 2	12-monthly
Change of occupancy	

Information and Technology (IT) Equipment

(including printers, scanners, photocopiers, faxes, monitors, base units, modems, speakers, PSU's and servers)

Class 1 and 2	48-monthly Full Test
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The above frequencies have been determined by guidance taken from the IEE Code of Practice for in-service Inspection and Testing of Electrical Equipment (Table 1, page 13) and also from the previous Trust history of portable appliance testing and defects found.

Reference Documents

Procurement and Management of Medical Equipment, Sussex Partnership NHS Foundation Trust.

MDA DB9801 Supplement 1. Medical Device and Equipment Management for Hospitals and Community Based Organisation's - Pre-use checks.

IEE Code of Practice for in-service Inspection and Testing of electrical equipment.

HTM 06-01 Electrical Services Supply and Distribution Part B Operational Management

HTM 06-02 Electrical Safety Guidance for Low Voltage Systems.

HSE Maintaining Portable Electrical Equipment HSG107 (third edition)

SAFE WORKING PRACTICE: 20

ACCEPTANCE INTO SERVICE

It is the responsibility of the departmental manager or “head of department” to inform the appropriate technical department of any new electrical equipment that requires testing prior to it being used.

A: Electrical Equipment

Any new piece of non-medical electrical equipment, whether fixed or portable, should be commissioned by the Estates Department prior to being taken into service.

The commissioning process must consist of the following:

- 1) Detailed inspection of equipment and its installation to determine its suitability, safety and compliance with all appropriate statutory and other regulations.
- 2) It is important when purchasing/installing new electrical equipment that the electrical supply/number of electrical outlets in the area concerned is adequate for the safe operation of the equipment.
- 3) A full range of electrical tests appropriate to the equipment or installation shall be carried out and the test results recorded and filed.
- 4) Operational checks shall be carried out to ensure satisfactory performance. These checks shall be performed in conjunction with the user wherever possible.
- 5) Equipment details shall be recorded.
- 6) The initial settings of all adjustable settings should be recorded.
- 7) All new equipment shall be recorded in the Schedule of Portable Equipment, Asset Register or other PPM inventory.

The commissioning of medical equipment is the responsibility of the department requesting the equipment and to have it checked by EBME department and require similar tests, but will require further details recording and the equipment labelling in accordance with Trust Policy.

If there is any doubt about the suitability of the equipment then the appropriate technical department should be contacted for advice prior to any equipment being ordered.

B: Electrical Installations

BS 7671 and Guidance Note: 3 detail the requirements of the inspection and testing of electrical installations. Where properties are taken into the building stock of Sussex Partnership NHS Foundation Trust they shall have been tested to the standards set down in these documents to ensure compliance with the Electricity at Work Regulations.

SAFE WORKING PRACTICE: 21

USE OF METAL STEPS, LADDERS, SCAFFOLDING ETC

Metal steps, ladders, scaffolding or similar shall not be used to gain access to electrical equipment unless the supply to this equipment is isolated and the means or proof of supply reinstatement is held by the person working on the access equipment.

SAFE WORKING PRACTICE: 22

LV SWITCHBOARDS AND GENERATORS

General

In the event of failure of the electricity supply standby generators will start up automatically and provide an electrical supply.

Non-essential circuits will have lost their supply.

Generators

Each Emergency Standby Generator shall be tested and maintained in accordance with the requirements of HTM 06. Each generator shall:

- a. Undergo a monthly on load generator run for a minimum of 2 hours
- b. Annual Black Start initiated by a planned mains failure operation.
- c. Annual Load bank test.

Off load starting and running is not a suitable replacement for any of the above.

Please refer to individual log books for on load and off load testing procedures.

Ensure all log books are completed and that any faults or problems are reported to your Team Leader immediately.

SAFE WORKING PRACTICE: 23

WORKING ON UNINTERRUPTIBLE POWER SUPPLIES

Uninterruptible power supplies by their intended design must provide a no-break supply to the load equipment for the required endurance period and must continue to function normally when the normal supply is disconnected. On account of this there is a need to ensure that all such units have a built-in facility for isolating the internal power source.

No one shall carry out any work on uninterruptible power supplies without the Authorised Person's knowledge. Prior to working on a UPS the competent person must also refer to the relevant procedures detailed on the work docket or procedures held within the Estates Department and refer to manufacturers information.

All work on UPS systems shall be carried out in compliance with Chapter 7 of HTM 06-02

Extreme caution must be exercised.

Note – Plug in UPS are not classed as complex once plug removed.

SAFE WORKING PRACTICE: 24

WORKING ON BATTERIES

1. The output from the battery should be isolated when working on the equipment it supplies unless for safety reasons the battery output needs to be instantly and permanently available. The battery charger should be isolated.
2. Where it is necessary to use tools for working on a battery, they should be of an approved insulated type.
3. To control maintenance work on battery system if more than 25 V and/or 10 Ah these should be accessed by an Authorised Person (LV). See Appendix 9.
4. If work other than simple maintenance (for example topping up electrolyte levels) is undertaken, this work should be carried out in full accordance with the precautions detailed within this Health Technical Memorandum, including the issue of a certificate of authorization for live working.
5. For work on batteries below 25V and 10 Ah, Authorised Persons (LV) should undertake a risk assessment of individual installations and issue local instructions if considered appropriate. When working on any battery system, care should be taken to prevent short-circuiting terminals.
6. Work which may involve a source of ignition must never be undertaken near an enclosed cell of battery unless adequate precautions have been taken to eliminate any risk of danger or injury.
7. Where any work is to be carried out near or directly over, a battery installation, specific precautions should be taken to prevent the potential risk of danger or injury which could result from any accidental short-circuiting of the battery terminals.
8. A supply of sterile water to allow flushing of the eyes should be available during the course of the work.
9. Personal protective equipment including face visor, acid resistant gloves and apron should be worn during the work.
10. In all cases of burns, medical attention should be obtained.
11. Battery removal must be carried out in accordance with the above procedure and with due regard to lifting and handling procedures.
12. All old batteries are to be placed in a specified central location in the Estates Department at ready for disposal by nominated contractor under special waste regulations.

SAFE WORKING PRACTICE: 25

SAFE WORKING PROCEDURES FOR SERVICING OR CLEANING ULTRA VIOLET LAMP INSECT KILLERS

Introduction

Units used to kill insects by means of attracting the insect to a light source are generally fitted with ultra violet lamps operating over the wavelength 400-200 nanometers. They incorporate a fine mesh grill across the lamps which are supplied with high voltage electricity between 8000 to 13000 volts. The instant the insect comes into contact with the mesh, it disintegrates and burns up.

Hazards

There are two dangers to people servicing the units which are:

1. Looking directly at ultra violet at close range.
2. Electric shock from high voltage electricity.
3. Working at Height

Statutory Requirements

Health & Safety at Work Act 1974.

HSG 107 – Maintaining Portable Electrical Equipment.

HS(R) 25 Memorandum of Guidance on the Electricity at Work Regulations (1989).

Local Procedures

Safe Working Procedures/Practices

The following procedure should be followed when servicing or cleaning the unit.

- a. Switch the unit off. Isolate the unit electrically by physically disconnecting the electricity supply and prove dead.
- b. If working at height, follow safe working procedure for 'Working at Heights'
- c. With the unit electrically isolated and proved dead, the high voltage grill can be cleaned and ultra violet lamps changed as necessary.
- d. To test the unit after servicing, the unit can be reconnected to the electrical supply. Switch the unit on when standing at ground level from the operators/users position.
- e. Dispose of used ultra violet lamps using same procedure for disposal of fluorescent tubes.

SAFE WORKING PRACTICE: 26

USE OF RCD's / RCBO's AND TESTING

The following are some design guidelines that should be adopted along with a risk assessment within Sussex Partnership NHS Foundation Trust' premises:

1. Sockets in Common Areas – circuit protected in distribution board by RCD / RCBO
2. Sockets in Patient Areas – socket protected by RCD (integral to socket)
3. Socket Outlets for Use by Single Piece of equipment and Labelled Accordingly – no earth leakage protection required
4. Lower Specified Electrical Installations – i.e. Twin and Earth cabling, plastic conduit, etc circuit protected in board by RCD / RCBO
5. Bathroom / Toilet Area Lighting – each individual toilet / cubicle / shower / bath to have individual RCD in local area to mitigate risk of all lights failing in the event of a fault

The above is not prescriptive but has been put together with a view of the regulations, nuisance tripping and time to attend for power restoration following device tripping.

TESTING OF RCD'S / RCBO'S

Each RCD/RCBO device shall have a function test every 6 months to ensure the correct operations.

SAFE WORKING PRACTICE: 27

SPECIALIST REPAIR AND MAINTENANCE CONTRACTORS

Any specialist contractor visiting site must, in every case, report to an Estates Officer or Team Leader and inform them of the work they are proposing to carry out the procedures that they intend to follow. Upon completion of work the contractor will again report to an Estates Officer or Team Leader. All contractors are to undergo a Site Induction and be briefed on any specific hazards that might exist.

If live testing is envisaged, the Authorised Person must be satisfied that the contractor is competent and on the Trust competent register and that he is fully aware of the requirements of the Electricity at Work Regulations and the Trust's Electrical Safety Rules applicable to their task. A safety person must be present at all times and a LFT 1 completed.

Any hazardous work must be carried out in normal working hours unless by agreement with the Estates Officer or Team Leader supervising the work.

SAFE WORKING PRACTICE: 28

NOTICE TO CONTRACTORS – ELECTRICAL SAFETY

The following requirements apply to all contractors carrying out any electrical work with Sussex Partnership NHS Foundation Trust's premises.

- 1) The contractor shall comply with the requirements of the Health & Safety at Work etc Act 1974, the Electricity at Work Regulations (1989), HTM 06-02; Electricity Safety Guidance for Low Voltage Systems, BS 7671 and SPFT NHS Trust Electrical Safe Working Procedures and Practices LV.
- 2) All contractors' personnel shall be competent to carry out their work/duties in a safe manner at all times.
- 3) A safe system of work as agreed with the Trust and the contractor shall be employed.
- 4) The following activities may be subject to a Permit to work & other safety documents
 - a) High Voltage works (if applicable)
 - b) Low Voltage - Live working (see safe working practice)
 - c) Low Voltage - Dead working, as specified by the Trust
- 5) Faulty tools and equipment must not be brought onto site.
- 6) Power tools, should be 110 volts or battery operated. Extension leads must only be used for 110v equipment and be correctly terminated and free from any joints or damage. 230v leads must NOT be used (see safe working practice: 18).
- 7) All portable electrical equipment must have been tested and be within its certification period.
- 8) Personal protective equipment should be worn where necessary to comply with (1) above.
- 9) Contractors must be aware of the Trust's fire alarm system, be aware of the location of the nearest suitable break glass unit, and suitable fire extinguisher.
- 10) Competency of electrical contractors working on the SPFT Trust sites are to be recorded and filed with the Estates Office

SAFE WORKING PRACTICE: 29

ENFORCEMENT OF POLICY - CONTRACTORS EMPLOYED BY SPFT NHS TRUST

1) Matters Concerning Safety

It is incumbent upon Sussex Partnership NHS Foundation Trust Estates staff and indeed anyone under the Health & Safety at Work etc Act to take immediate steps to stop any unsafe practices.

Any Estates staff, or others, observing any unsafe practice should inform the person concerned that their method of working appears to be unsafe and ask them to stop work until the matter can be resolved. He should inform their Team Leader or superior who shall contact the Supervising Officer in charge of the work on which the employee or contractors employee is engaged.

If the Supervising Officer is not immediately available then an Estates Officer shall take such corrective action as necessary to ensure that danger is avoided.

2) Matters Concerning Design

An installation should not be accepted on "hand over" if there is any doubt as to its overall safety. The offer to correct safety defects during the maintenance/ retention period of the contract must be strongly resisted.

Consideration may be given in these circumstances to accepting a partial hand over to enable any commissioning of an area to take place if this is essential to maintain a programme. The electrical installation within this area must however be SAFE.

SAFE WORKING PRACTICE: 30

ELECTRICAL RECORDS

As highlighted in the resume of the Electricity at Work Regulations (1989) earlier in this manual some of the requirements are absolute, whilst others shall be complied with as far as is reasonably practicable.

In the event of proceedings for an offence of contravention of an absolute requirement, a defence would require proof that all reasonable steps had been taken and that all due diligence had been exercised. This can only be done if accurate records are available.

Records shall be maintained of all work carried out e.g. maintenance, works of alterations, new installations etc and, where appropriate, duplicate copies kept in a separate, secure location.

Safety documents as detailed in the Trust's "Electrical Safe Working Procedures & Practices (LV) shall be used as necessary and all record books and documents retained for a minimum period of seven years.

Records, within the context of Electricity at Work Regulations 1989, include:

- a) Operational procedure manual.
- b) Switchgear and transformer schedule.
- c) Operating and maintenance manuals, including "as fitted" drawings regularly updated as required shall be available as reference sources for use by employees.

ELECTRICAL SAFETY MANAGEMENT FLOW SHEET

