

## Electrical Safety Policy

Issue Date	Review date	Version
April 2018	April 2023	3.2

### Purpose

The purpose of this document is to detail the Trusts' policy to achieve safety in all its electrical activities in compliance with its legal and statutory obligations

### Who should read this document?

All Departmental Managers.

All staff should refer to the Electrical Safety Policy Document Headlines which can be found on Staff-net –Health & Safety –Documents – **Headlines Electrical Safety Policy**

### Key messages

This electrical safety policy is issued under the authority of the Chief Executive and will apply to all Trust electrical activities.

### Accountabilities

<b>Production</b>	Electrical Services Manager
<b>Review and approval</b>	Health and Safety Committee
<b>Ratification</b>	Lee Budge, Director of Corporate Business
<b>Dissemination</b>	
<b>Compliance</b>	

### Links to other policies and procedures

Health and Safety Policy  
 Policy for the Safe Employment of Contractors  
 Document Headlines  
 Management of Inoculation Injuries  
 Incident Management SOP Policy  
 Management and use of Medical Devices Policy  
 Medical Equipment User Guide  
 Management of Adverse Events Policy  
 Medical Device Training Policy

### Version History

<b>1.0</b>	New policy	Existing policy expired April 2018
<b>2.0</b>	Revision July 2015	Page 29 and 37
<b>2.2</b>	Revision March 2016	Pages 3, 10, 11, 17, 26, 27, 30, 32, 34, 39
<b>3</b>	April 2018	Approved and Ratified

3.1	Revision May 2019	Pages 18, 23, 35, 36, 38 (minor amendments)	
3.2	Revision August 2019	Minor Amendments	
Last Approval		Due for Review	
April 2018		April 2023, unless legislation requires update in the interim	

*The Trust is committed to creating a fully inclusive and accessible service. By making equality and diversity an integral part of the business, it will enable us to enhance the services we deliver and better meet the needs of patients and staff. We will treat people with dignity and respect, promote equality and diversity and eliminate all forms of discrimination, regardless of (but not limited to) age, disability, gender reassignment, race, religion or belief, sex, sexual orientation, marriage/civil partnership and pregnancy/maternity.*

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Larger text, Braille and Audio versions can be made available upon request.**

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## **1 Introduction**

Plymouth Hospitals NHS Trust is committed to protecting and improving the Health, Safety and well-being of patients, visitors, staff and the wider community, through responsible and effective management and development of the natural and built environment.

This Operational Policy uses the Health Technical Memorandum HTM 06 -01 Electrical Services Supply & Distribution, HTM 06 – 02 Electrical Safety Guidance for Low Voltage Electrical Systems and HTM 06 – 03 Electrical Safety Guidance for High Voltage Electrical Systems, IEE Wiring Regulation 17<sup>th</sup> Edition BS7671 2008 Amendment 3 (2015) as best practice advice for the healthcare sector as a reference for compliance with legislation and to the Care Quality Commission Standards Essential Standards of Quality and Safety. Outcome 10 Safety and suitability of premises.

As part of the Trust's commitment, this Policy statement has been prepared to enable the Trust to set objectives and aims by which continuous improvement can be achieved.

This policy applies to all persons (staff, contractors, patients and members of the public) who may be affected by any electrical activity arising from works (including use or contact with equipment) carried out on Trust property. It also applies to all electrical activities undertaken by employees and/or contractors when working at any Trust location.

This Policy applies to the Trusts Electrical HV and LV infrastructure;

- Up to and including the point of use/local isolation from the LV system
- Building services plant and non-medical equipment connected to the LV system

## **2 Purpose, including legal or regulatory background**

The prime purpose of this document is to detail the Trust's policy to achieve safety in all its electrical activities in compliance with its legal and statutory obligations.

The document also provides guidance and references to assist staff in implementing the Electrical Safety Policy.

Key legislation as mentioned in 'Introduction'.

## **3 Definitions**

Description of the key definitions of terminology that are used within the policy is outlined throughout in the relevant sections.

The following personnel have been appointed in writing for HV (high voltage) and LV (low voltage) duties as defined by HTM 00, HTM 06-02 & HTM 06-03 (see Appendix 8).

- Chief Executive is the Duty holder and has overall accountability for all aspects of the Trusts Electrical Engineering Services.
- Designated Person (DP) 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 electricity system within the premises.
- Authorising Engineer (AE) is a chartered / incorporated electrical engineer with required knowledge, training and experience who possesses the necessary independence from local management and is appointed in writing by the Designated Person. The AE assesses the suitability and appointment of Authorised Persons.
- Duty Authorised Person (DAP) is an electrical engineer with required knowledge training and experience to manage the highly complex electrical engineering systems on a daily basis.
- Authorised Persons (AP) are the individuals possessing proficient technical knowledge and have received appropriate training, they are appointed in writing by the management on the recommendation of the Authorising Engineer. Authorised Persons are responsible for the implementation of the electrical safety policy.
- Competent Persons (CP) are individuals recognised by the Authorised Persons as having sufficient technical knowledge and experience to prevent danger and work on the system. They will normally be the Trust's employed electricians appointed by the Trust.

#### 4.1 Management Responsibilities

- The full Roles & Responsibilities are fully documented in HTM 06-02 and HTM 06-03 and should be referred to for full details of the individual's roles.
- The Chief Executive (or their nominated officer) has the overall responsibility for the Site Services Department and will ensure sufficient resource is available to enable the Trust to comply with the HTM's and this Policy.
- The Electrical Engineering Services Manager (DAP) or, in his absence, his nominated Deputy, is responsible for the overall management and

implementation of this policy and the appointment of competent persons on the recommendation of the AE and DAP

- The Electrical Engineering Services Manager shall ensure compliance with this policy with regard development of the site, particularly with reference to new technologies and the need to provide adequate records of new installations.

The Authorised Persons (AP) are responsible for ensuring that the electrical services are operated safely and efficiently in accordance with the guidelines described in this policy.

- The Electrical Engineering Services Manager will maintain a registers of Trust Authorised, Competent staff and an approved list of suitably qualified and experienced subcontractors (Contractor Approved List).
- Managers and Heads of Departments shall provide access at all reasonable times to properties and equipment in order that Trust staff and Contractors can discharge their duties under this policy
- Co-operation of all Trust Managers is required as follows: -

4.1.2 Reporting of circuits or equipment in need of repair and logging the detail with the Site Services (Estates) helpdesk call reference number.

4.1.3 Making available electrical equipment to carry out repairs.

4.1.4 Provide access to systems for the purpose of routine testing and inspection.

4.1.5 Ensure any electrical equipment delivered to and for use in the Trust has been tested and cleared for use by the Estates Department, Medical Electronics or Medical Physics i.e. equipment must be tested before use.

4.1.6 Provide access to portable electrical equipment for testing and inspecting at mutually convenient times.

4.1.7 Whenever there is a division of responsibilities between the Trust management and others, the Site Services Management Departments Authorised Persons will issue instructions to others as necessary to prevent danger.

4.1.8 Where a specialist contractor has been appointed under contract by Trust management, the contractor shall be required to comply with:

- All Trust Policies
- Any instruction issued by the Trust's Authorised Person in accordance with the Trusts Electrical Safety Rules for High or Low Voltage Systems.

4.1.9 All ward managers must submit requests for electrical safety checks of patient's own electrical equipment using the Site Services Help Desk facility

## **5 Trust Electrical Standards**

### **5.1 LV and HV Safety Rules**

- 5.1.1 The recommendations of the Department of Health's publication "HTM 06-02 *Electrical Safety Guidance for Low Voltage Electrical Systems* have been considered and the associated "Electrical Safety Rules for Low Voltage Systems" (ISBN 011 3218521) are adopted by the Trust as the method of achieving the legal requirements for electrical safety on LV systems. Refer to this Policy Procedure Section for detail in achieving compliance.
- 5.1.2 Copies of the Trust's Electrical Safety Rules for low Voltage Systems are available for inspection from the Site Services (Estates) Duty Authorised Person.
- 5.1.3 10.1 The Trust has adopted the Department of Health's publication "HTM 06-03 *Electrical Safety Guidance for High Voltage Electrical Systems* and associated "Electrical Safety Rules for High Voltage Systems" (ISBN 011 3216432) as its method of achieving a safe system of work on its HV system. Refer to this Policy Procedure Section for detail in achieving compliance.
- 5.1.4 Copies of the Trust's Electrical Safety Rules for High Voltage Systems are available for inspection from the Estates Duty Authorised Person.

### **5.2 Issue and Safety Standards**

- 5.2.1 Each Trust electrical employee shall have access to a copy of the Trust's Electrical Safety Policy, together with a copy of the Electrical Safety Rules (HV and/or LV) and related documents appropriate to their duties.
- 5.2.2 Such employees and other persons shall acknowledge the Electrical Safety Policy (and any amendments thereto), and shall keep them in good condition and have them available for reference as necessary.
- 5.2.3 Other Employees and Contractors who have not been issued with these documents can view them through the Site Services (Estates) Department.
- 5.2.4 All persons concerned with work to which the Electrical Safety Rules (HV or LV) apply, must make themselves conversant with the requirements of the Rules. Ignorance of their requirements shall not be accepted as an excuse for neglect of duty.
- 5.2.5 Electrical contractors or other electrical persons shall work safely and not put themselves or others at risk. Failure to do so will involve disciplinary procedures for direct labour. Contractors whose work is

considered to be unsatisfactory or unsafe will be instructed to cease work and their name removed from the approved contractors' list.

- 5.2.6 All Electrical works carried out on Trust Property shall have Method Statements and Risk Assessments reviewed by the Trust appointed Authorised/Competent Person prior to work commencing.

### **Objections**

When any person receives instructions regarding the operation of or work upon the Trust's electrical system and associated plant and apparatus, he shall report any objections on safety grounds to the carrying out of such instructions to the persons issuing them, who shall have the matter investigated and, if necessary, referred to the Authorising Engineer for a decision before proceeding.

### **5.3 Risk Assessment Electrical System/Equipment**

- 5.3.1 Hazards – Electrical Switchboards, Transformers, Cables and Generators rely on the integrity of their insulation to prevent electrical short circuit developing with attendant short circuit, fire and explosion risks.

- 5.3.2 Factors which affect the integrity of electrical insulation include;

- Age
- Operating temperature
- Environmental conditions e.g. humidity/dust
- Vermin attack
- Surface leakage currents

- 5.3.3 Correct security and maintenance should ensure that electrical equipment remains in a safe and operational satisfactory condition.

- 5.3.4 Consequences of Electrical Failure – Explosion risks are higher with 11000 Volt (HV) equipment than with 415/230 Volts (LV) equipment. Loss of supply from HV equipment will usually affect more users than on LV equipment failure. Patient risks increase with time for a power failure. All electrical equipment has the potential ability to give individuals an electric shock, which could be fatal.

- 5.3.5 Taking all of the above factors into consideration the following Risk Assessment has been made in accordance with the Trusts' Risk Management Framework.

Reference	Responsibility	Secondary	Date added	Date reviewed	Principal Objective	Principal Risk	IMPACT	Likelihood	Risk Score (before action)	Existing Risk Control Measures	Potential Sources of Assurance on Controls		Actual Positive Assurances	Gaps in Assurance	Further Action Required	Target date	Responsible for Action	Further Review	IMPACT	Likelihood	Risk (After Action)
											Internal	External									
1	LH	LH	April 2018	April 2018	Safe & Reliable elect systems	Loss of Site Power Supply	CATASTROPHIC	HIGHLY LIKELY	Serious	Automatic Standby Generators (8 in No.) provide cover for the site. Uninterruptible Power Supplies to critical areas (Theatres, ICU & computer rooms etc). Theatre operating lights with battery backup. Emergency lighting systems.	Monthly On-Load mains failure testing of all generators for 2 hours and Yearly testing for 4 hours as per HTM 06-01 Part A & B. Generator Test Log Books.	External Authorising Engineer	Annual Review by Authorising Engineer. Generator testing Procedure manual. Risk Assessments. Trust Electrical Safety Policy. Procedures for electrical failure. Maintenance contract of all Generators	LV substation upgrades required in South substations and Boiler House sub-station to meet demand	Upgrade LV Sub-station systems via Strategic Capital Budget. Boiler House and South to be upgraded 2019.	April 2019	LH	YEARLY	CATASTROPHIC	UNLIKELY	Significant
2	LH	LH	April 2018	April 2018	Safe & Reliable elect systems	High Voltage system	CATASTROPHIC	HIGHLY LIKELY	Serious	Western Power Distribution have dual supply points to hospital site HV. Ring Mains design facilitates secure levels of supply with Translay protection. Records of tests maintained. HV schematic and site cable markers, cable routes on AutoCad	Annual Maintenance of all Embedded HV Transformers, and 3 Yearly Maintenance of HV Ring Main Units. 5 yearly maintenance of HV equipment and protection systems by approved contractor. Maintenance contract for HV tripping equipment. H.V. Authorised Persons H.V. Training and 3 yearly refresher training. HV Permit to Work system. Approved List of Contractors.	External Authorising Engineer	Annual Review by Authorising Engineer. Written confirmation of A.P. appointment. Risk Assessments. Trust Electrical safety Policy. Estates Procedures for electrical failure. Control of Contractors Policy		Audit June 2018	Up to date	LH	YEARLY	CATASTROPHIC	UNLIKELY	Significant

3	LH	LH	April 2018	April 2018	Safe & Reliable elect systems	Low Voltage system	CATASTROPHIC	HIGHLY LIKELY	Serious	L.V. Permit to Work system for work on complex systems. L.V. schematic and site cable routes on AutoCad. Confirmation of switchgear labelling carried out prior to Alph/numeric system of switch, DB & circuit labelling implemented	Fixed installation 5 yearly inspection/tests for L.V. circuits. Records of tests maintained on database. Authorised Persons L.V. Training and 3 yearly refresher training. LV Permit to Work system. Approved List of Contractors.	External Authorising Engineer	Annual Review by Authorising Engineer. Written confirmation of A.P. appointment. Risk Assessments. C.P Audits by Trust Duty A.P. Trust Electrical Safety Policy. Emergency Estates Procedures for electrical failure. NICEIC and CSS Registration. Control of Contractors Policy	Sky Visitor Control of Contractors set up	Upgrade LV systems Phase 1 Electrical Risers via capital / backlog maintenance using infrastructure survey information. Project imminent	April 2020	LH	YEARLY	CATASTROPHIC	UNLIKELY	Significant
4	LH	LH	April 2018	April 2018	Safe & Reliable elect systems	Portable Appliance Testing PAT	CATASTROPHIC	LIKELY	Serious	18 Month Inspections/tests by contractor. Electronic records maintained. New equipment tested when received and hard copy results recorded. Testing of all patient equipment prior to use.	Contract issued with an approved contractor	External Authorising Engineer	Annual Review by Authorising Engineer. Trust Electrical safety Policy.  Trust issued Health and Safety procedures/guidance issued for the safe use of portable appliances. Control of Contractors Policy			April 2019	LH	YEARLY	CATASTROPHIC	UNLIKELY	Significant
5	LH	LH	April 2018	April 2018	Safe & Reliable elect systems	Trade Staff awareness of Elect Safety	CATASTROPHIC	LIKELY	Serious	Qualified staff employed, Induction and mentoring of new staff. Competent Persons Training by Trust Duty Authorised Person and Authorising Engineer, records maintained	L.V. Training and 3 yearly refresher training. Formal letter of appointment by Electrical Engineering Services Manager	External Authorising Engineer	Annual Review by Authorising Engineer. Training with assessment overseen by Electrical Engineering Services Manager and external Authorising Engineer			April 2019	LH	YEARLY	CATASTROPHIC	UNLIKELY	Significant

Risk Grading		IMPACT				
		Insignificant	Minor	Moderate	Severe	Catastrophic
LIKELIHOOD	Almost Never	Minimal	Low	Moderate	Moderate	Moderate
	Unlikely	Minimal	Low	Moderate	Significant	Significant
	Likely	Minimal	Low	Moderate	Serious	Serious
	Highly Likely	Low	Low	Significant	Serious	Serious
	Almost Certain	Low	Moderate	Significant	Serious	Serious

Risk	Action	Assurance
Serious	Executive	Trust Board
Significant	Executive	Trust Board
Moderate	Directorate	Executive
Low	Specialty	Directorate
Minimal	-	Specialty

↑ Cumulative Responsibility

## **5.4 Fixed Electrical System – Low Voltage**

### 5.4.1 Periodic Testing of LV System;

- i) All fixed LV electrical systems owned by the Trust shall be periodically inspected and tested in accordance with BS 7671:2008 (17<sup>th</sup> Edition IET Wiring Regulations) + A3:2015

5.4.2 The frequency of inspection and testing of final circuits shall not exceed 5 years. The frequency of testing of certain circuits may be reduced based on risk assessment.

### 5.4.3 Circuit Identification;

- All LV switchgear and distribution boards shall be uniquely identified by securely attached and prominent labels. Each distribution board shall have an on-site circuit chart which allows accurate and easy identification of all circuits connected to the switchboard.
- Final circuit outlets shall also be labelled to reference them to their controlling switch/fuse and distribution board, both internally and externally.
- LV schematic diagrams showing the Trusts LV electrical system layout and circuit/switchgear identification references shall be provided and updated as necessary.
- Trust guidance shall be followed for all labelling systems.

## **5.5 LV Fixed Equipment Maintenance and Fixed Electrical System HV**

5.5.1 All low voltage equipment (e.g. ventilation systems, industrial boiler plant, lifts, industrial compressors etc.) shall be regularly inspected, serviced and tested to ensure that it is maintained in a safe and serviceable condition. The frequency of testing shall be by risk assessment but shall not exceed 3 years. A record of maintenance of electrical equipment shall be kept by the Site Services Department and will contain brief details of all inspections, routine servicing, repair and modifications.

5.5.2 LV Switchgear - All LV Switchgear shall be maintained to ensure its safety and operational capability is maintained. Maintenance intervals shall not exceed the following periods:

- Visual inspection every year.
- Thermal survey every 5 years on heavily loaded and/or operationally sensitive units.
- Mains Cable testing every 15 years (following risk assessment)

### 5.5.3 Periodic Testing of HV System;

- All HV switchgear and plant shall be maintained to ensure its safety and operational capability is maintained. Maintenance intervals shall not exceed the following periods:
- Switchgear (RMU) 4 years
- Oil Filled Transformers Oil tests 2-yearly
- Air Cooled Transformers (Embedded) Cleaning Annually
- Circuit Breakers (Vacuum) 5 Years
- HV Protection Systems 5 Years
- Tripping batteries. Full maintenance every 5 years
- Routine maintenance every 6 months

## 5.6 Standby Emergency Generators and Fixed Uninterruptible Power Systems (Battery Operated)

5.6.1 fixed HV/LV standby emergency generators shall be maintained, tested and fuelled to ensure their correct operation in the event of a mains failure.

5.6.2 The fuel storage of each generator connected fuel tank shall provide day tanks for a minimum of 8 hours running at the full rating of the generator. Additionally connected fuel storage shall be provided to allow a minimum of 200 hours full load running of each generator.

5.6.3 Each generator shall be tested on load each month, initiated by actual failure of the mains electrical supply (Black Start). Fuel levels shall be checked at the end of each test to ensure sufficient stock levels.

5.6.4 UPS systems shall be maintained bi-annually to ensure that they have full operational capability. It is essential that this maintenance includes a short period (usually 1 to 2 minutes) when the UPS system is put on-load i.e. Batteries discharged. During this period battery output voltage should be monitored to confirm satisfactory battery conditions.

5.6.5 addition to the annual UPS maintenance full battery maintenance shall be conducted every 3 years (or annually if results indicate battery condition to comprehensively assess the battery). Tests conducted shall include battery internal impedance and an extended on-load test.

5.6.6 All UPS systems shall be connected to the central (monitored) alarm system so that operation of the UPS system (i.e. battery discharge) activates an alarm condition.

5.6.7 In the event of a mains failure (or disconnection) and subsequent standby generator operation to restore supply all connected UPS systems shall be regularly monitored to ensure correct synchronisation of rectifier/inverter circuitry i.e. to confirm UPS system does not go into battery operation due to hunting of generator frequency and/or voltage.

5.6.8 If generator control is such that severe hunting does occur (UPS alternating between normal and battery discharge) then it will not be possible to select mains by-pass on the UPS system (static switch will not allow by-pass with mains hunting until batteries discharged) so the UPS may fully discharge unless action is taken. Advice must be taken from an authorised person as to appropriate action which could involve load disconnection and/or generator shut-down.

## **5.7 Lightning Protection Systems and Medical Isolated Power Systems**

5.7.1 The Trusts structural lightning protection systems are to be tested annually by a qualified contractor in accordance with BS EN 62305:2012

5.7.2 Test results and site installation drawings are to be maintained by the Estates department.

5.7.3 New buildings on site will be risk assessed in accordance with BS EN 62305 Part 5 for their need for structural lightning protection.

5.7.4 The IEC & IET have divided medical locations into three different groups: 0, 1 & 2. The most critical of which is Group 2. These are defined as Category 5 areas (Life support or Complex surgery) e.g. Operating theatre suites, critical care areas, catheterising rooms, accident & emergency resuscitation units, MRI, angiographic rooms, PET and CT scanner rooms. It is these Group 2 locations that require isolated power supplies.

5.7.5 Regulations & Standards: Isolated Power forms part of HTM 06-02, IEC60364-7-710, IEC61557-8, IET Wiring Regulations. 17<sup>th</sup> Edition section 710.

5.7.6 An IPS system provides continuity of electrical supply to "life-supporting" equipment. Faulty equipment (short to earth) will not trip a breaker or blow a fuse. Instead, an alarm is raised to the clinical user informing them of a problem with the supply status.

5.7.7 patient's natural electrical resistance is significantly reduced when electro-medical conductive parts are placed in the body. Supplementary equipotential bonding (within the patient environment) shall be provided for patient safety. Isolated Power removes the risk of earth leakage shock; if a patient is unconscious or anaesthetised then they cannot inform clinic staff that a shock is being received. Even very small currents (approximately 25mA) in the chest area can cause ventricular fibrillation and so this needs to be monitored carefully.

5.7.8 The Trust has a maintenance contract to carry out 6 monthly nurse call system preventative maintenance and verification inspections on the equipment in line with IEC60364-7-710.64 and HTM 08-03; reports are retained by the Site Services Department.

## **5.8 Portable Electrical Equipment and Portable Appliance Testing PAT**

5.8.1 The National Association of Professional Inspectors and Testers (napit) define a portable appliance as 'any electrical item which can or is intended, to be moved whilst connected to an electrical supply.'

5.8.2 The primary responsibility for day to day safety of portable equipment when in service lies with the user(s).

5.8.3 person using portable electrical equipment shall, before using it, personally check that the equipment, including the flexible cable and plug top, is free from mechanical damage and that the in-date test label is attached. User visual signs that the equipment is not in a sound condition may include :-

- There is damage (apart from light scuffing) to the cable sheath.
- The plug is damaged, for example the casing is cracking or the pins are bent
- There are inadequate joints, including taped joints in the cable
- The outer sheath of the cable is not 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
- The equipment has been subjected to conditions for which it is not suitable, e.g. it is wet or excessively contaminated
- There is damage to the external case of the equipment or there are some loose parts or screws
- There is evidence of overheating (burn marks or discoloration).
- All departments and personnel must observe the Estates Notifications sent Trust-wide, to only use the Trust approved RCD Protected industrial extension leads available via an Estates New Works Request form. No other extension leads can be used on Trust properties and should only be used where there is no trip hazard created and for low load items only i.e. PCs'. The preferred option is to have permanent sockets installed.

#### Hazard Reduction

- Personal electrical devices should not be charged where water or other liquids spills are likely
- Chargers should be unplugged when the battery is fully charged
- Cables should not be trapped under furniture or in floor boxes
- Devices must not be charged in an Oxygen rich environment

- E-cigarettes should not be used in an Oxygen rich environment

These checks also apply to extension leads and associated plugs and sockets.

5.8.4 The Code of practice for In-Service Inspection and Testing of Electrical Equipment ISBN 978-0-86341-833-4 covers Portable Appliance Testing. Refer also to the Management and use of Medical Devices Policy and the Medical Equipment Users Guide, which are the Policy and SOP for the correct use and safety of medical devices.

Personal Computers and associated IT equipment to be inspected and tested at least once every 18 months. All other portable electrical equipment including medical portable equipment shall be inspected and tested at least every 18 months.

5.8.5 Table hand held tools/electrical equipment to be inspected more frequently if considered necessary.

5.8.6 Testing shall comprise;

- Visual Inspection
- Earth Bond Continuity Test (for class 1 equipment)
- Insulation Resistance Test (which may be substituted by earth leakage measurement)
- Functional checks

5.8.7 PAT testing is to be carried out by Trust electrical staff or contractors persons who are competent in the safe use of approved equipment, e.g. 'Seaward' PAT tester or similar. Calibration certificates are to be made available to the Estates Department for any equipment used.

All equipment that has been tested and inspected must be clearly identifiable. This usually achieved by labelling the equipment with a PAT Testing label. The label/sticker must contain the following;

- Unique identification code to enable equipment to be identified.
- The status of the equipment following the testing i.e. PASS or FAIL
- The date the equipment was tested together with the re-test date.

Estates staff and contractors carrying out PAT test are to be clearly instructed as regards the response to any equipment failing inspection and testing.

Equipment which cannot be repaired immediately is to be fitted with a warning label, the staff carrying out the test, are to inform the user(s) and make secure to prevent use. The Site Services Department is to be informed of the failure and the failure clearly indicated on the test reports provided to the Site Services Department.

Users of new portable electrical equipment delivered to stores or direct to user shall inform the Site Services Department, or Medical Electronics Department as appropriate to ensure that the item is visually inspected and electrically tested before use.

Equipment which has been modified or repaired shall be tested as per new equipment prior to being returned to service.

It is the responsibility of each member of staff to ensure that his/her own personal electrical items are not used at work until tested and cleared for use.

## **5.9 Electrical Contractors**

5.9.1 Only approved staff and contractors with a suitable level of competence are to be employed to work on systems/equipment. All contractors must ensure that their employees who work on Trust managed properties possess the appropriate level of technical knowledge and experience to enable them to discharge their duties safely.

5.9.2 A maintenance engineer working on electrical services must comply with this Policy and be informed of the possible hazards, permits to work procedures before commencement of any task.

5.9.3 Approval of electrical contractors to undertake work for the Trust shall be by Site Services Department.

5.9.4 The register of approved electrical contractors shall be maintained by the Site Services Department. The contractors are to provide evidence of competency and training when requested by the Trust.

5.9.5 The ability of a contractor to safely undertake the required work shall be the prime consideration when appointment to the "approved list" is being considered. The following factors shall be considered:-

- Qualification and training of employees
- NICEIC Registered
- Contractors employees should hold JIB Electrical Certification (ECS), Construction Skills Certification Scheme (CSCS) card.
- Contractors Health & Safety Policy

- Standard of Risk assessments & Method Statements
- Technical references from previous clients

5.9.6 Contractors are to be supplied with sufficient information about Trust systems (e.g. diagrams) to enable them to plan and execute their work in a safe manner.

5.9.7 Contractors will liaise with the Trust's HV or LV Authorised Person who will manage isolation procedures for work on complex electrical systems.

5.9.8 Contractors employed by the Trust for work on its LV system will comply with the requirements of the 17<sup>th</sup> Edition IET Wiring Regulations BS 7671 and will complete a completion and inspection certificate which meets the Trusts' requirements.

## **5.10 Management of Safe Systems at Work**

5.10.1 The trust will maintain at least 6 Authorized Persons for HV and five for LV systems.

5.10.2 The Trust has adopted a controlled policy for live working which shall be in accordance with the Electricity at Work Regulations and HTM 06- 02/03 on LV or HV systems, the LV exceptions to this, for competent persons after completing Self-Assessment Form LW1 and with reference to the Live Working and Dead Working Flow charts (see Appendix 4) :-

- Fault finding (control panels etc.)
- Battery maintenance
- Testing
- Fuses or plug-in component replacement

5.10.3 In accordance with HTM 06-02 & HTM 06-03 the Trust maintains a Permit to Work system for HV and LV work on systems made dead. The HV & LV Authorized Persons are responsible for issue and the Senior Authorized Person shall be responsible for the management of the PTW systems.

### **Electrical Isolation Policy**

As part of the Estates Department's responsibility to maintain and improve the Trust's infrastructure, occasionally there may be a requirement to isolate one or more of the main electrical supplies to single/multiple wards or departments. Where the ward or department has a clearly identifiable end user, that person, or

nominated individual, will be contacted and must sign document HTM 06-02/06-03 electrical safety guidance "PERMISSION FOR DISCONNECTION / INTERRUPTION OF ELECTRICAL SERVICES" prior to any isolation of the electrical supply.

Where more than one area/department is affected, multiple signatures may be required. If no end user is clearly identifiable, TME should be informed for senior management approval and sign off by the Director of Estates & Facilities. For all electrical isolations other than final circuit isolations, where local arrangement is required, an Estates Alert e-mail is to be circulated to all users/group via helpdesk using the standard isolation template.

Other than emergency electrical isolation, Estates will provide as much notice as possible when switching off a main supply. Prior to work commencing, wards and departments are advised to liaise with Estates and use the notice period to undertake a service impact risk assessment. Estates can advise on alternative electrical sources and/or arrange for temporary supplies where practical

- 5.10.4 The Authorized Persons have master suited access keys to LV & HV test equipment, safety locks, caution and danger notices to facilitate safe systems of work.
- 5.10.5 The Trust provides its Site Services maintenance staff with a variety of approved 'locking off components', padlocks, caution and danger notices (indicating persons carrying out work) to ensure safe working.
- 5.10.6 Similarly as above, contractors should have their own locking arrangements with notices indicating persons carrying out the works.

The Trusts HV & LV electrical services are secured by suited locks, '*master*' keys for HV & LV access, '*standard*' keys for plant room access. A limited number of '*standard*' keys are maintained at the Estates department for issue to contractors under a Key Register/Permit Access documentation system.

- 5.10.7 The Site Services Department will maintain HV equipment schedules, test results, mimic diagrams, schematics and site cable route drawings. (See section 29)
- 5.10.8 The Site Services Department will maintain LV equipment schedules, test results, schematics and site cable route drawings. (See Records)
- 5.10.9 Regular Review/Audit of management by Authorising Engineer.
- 5.10.10 Annual Audits will be carried out by the Site Services

Department in accordance with the Management Policy (Electrical).

## 5.11 General Electrical Work

5.11.1 A Permit-to-work is **not** required for the following work if it is carried out by a Competent Person (Electrical Services) or authorised contractor -

- Isolation of electrical distribution systems and equipment to make them safe.
- Replacement of electrical outlets, fittings equipment and fuses that have been made safe
- Installation of new electrical fittings, outlets and equipment
- The replacement of electrical lamps may be carried out by electrical assistants provided that they have the appropriate technical knowledge, training and information to enable them to work safely.

5.11.2 Work Risk Assessments;

- All work carried out on Trust Premises including work carried out by authorised contractors shall be subject to risk assessment.
- The results of Risk Assessments for work on electrical equipment shall be documented and shall include detailed method statements that records:
- The steps that will be taken to ensure and verify that there is adequate means of access/egress, adequate lighting and adequate safe work space at all electrical equipment, on which work is being performed.
- The means by which the electrical equipment to be worked on shall be disconnected from every source of electrical energy.
- The steps that will be taken to ensure that electrical equipment to be worked on has been made dead
- The precautions that will be taken to prevent electrical equipment, which has been made dead becoming electrically charged during work.
- The personal safety equipment and tools that are required to prevent injury and death
- The steps that will be taken to ensure that electrical equipment is reinstated in a safe manner

5.11.3 Planning Work on Electrical Equipment;

- All work on electrical equipment shall be planned both in advance and while the work progresses. When planning work the following factors shall be considered:
- The work to be done
- The hazards of the system or equipment to be worked on
- The people doing the work and the level of supervision necessary.
- The precautions to be taken.
- The system of work to be employed.

## **5.12 Information, Instruction and Training**

- 5.12.1 The Site Services Department will ensure that all employees concerned with particular work activities are adequately informed as to the systems,  
  
Plant and apparatus which are affected, and instructed in all necessary safety procedures.
- 5.12.2 So far as is reasonably practicable, that other persons who are not employees but may be affected by the work activities also receive adequate information and/or instruction.
- 5.12.3 Training records for all Site Services staff with regard to electrical systems will be maintained and updated by the duty Authorised Person. Refresher training will be undertaken for LV Authorised and Competent Persons, and HV Authorised Persons on a three yearly cycle.
- 5.12.4 Trust Authorised and Competent Persons shall have training and regularly refreshed every 3 years in Emergency First Aid including the treatment for electric shock and resuscitation.

## **5.13 Reporting of Accidents and Dangerous Occurrences and Safety Equipment and Protective Clothing**

- 5.13.1 Staff and contractors employed by the Trust must comply with the Trusts' Incident Management Standard Operating Procedure.
- 5.13.2 The Trusts Site Services Department is to be notified of Department of Health Safety Alerts concerning electrical equipment/systems by the Trust Patient Safety Manager.
- 5.13.3 Actions arising from the DoH Alerts sent to the Site Services Department are addressed in the Response Form returned to a member of the Patient Safety Team.
- 5.13.4 The Trust will provide its Site Services electrical staff with approved test equipment, it is the responsibility of the staff to ensure that the equipment remains in good condition, and where appropriate in calibration.
- 5.13.5 The Trust will provide Site Services staff with Personnel Protective Equipment (PPE) to enable a safe system of work. At all times Site Services staff and contractors must wear approved clothing, safety footwear and identification, in accordance with the risk assessment.

- 5.13.6 The Trust will maintain a stock of battery powered hand tools and 110v equipment for Site Services staff use.
- 5.13.7 Contractors are expected to provide their own tools and equipment in accordance with Electrical Safety on Construction Sites (HSG141) and maintain them in good order in compliance with the PUWER Regulations and Electrical Safety on Construction Sites (HSG141). The Site Services department will not provide contractors any tools or equipment. At all times, Site Services staff and contractors employed by the Trust are to wear approved clothing and safety footwear as directed by the Duty Authorised Person, and departmental leads for other departments.

## **5.14 Records**

- 5.14.1 Adequate records shall be maintained for the following:-
- Staff training and authorization
  - Tests/work associated with; commissioning, maintenance, inspection, testing and repair of fixed and portable electrical equipment, wiring, switchgear and plant.
  - The Trust's HV & LV electrical distribution system circuit routes, conductor sizes, switchgear and control/isolation/final outlet positions.
  - Location and data relating to Standby Generators, UPS and IPS installations

## **6 Overall Responsibility for the Document**

The Director of Planning and Site Services and the Electrical Services Manager

## **7 Consultation and Ratification**

The design and process of review and revision of this policy will comply with The Development and Management of Trust Wide Documents.

The review period for this document is set as default of five years from the date it was last ratified, or earlier if developments within or external to the Trust indicate the need for a significant revision to the procedures described.

This document will be approved by the Health and Safety Committee and ratified by Lee Budge, Director of Corporate Business. Non-significant amendments to this document may be made, under delegated authority from the Director of Site Services, by the nominated author. These must be ratified by Lee Budge, Director of Corporate Business and should be reported, retrospectively, to the approving Health and Safety Committee.

Significant reviews and revisions to this document will include a consultation with named groups, or grades across the Trust. For non-significant amendments, informal consultation will be restricted to named groups, or grades who are directly affected by the proposed changes

## **8 Dissemination and Implementation**

Following approval and ratification, this policy will be published in the Trust's formal documents library and all staff will be notified through the Trust's normal notification process, currently the 'Vital Signs' electronic newsletter.

Document control arrangements will be in accordance with The Development and Management of Trust Wide Documents.

The document author(s) will be responsible for agreeing the training requirements associated with the newly ratified document with the named Director of Planning and Site Services and for working with the Trust's training function, if required, to arrange for the required training to be delivered.

## **9 Monitoring Compliance and Effectiveness**

It should be noted that the responsibilities in this policy are legally enforceable and that managers (and employees where applicable) failing to uphold their responsibilities may find themselves in breach of internal disciplinary policies and legislation.

The Trust has an annual electrical audit by an Authorising Engineer (independent) and documented.

The Electrical Services Manager addresses deficiencies.

Annual internal audit for electricians by Authorised Person as Appendix 8.  
Issuing offer of appointment form as Appendix 9

This policy is a living document and as such, the effectiveness of the policy shall be monitored by the Site Services Department. The Electrical Services Manager will review this policy five years or sooner, in the light of changes to regulations or named persons.

The Authorising Engineer will submit an annual report to Site Services on the effectiveness of the Trusts' compliance with HTM 06-03 (HV) and HTM 06-02 (LV).

## **10 References and Associated Documentation**

### **Acts and Regulations**

**Construction (Design and Management) Regulations 1994.** SI 1994 No 3140. HMSO, 1995.

**Construction (Design and Management) (Amendment) Regulations 2000.** SI 2000 No 2380.  
HMSO, 2000.

**Electricity at Work Regulations 1989.** SI 1989 No 635.  
HMSO, 1989.

**Electricity Safety, Quality and Continuity Regulations 2002.** SI 2002 No 2665. HMSO, 2002.

**Electromagnetic Compatibility Regulations 1992.**  
SI 1992 No 2372. HMSO, 1992.

**Health and Safety (Safety Signs and Signals) Regulations 1996.** SI 1996 No 341. HMSO, 1996.

**Health and Safety at Work etc Act 1974.** HMSO, 1974.

**The Plugs and Sockets etc. (Safety) Regulations 1994**

**Health and Safety (First-aid) Regulations 1981.**  
HMSO, 1981.

**Management of Health and Safety at Work Regulations 1999.** SI 1999 No 3242. HMSO, 1999.

**Manual Handling Operations Regulations 1992.**  
SI 1992 No 2793. HMSO, 1992.

**Personal Protective Equipment Regulations 2002.**  
SI 2002 No 1144. HMSO, 2002.

**Provision and Use of Work Equipment Regulations 1998.** SI 1998 No 2306. HMSO, 1998.

**Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995.** SI 1995 No 3163.

**Workplace (Health, Safety and Welfare) Regulations 1992.** SI 1992 No 3004. HMSO, 1992.

**Health and Social Care Act 2008 (Regulated Activities) Regulations 2010**

## **British Standards**

**BS 697:1986.** Specification for rubber gloves for electrical purposes. British Standards Institution, 1986.

**BS 7430:1998.** Code of practice for earthing. British Standards Institution, 2001.

**BS 7671:2008.** Requirements for electrical installations. IET Wiring Regulations. 17<sup>th</sup> edition.

**BS EN 60529:1992.** Specification for degrees of

protection provided by enclosures (IP code). British Standards Institution, 1992.

**BS EN 60903:2003.** Live working. Gloves of insulating material. British Standards Institution, 2003.

### **Department of Health publications**

**Health Technical Memorandum 06-01 – Electrical services supply and distribution.** The Stationery Office, 2006.

**Health Technical Memorandum 06-02 – Electrical Safety Guidance for Low Voltage systems.** The Stationery Office, 2006.

**Health Technical Memorandum 06-03 – Electrical safety guidance for high voltage systems.** The Stationery Office, 2006.

### **Plymouth Hospitals NHS Trust (related documents)**

**Health & Safety Policy – TRW/H&S/POL/1/5**

**Non-Medical Equipment Users Guide (available from the estates dept)**

**Medical Equipment Users Guide – TRW/MED/GUI/292/3**

**Guidance Notes on The Installation of Electrical Systems (available from the Estates Department)**

<b>Core Information</b>				
<b>Document Title</b>	<b>Electrical Safety Policy</b>			
<b>Date Finalised</b>	April 2018			
<b>Dissemination Lead</b>	Electrical Services Manager			
<b>Previous Documents</b>				
<b>Previous document in use?</b>	Now superseded			
<b>Action to retrieve old copies.</b>	None			
<b>Dissemination Plan</b>				
<b>Recipient(s)</b>	<b>When</b>	<b>How</b>	<b>Responsibility</b>	<b>Progress update</b>
All staff		Email/Public Folders	Document Control	
<b>Review</b>				
<b>Title</b>	Is the title clear and unambiguous?			Yes
	Is it clear whether the document is a policy, procedure, protocol, framework, APN or SOP?			Yes
	Does the style & format comply?			Yes
<b>Rationale</b>	Are reasons for development of the document stated?			Yes
<b>Development Process</b>	Is the method described in brief?			Yes
	Are people involved in the development identified?			Yes
	Has a reasonable attempt has been made to ensure relevant expertise has been used?			Yes
	Is there evidence of consultation with stakeholders and users?			Yes
<b>Content</b>	Is the objective of the document clear?			Yes
	Is the target population clear and unambiguous?			Yes
	Are the intended outcomes described?			Yes
	Are the statements clear and unambiguous?			Yes
<b>Evidence Base</b>	Is the type of evidence to support the document identified explicitly?			Yes
	Are key references cited and in full?			Yes
	Are supporting documents referenced?			Yes
<b>Approval</b>	Does the document identify which committee/group will review it?			Yes
	If appropriate have the joint Human Resources/staff side committee (or equivalent) approved the document?			N/A
	Does the document identify which Executive Director will ratify it?			Yes
<b>Dissemination &amp; Implementation</b>	Is there an outline/plan to identify how this will be done?			Yes
	Does the plan include the necessary training/support to ensure compliance?			Yes
<b>Document Control</b>	Does the document identify where it will be held?			Yes
	Have archiving arrangements for superseded documents been addressed?			N/A
<b>Monitoring Compliance &amp; Effectiveness</b>	Are there measurable standards or KPIs to support the monitoring of compliance with and effectiveness of the document?			Yes
	Is there a plan to review or audit compliance with the document?			Yes

<b>Review Date</b>	Is the review date identified?	Yes
	Is the frequency of review identified? If so is it acceptable?	Yes
<b>Overall Responsibility</b>	Is it clear who will be responsible for co-ordinating the dissemination, implementation and review of the document?	Yes

<b>Core Information</b>	
<b>Date</b>	April 2018
<b>Title</b>	Electrical Safety Policy
<b>What are the aims, objectives &amp; projected outcomes?</b>	
<b>Scope of the assessment</b>	
<b>Collecting data</b>	
<b>Race</b>	
<b>Religion</b>	
<b>Disability</b>	
<b>Sex</b>	
<b>Gender Identity</b>	
<b>Sexual Orientation</b>	
<b>Age</b>	
<b>Socio-Economic</b>	
<b>Human Rights</b>	
<b>What are the overall trends/patterns in the above data?</b>	
<b>Specific issues and data gaps that may need to be addressed through consultation or further research</b>	

These procedures apply to the following properties currently owned or leased by the Trust, specifically they are:

Property Name	Address 1	Tenure	Repair	Trust's Landlord or Tenant	Comm Date	End Date
Derriford Hosp + Onsite Properties	Derriford Road	Freehold	Full	-	-	-
Bush Park	Plymbridge Road	Leasehold	Full	Atherteam Ltd	29.09.06	28.09.21
Norwich Union Building 1 Brest Rd. ground, 1 <sup>st</sup> and 2 <sup>nd</sup> floor	Brest Road	Leasehold	Full	Eagle One Ltd	31.03.05	30.03.20
1 Brest Rd (3rd Floor let to MOD)	Brest Road	Let to MOD	MOD Internal	MOD	24.12.08	30.03.20
Tamar Science Park Units	Davy Road	Leasehold	Internal Only	Tamar Science Park	Annual	Annual
Child Development Centre	Scott Business Pk	Freehold	Full	-	-	-
Bircham House	Plymouth Int Business Park	Leasehold	Full	CCH Properties	25.03.04	24.03.19

<b>Rooms 2.04 - 2.09 Research Way</b>	<b>Research Way</b>	<b>Leasehold</b>	<b>Internal Only</b>	<b>Cardio Analytics Ltd</b>	<b>01.12.03</b>	<b>30.11.10</b>
<b>Radiology Academy</b>	<b>Plymouth Int Business Park</b>	<b>Leasehold</b>	<b>Full</b>	<b>Pitch No1 &amp; Pitch No2 Ltd</b>	<b>20.05.05</b>	<b>28.09.25</b>
<b>Rowan House</b>	<b>Derriford Site</b>	<b>Leasehold</b>	<b>Full</b>			
<b>Haemodialysis Unit</b>	<b>Estover</b>	<b>Freehold</b>	<b>Full</b>			
<b>Breast Screening</b>	<b>Plymouth Guildhall</b>	<b>Leasehold</b>	<b>Internal only</b>	<b>Council</b>		

Future properties both owned and leased must comply with the Trusts standards

## Risk Assessment – Internal LV Mains Cable Maintenance

Appendix 4

### Plymouth Hospitals NHS Trust Risk Assessment:- Internal L.V. Mains Cable Maintenance

Reviewed *April 2013* Responsible Dept: *Site Services* Next Review *Continuously Reviewed*

Task:	Who is at Risk	Hazard(s)	IMPACT	Likelihood	Risk Level Before Control	Current Precautions or Control Measure(s)	IMPACT	Likelihood	Risk Level After Control	Further Action: <b>Rolling maintenance programme and records maintained</b>
Inspection & Testing :-  <b>Internal LV Mains Cables &amp; Switches between Main Distribution Boards, Sub Boards &amp; Distribution Boards.</b>	All Persons on Site	Loss of Supply..... Explosion... Fire..... Electrocution.	Severe Severe Severe Severe	Highly likely Likely Likely Likely	Serious Significant Significant Significant	All Plant rooms, Switch rooms, & Service Voids are locked with suited locks with 3 access levels. Authorised Estates Staff have keys. Contractors draw keys under a key register system.  All cables installed in accordance with current IEE Regulations & good practice. All Mains Cable/Switchboard installation and testing is carried out by Approved Electrical Contractors under the Trusts L.V. Permit to Work System.  The Trust maintains a database of Approved Electrical Contractors. The Trust has completed a switch testing, verification & labelling system.  The Trust maintains records of all Mains Cable Testing, both new & periodic retests. The Trust maintains schematic record drawings of LV Boards & Mains Cable layout. Addressable Fire Detection System Installed in switch rooms.	Severe Severe Severe Severe	unlikely unlikely unlikely unlikely	<b>Moderate</b> <b>Moderate</b> <b>Moderate</b> <b>Moderate</b>	Carrying out thermographic surveys of main switchboards & sub board switchgear every 5 years. Being conducted 2018/19 in conjunction with Fixed Wiring Testing.  Carry out annual visual inspections of L.V. switchgear & cable runs.  Carry out interim testing as & when areas are closed for maintenance/refurbishment.  Upgrade main supply, switchgear & distribution boards programmed to be part of major projects.

## Risk Assessment – External LV Mains Cable Maintenance

Appendix 5

**Plymouth Hospitals NHS Trust Risk Assessment:- External L.V. Mains Cable Maintenance**

**Reviewed April 2013**

**Responsible Dept: Site Services**

**Next Review**

**Continuously Reviewed**

Task:	Who is at Risk	Hazard(s)	IMPACT	Likelihood	Risk Level Before Control	Current Precautions or Control Measure(s)	IMPACT	Likelihood	Risk Level After Control	Further Action: <b>Rolling maintenance programme and records maintained</b>
Inspection & Testing :-  <b>External L.V. Mains Cables between Main Distribution Boards, Sub Boards &amp; Distribution Boards.</b>	All Persons on Site	Loss of Supply..... Explosion..... Fire..... Electrocutation	Severe Severe Severe Severe	Highly likely Likely Likely Likely	<b>Serious                      Significant                      Significant                      Significant</b>	All Plant rooms, Switch rooms, Ducts & Service Voids are locked with suited locks with 3 access levels. Authorised Estates Staff have keys, Contractors draw keys under a key register system.  All cables installed accordance with current IET regulations & good practice. All Mains Cable/Switchboard installation and testing is carried out by Approved Electrical Contractors under the Trusts L.V. Permit to Work System.  The Trust maintains a database of Approved Electrical Contractors.  The Trust has completed a switch testing, verification & labelling system. The Trust maintains records of all Mains Cable Testing, both new & periodic retests. The Trust maintains schematic record drawings of LV Boards & Mains Cable layouts. Addressable Fire Detection System Installed in switch rooms.	Severe Severe Severe Severe	Unlikely Unlikely Unlikely Unlikely	<b>Moderate                      Moderate                      Moderate                      Moderate</b>	Carry out thermographic survey of main switchboards & sub board switchgear every 5 years. Being conducted 2018/19 in conjunction with Fixed Wiring Testing  Carry out annual visual inspections of L.V. switchgear.  Carry out interim testing as and when areas are closed for maintenance/refurbishment

**LIVE WORKING – SELF CHECK SAFETY FORM**

Department.....Location.....

Task.....

*All sections to be read and completed before proceeding*

Actions	Tick	(Delete as appropriate)
1. Is live working necessary		YES / NO
Reason:- (Please tick) Disruption of services ..... Fault diagnosis not practical dead ..... Contradiction of other statutory regulations ..... Other (please state)		
2. Have unnecessary personnel have been removed from site?		YES / NO
3. Are you a competent person who is authorised for LIVE LV WORKING?		YES / NO
4. Can you control the work area to achieve safe working?		YES / NO
5. Do you have all the information required to do the work?		YES / NO
6. Are you using the correct equipment? (Please Tick)		

	Rubber Gloves/eye protection Insulated tools Rubber mats Test gear/probes (fused) Screens/barriers Suitable clothing to wrist	..... ..... ..... ..... ..... .....	
7.	Is all the above equipment legal/dated/certified/calibrated?		YES / NO
	Note; If you have answered NO to any of the above questions, LIVE WORKING CANNOT TAKE PLACE		
8.	Are assistance required for the following:- (if YES tick appropriate reason) Isolation purposes only? Assisting actual work? Controlling work areas? Monitoring remote areas?	..... ..... ..... .....	YES / NO
9.	Are assistants aware of points of isolation?		YES / NO
10.	Are your assistants competent / trained in First Aid?		YES / NO

I have carried out the above checks and I am satisfied that it is safe to proceed.

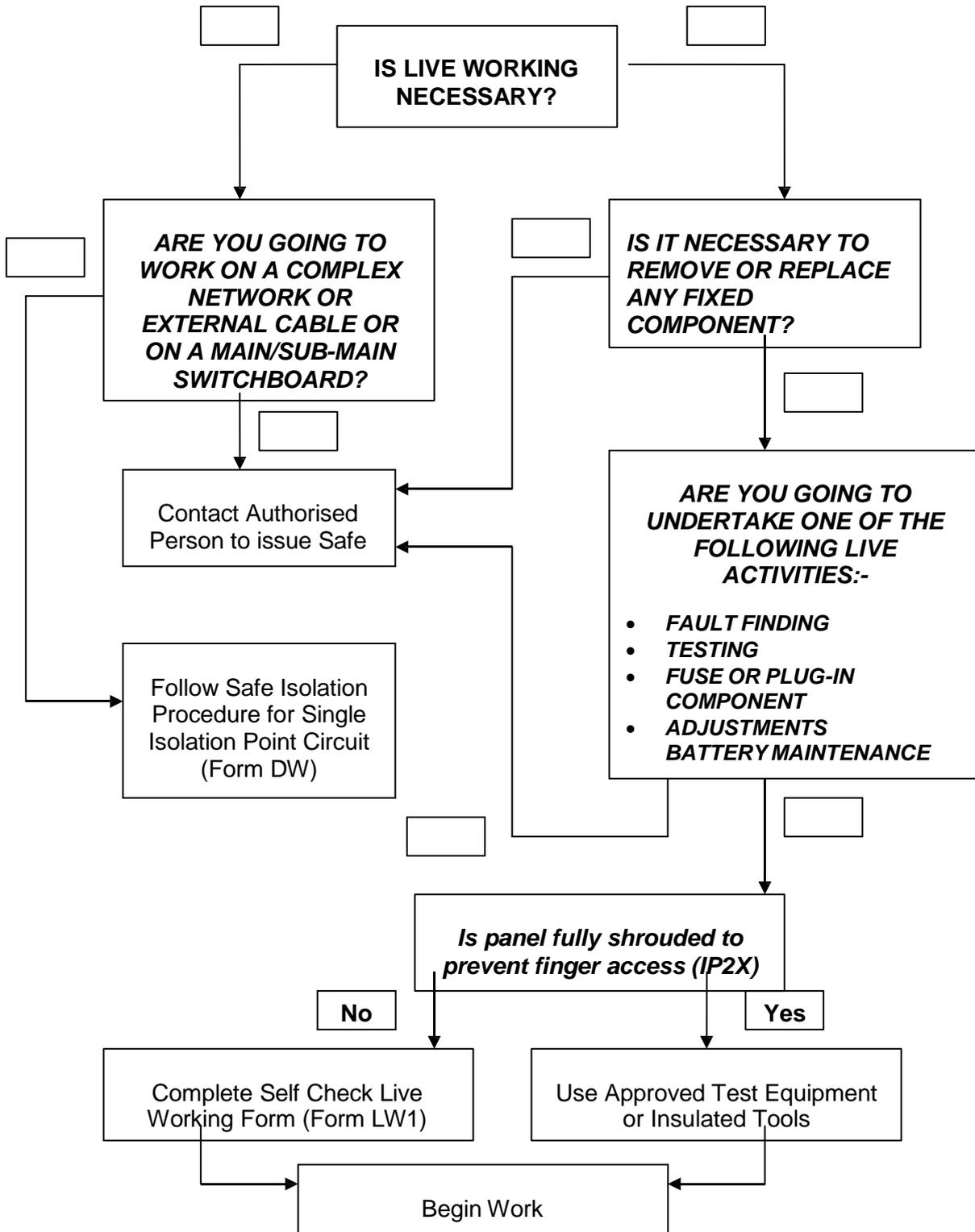
Signed.....Date.....Time.....

Note: If your tests indicated that a component needs to be removed or replaced, this must be done with the equipment made DEAD and ISOLATED

PLEASE RETURN COMPLETED FORMS TO YOUR SUPERVISOR

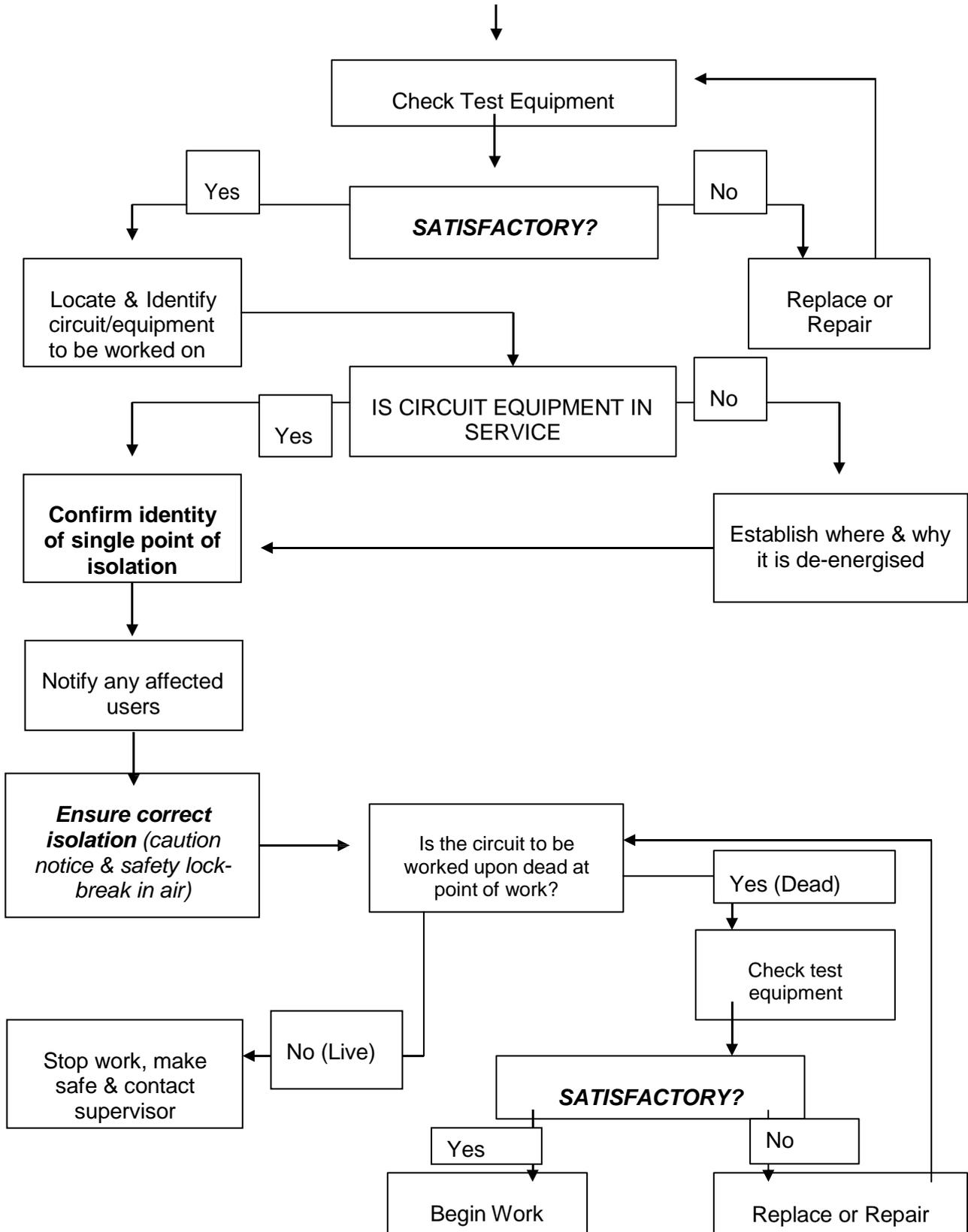
**FORM LW**

## LV NETWORK – WORKING PROCEDURE CHART



**Safety Isolation Procedures for Dead Working on Low Voltage System (single point isolation)**

BEFORE STARTING Ensure that you are a competent Person authorised for LV switching and that you have adequate work instructions



**Authorising Engineer HV & LV** Mr John Smale      SSE Contracting

**Designated Person HV & LV**      Mr Nick Thomas, Director of Planning & Site Services

**Trust Senior Manager/Informed Client HV & LV**      Mr Phil Tarbuck, Head of Estates

**Duty Senior Authorised Person HV & LV**      Mr Lee Horrell, Electrical Services Manager

**Authorised Persons:**

**Low Voltage:**

Mr Keith Wills	Deputy Duty Senior Authorised Person
	Estates Officer Electrical
Mr Bryan Kidger	Engineering Operations Manager
Mr David Arkison	Estates Electrical Supervisor
Mr Lee Horrell	Estates Electrical Services Manager
Mr Lee Evangelista	Estates Electrical Technician
Mr Shaun Downend	Estates Electrical Technician
Mr Christopher Wills	Estates Electrical Technician

**High Voltage**

Mr Keith Wills	Deputy Duty Senior Authorised Person	Estates Officer Electrical
Mr Bryan Kidger	Engineering Operations Manager	
Mr David Arkison	Estates Electrical Supervisor	
Mr Lee Horrell	Electrical Services Services Manager	
Mr Christopher Wills	Estates Electrical Technician	
Mr Shaun Downend	Estates Electrical Technician	
Mr Lee Evangelista	Estates Electrical Technician	
Mr Christopher Lyall	Estates Electrical Technician	

\* Training records are to be retained in the staff personnel files

HV & LV Refresher Training for AP's - In date

**Site Services Operations & Maintenance Management**

Derriford Hospital  
Derriford Road  
Plymouth PL6 8DH

Tel: 01752 431305  
Fax: 01752 792824

Email: Richard.harris5@nhs.net

Dear .....

**RE: OFFER OF APPOINTMENT AS LV COMPETENT PERSONS (Electrical)**

Following your recent successful practical assessment with the Trust's LV Authorising Engineer, I am writing to offer you an appointment as a LV Competent Person (Electrical) under HTM 06-02. Your duties as an electrician will include:-

- Dead working on final load sub-circuits where the point of isolation is at the controlling distribution board or local switch. The electrician (Competent Person) will personally isolate the circuit and prove dead at the point of work
- Dead working under an LV Permit to Work as permit holder or member of the working party
- Live working under Form LW1 procedures. No energised fixed components to be removed or replaced
- Live working under a certificate-of-authorisation-for-live-working issued by an Authorised Person. To act as certificate holder or as member of the working party
- Periodic testing of permanent standby LV generators
- Switching on LV Systems

Your appointment will be for a period of three years from the date of this letter.

Will you please sign and date the attached slip which should be returned to Mr. R.J.Harris Electrical Engineering Services Manager to indicate your acceptance of this appointment.

Yours sincerely,

Electrical Engineering Services Manager (Estates)

**Acceptance Slip – LV Competent Person Appointment**

I accept the offer of appointment as an LV Competent Person (Electrician) in accordance with HTM 06-02

Signed: .....

Name: .....  
(Please print)

Date: .....

Please return to: The Electrical Services Manager

**Site Services Operations & Maintenance Management**

Derriford Hospital  
Derriford Road  
Plymouth

PL6 8DH

Tel: 01752 431305  
Fax: 01752 792824

Dear .....

**RE: OFFER OF APPOINTMENT AS LV COMPETENT PERSONS (Mechanical)**

Following your recent successful practical assessment with the Trust's LV Authorising Engineer, I am writing to offer you an appointment as a LV Competent Person (Mechanical) under HTM 06-02. Your duties as a mechanical fitter will include:-

- Dead working on final load sub-circuits for the purpose of disconnection only of Electric Motors where the point of isolation is at the Motor Control Panel or by local switch. The Mechanical Fitter (Competent Person) will personally isolate the circuit and prove dead at the point of work
- Dead working under an LV Permit to Work as permit holder or member of the working party
- Periodic testing of permanent standby LV generators

Your appointment will be for a period of three years from the date of this letter.

Will you please sign and date the attached slip which should be returned to The Electrical Engineering Services Manager to indicate your acceptance of this appointment.

Yours sincerely,

Lee Horrell  
Electrical Engineering Services Manager (Estates)

**Acceptance Slip – LV Competent Person Appointment**

I accept the offer of appointment as an LV Competent Person (Mechanical) in accordance with HTM 06-02

Signed: .....

Name: ..... (Please print)

Date: .....

Please return to: The Electrical Services Manager