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LOW VOLTAGE ELECTRICAL SAFETY AND ELECTRICAL EQUIPMENT PROCEDURE

Procedure Aim and Introduction

This procedure contains the protocol for the management and maintenance of Public Health Wales' low voltage electrical equipment and infrastructure. This procedure aims to describe the correct procedure for ensuring electrical safety for Low Voltage (LV) services for Public Health Wales.

Procedure Commitment

This procedure sets out Public Health Wales' commitment to ensure that:

- All electrical equipment complies with the relevant statutory and industry standards and is inspected, tested, maintained and operated as required to ensure that risks to persons who may be affected by the equipment are controlled and any potential danger to health avoided.
- Staff and when appropriate visitors, are given information, instruction, training as appropriate to their involvement with electrical equipment.

The main pieces of legislation covered within this procedure are the Health and Safety at Work Act 1974, the Electricity at Work Regulations 1989, Institution of Electrical and Technology (IET) British Standard - BS7671:2018 IET Wiring Regulations 18th Edition, and The Waste Electrical and Electronic Equipment (WEEE) Regulations 2013

Supporting Procedures and Written Control Documents

[All corporate policies and procedures are available on the Public Health Wales website](#)

Other related documents are:

Health and Safety Policy, Fire Safety Policy, Control of Contractors Procedure, Provision and Use of Work and Lifting Equipment Procedure, Asbestos Management Procedure, Welsh Healthcare Technical Memorandum 06-01: Electrical services supply and distribution (WHTM06-01) 2018; Healthcare Technical Memorandum 06-02: Electrical safety guidance for low voltage systems 2006.

Scope

This procedure and any arrangements made under it applies to:

	<ul style="list-style-type: none"> All persons employed or engaged by Public Health Wales, including part time workers, temporary and agency workers, those holding honorary contracts and those engaged by the NHS Wales Executive and Finance Delivery Unit All contractors, service users, visitors and volunteers
Equality and Health Impact Assessment	An Equality, Welsh Language and Health Impact Assessment has been completed and can be viewed on the policy webpages.
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Accountable Executive Director/Director	Huw George, Deputy Chief Executive and Executive Director of Finance and Operations.
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Disclaimer

If the review date of this document has passed, please ensure that the version you are using is the most up to date either by contacting the document author or the [Board Business Unit](#)

Summary of reviews/amendments

Version number	Date of Review	Date of Approval	Date published	Summary of Amendments
V1	2020	22.01.20		<ul style="list-style-type: none"> New Procedure
V2	2021	29.01.21	29 April 2021	<ul style="list-style-type: none"> variations in appendix c approved by the health and safety group
V3	2023	01.02.24	12.06.24	<ul style="list-style-type: none"> Included Introduction, Roles and

				<p>Responsibilities, Permit-to-Work, Failure to comply with terms of procedure and Legislation, Guidance and References sections.</p> <ul style="list-style-type: none">• Small adjustments and additions made to all other sections
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1. Introduction

Public Health Wales recognises its responsibilities under the Health and Safety at Work etc Act 1974 (HASWA) and the Electricity at Work Regulations 1989 to implement procedures to ensure that there is continual safe management of electrical equipment and the Low Voltage (LV) Electrical Infrastructure in accordance with the statutory requirements, current guidelines and best practice. This procedure sets out how the organisation will meet its statutory duties to its stakeholders, and provide guidance to staff, service users and others.

Public Health Wales will ensure that all electrical equipment complies with the relevant statutory and industry standards and is inspected, tested, maintained and operated as necessary to ensure that risks to persons who may be affected by the equipment are controlled to remove any potential hazards to health. Public Health Wales will also ensure that all staff and when appropriate, visitors are given information, instruction and training as appropriate to their involvement with electrical equipment.

2. Aims

The purpose of this document is to ensure that there are vigorous processes in place to ensure that electrical safety for low voltage is managed correctly in line with current legal and other requirements.

The table below identifies the range of Voltage to determine its category as described in WHTM06-01:

Category	Voltage Range (V)	
	Non-Medical locations	Medical locations
Extra low voltage	AC 50 V or DC 120 V ripple-free	AC 25 V/DC 60 V
Low Voltage	Normally not exceeding AC 1000 V or DC 1500 V	
High Voltage	Normally exceeding AC 1000 V or DC 1500 V (typically, for AC this will be 11 kV, 6.6 kV or 3.3 kV).	

3. Objectives

Through the implementation of this procedure, the organisation aims to achieve the following key objectives in relation to the management of electrical safety:

- compliance with all applicable legislation and other requirements
- prevention of pollution
- reduction of injury and risk
- reduction in expenditure
- continual improvement and investment

As part of providing a safe working environment in all the organisations work settings, Public Health Wales will ensure that all electrical installations are installed correctly and tested regularly and all electrical equipment, e.g. fixed and portable/ transportable appliances, are used safely by providing instruction, information and training and ensure that equipment is safe for use by conducting the appropriate safety checks.

4. Roles & Responsibilities

Chief Executive (Duty Holder)

The Chief Executive has specific accountability to ensure that responsibilities for Health and Safety, including electrical safety, is effectively assigned, accepted and managed at all levels in the Trust, consistent with good practice. This duty is delegated to the Deputy Chief Executive/Director of Operations and Finance.

Deputy Chief Executive/Director of Operations and Finance

The Deputy Chief Executive/Director of Operations and Finance has assigned as the Designated Person (DP) with responsibilities for Low Voltage Electricity as defined under HTM 06-02 and is responsibility for the successful implementation, management and monitoring of this procedure which will ensure that compliance with legislation and standards are achieved and that where problems occur, they are identified and resolved with minimum risk to employees, service users or members of the public.

Head of Estates and Health & Safety / Estates, Health & Safety Division

The Head of Estates and Health & Safety and the Estates and Health & Safety Division are responsible for ensuring all electrical systems and equipment are inspected, serviced, verified, maintained and tested in a safe manner without

hazard to staff, service users or members of the public. The Estates and Health & Safety Division will:

- Ensure the safe and efficient day-to-day management of the organisations LV systems, in accordance with the statutory requirements, current guidelines and best practice.
- Ensure all electrical systems and equipment is identified and subjected to regular maintenance and testing by a Competent Person (LV).
- Establish and maintain a Register of Competent Persons (LV) and Specialist Contractors after assessing their suitability for inclusion and review this register annually
- Ensure that appropriate reactive and planned preventative maintenance arrangements are put in place to deliver to the aims of this procedure.
- Have in place a procedure for assessing Competent Persons.
- Ensure that only individuals assessed as being competent and included on the register are used to undertake work, servicing or testing on electrical systems and equipment
- Ensure that this Procedure is implemented by any contracted in services.
- To be responsible for the supervision of work carried out by Competent Persons (LV), for the standard of that work and the documentation provided.
- To ensure that appropriate safety warning signs (where required) are prominently displayed in accordance with current requirements, guidelines, best practice and to ensure these include emergency contact numbers appropriate to the area and LV installation.
- To ensure that the Trusts LV maintenance specification and schedule of equipment (including all equipment/plant, distribution boards and any other related systems) are kept up to date.
- To be responsible for the Permit to Work System, including the issue of Permits to Competent Persons/Contractors (LV) for all servicing, repair, alteration and extension work carried out on existing LV systems.
- Audit the effectiveness of the arrangements and arrange corrective action.
- Ensure that electrical systems are independently verified annually in accordance with HTM 06-02 Electrical Safety Guidance for Low Voltage Systems.
- To ensure that all Distribution Boards and subsequent components are correctly labelled and that any changes to names, functions or details are recorded as soon as changes have taken place both on the DB labels/components and the corresponding as fitted drawings etc.
- Report any deficiencies which cannot be addressed within delegated limits of resource and authority.
- Arrange for any adverse incident to be investigated by the Authorising Engineer and for the dissemination of related advice.

- To liaise closely with other key stakeholders within and outside the organisation, who need to be informed of any interruption or testing of the LV system.
- To provide technical advice to those responsible for the purchase of any LV electrical equipment that will be connected to the LV system, in order to avoid problems with capacity etc.
- To organise such training of staff and/or delivery of LV information as required.
- To prepare or commission compliance surveys of the LV system and associated risk assessments and propose remedial actions arising from such surveys and risk assessments.
- To monitor compliance, associated risks, repeat surveys and assessments as necessary.
- Update the Health & Safety Group on any outstanding non-compliance
- To appoint after thorough investigation, an appropriate Competent Persons (LV)
- To follow incident and accident reporting procedures as defined by any relevant NHS safety alerts and/or statutory guidance (RIDDOR, Device Alerts, Hazard Notices etc).

Authorising Engineer (Low Voltage) (AE(LV))

Is defined as a person designated by management to provide independent auditing and advice on Low Voltage electrical systems and to review and witness documentation on validation/verification.

The AE(LV) shall:

- Provide a service in accordance with HTM 00 Policies and Principles of Healthcare Engineering.
- Advise on technical compliance with HTM 06-02 Electrical Safety guidance for Low Voltage Systems.
- Advise on interpretation of HTM 06-02 Electrical Safety guidance for Low Voltage Systems. Assess and make recommendations for the appointment of Authorised Persons.
- Monitor the performance of the Trust and undertake an annual audit.
- To investigate any adverse incident and report on any findings.
- Advise on the consequences of any proposed variation from the standards given within HTM 06-02 Electrical Safety guidance for Low Voltage Systems.

Contractors (Competent Person(s))

Persons carrying out installation, maintenance, inspection, testing or any other work associated with electrical equipment must be sufficiently competent. In this sense, competence means that they should have sufficient knowledge and experience which may include:

- Adequate knowledge of electricity and the applicable regulations (IET Wiring Regulations and to British Standards)
- Adequate experience of electrical work
- Understanding the hazards and dangers that may arise during the work and the precautions that need to be undertaken.
- Adequate understanding and practical experience of the equipment to be worked on
- Ability to recognise, at all times, whether it is safe for work to continue.

All externally employed contractors who are appointed to carry out work on the LV infrastructure must adhere to HTM 06-02 Chapter 4 Contractors Competent Person and the organisations Control of Contractors Procedure and must provide proof of acquired competency (for all their staff) to the Authorised Person for the organisation.

Where the contractor carries out work considered under the Permit-to-Work requirements, the contractor must:

- Accept instruction from the AP and acknowledge responsibility for the work
- Acknowledge familiarity with site fire and safety requirements.
- Isolate systems only under direct supervision of the AP
- Confirm that only the intended section(s) of electrical supplies are isolated
- Carry out only such work as detailed on the permit including final connections
- Confirm completion of work and notification to AP
- Carry out appropriate engineering validation and verification tests as required by and under direct supervision of the AP

Staff (Users of Electrical Equipment)

Users of electrical equipment have a duty to use the equipment safely in accordance with the training given and the manufacturer's instructions. Prior to each use staff shall visually inspect portable electrical appliances for damage (i.e., frayed or damaged cables, burn marks on cables or plugs, coloured wiring visible or loose etc.) and ensure that it carries a valid PAT test label.

5. Procedures for the Management of Low Voltage Systems and Electrical Equipment

5.1. Procuring Electrical Equipment

It is the responsibility of local purchasers to ensure that items of equipment purchased can be safely connected to the local electrical supplies. On occasion, this may require consultation to some degree with the organisation's Estates, Health and Safety Division. Staff hosted within Health Boards should contact their local Health Board Estates' Department. Managers shall ensure that the person procuring electrical equipment are sufficiently knowledgeable to safely select equipment that is suitable for the intended purpose and working environment and is fit for connection to the organisation's / host's supplies. When selecting equipment, consideration in the first instance must be given to the use of extra low voltage or battery powered equipment.

When selecting fixed electrical equipment, the organisation's Estates, Health and Safety Division or a host organisation's Estates Department must always be consulted.

Checks should be carried out when equipment is first delivered to ensure that the equipment:

- Is complete and in good condition without visible defects
- Is in full working order
- Is marked with a UKCA conformity or CE conformity mark
- Is supplied with a Declaration of Conformity and user instructions in English

5.2. Maintenance of Equipment

Fixed items of electrical equipment must be routinely maintained in accordance with the manufacturer's stipulations or via a suitably adopted risk assessment.

Arrangements for maintenance are required to be in place for all portable electrical appliances. The Estates, Health and Safety Division will undertake this responsibility. However, managers must ensure that all equipment to be tested is made available when Estates, Health and Safety Divisional staff or a nominated contractor is undertaking periodic checks.

5.3. Maintenance of the Trust's Electrical Infrastructure

In areas where Public Health is deemed the Duty-holder maintenance of the fixed electrical installation (e.g. ring main, lighting circuits, distribution

systems etc.) is the responsibility of the Estates, Health and Safety Division. No other member of staff or contractor shall install and connect equipment or interfere with the fixed electrical network unless the work has been authorised by the Estates, Health and Safety Division.

5.4. Safety Inspection and Testing Operational Safety Instructions

It is the responsibility of all staff, without exception, to take reasonable steps to establish the visual safety and integrity of any items of electrical equipment before the energy supply is connected to that item and put into use. Any defects must be reported to the Facilities Helpdesk via email; PHW.Facilities@wales.nhs.uk immediately and the equipment should not be used. The equipment must then be labelled accordingly by staff to ensure its use is avoided. Damaged IT equipment should be labelled up and not used and the IT division informed immediately.

Managers will ensure that the safety checks are conducted on equipment which will consist of:

- A visual (pre-use and during use) check (appendix A&B)
- A six monthly scheduled, recorded formal visual check (appendix C)
- Where necessary a Portable Appliance Test.

5.5. Fixed Electrical Installations

Safety inspections and testing of the fixed electrical installation and fixed electrical equipment must be carried out at a maximum of every five years. The precise frequency is to be determined by the outcome of a risk assessment undertaken by a competent person. For further advice, contact the Estates, Health and Safety Division. The inspections and tests must comply with the requirements of BS7671:2018 Periodic Inspection Reports for Electrical Installations 18th edition. The Estates, Health and Safety Division will make necessary arrangements of the maintenance of the organisation's infrastructure in conjunction with landlords / host organisations where applicable as part of its estate management processes.

5.6. Fixed Electrical Equipment

The asset registers of purchased fixed electrical equipment is currently held by the Finance Division, additionally the Estates, Health and Safety Division hold Mechanical and Electrical Asset Registers for all properties within the organisation's portfolio. Advice should be sought from the Estates, Health & Safety Division and Finance Division on any items that need to be added/removed from the registers. Individual divisional and building

managers are responsible for notifying the Estates, Health and Safety Division and Finance Division when new or replacement fixed items of equipment are purchased, and old equipment disposed of. This will ensure the registers are updated accordingly and maintenance and test regimes are adjusted as necessary.

5.7. Portable Electrical Appliances

Inspection and testing of portable electrical equipment is the responsibility of the Estates, Health and Safety Division. Where hosted the inspection and responsibility for testing may be undertaken by host provider.

Asset registers of the organisation's portable electrical equipment are held and monitored by the Estates, Health and Safety Division. However, this does not remove the obligation from divisional managers to notify the Estates, Health and Safety Division accordingly when new items of equipment are brought into service or when items are transferred from one point of use to another.

The frequency for inspection and testing is dependent on the equipment and the amount it is moved. This can vary from one to a maximum of five years for equipment such as computers, printers and photocopiers. Portable electrical equipment that creates the greatest risk to staff, service users or the public may be tested more frequently as deemed necessary. All testing to include user visual inspection will be carried out in accordance with the HSE Guidance Note *Maintaining portable and transportable equipment HSG 107 (3rd edition)* and will be determined by the Estates, Health and Safety Division. The guide is available at:

<http://www.hse.gov.uk/pubns/books/hsg107.htm>

After an item of electrical equipment has been inspected and or tested, the asset and local registers should be updated, and a suitable label displayed on the equipment. The label must show as a minimum, the date when the equipment was tested and the date when it is due for its next inspection or test.

If an item of equipment is found to be unsafe, it must be withdrawn from use or disconnected from its power source immediately until repaired and re-tested or deemed beyond repair, at which point the item must be disposed of appropriately.

5.8. I.T. Equipment

I.T. items of equipment are classified as portable appliances. The arrangement for the inspection is managed by the Estates, Health and Safety Division and testing of I.T. items of equipment is normally achieved through

the test programme for General Class 1 & 2 items. The period between inspections being varied in line with HSE Guidance as provided in link above (point 8), and will be determined by the Estates, Health and Safety Division.

New I.T. equipment with an approved UKCA or CE Kite mark does not necessarily need testing from new. However, a visual inspection is required before initial use.

Prior to IT cabling being installed the Estates and Health & Safety Division must be contacted to ensure that the installation complies with the requirements of the Construction, Design and Management Regulations 2015 and the organisations Control of Contractors Procedure.

5.9. Equipment not owned by Public Health Wales

Under no circumstances must items of electrical equipment be connected to the organisation's or a host organisation's electrical supply without first consulting with and seeking consent from the Estates, Health and Safety Division. In most cases, the Estates, Health and Safety Division will allow connection following a successful safety test. In other cases, connection of the equipment may not be permitted due to limited site supply capacity grounds.

NOTE: Public Health Wales will accept no responsibility for any damage caused to personal items of electrical equipment that have been subjected to a flash or other voltage injection test during the course of establishing overall electrical safety.

5.10. Live Working

Public Health Wales does not permit any form of live working under normal circumstances. Whenever possible, maintenance contractors are to test each point of contact and confirm each point dead before commencing work. It is recognised that this may cause inconvenience but is essential to minimise the likelihood of death or serious injury.

In some circumstances however, live working is unavoidable and absolutely necessary, such as fault finding. In these circumstances, live working is permitted provided the following controls are in place:

- the designated competent contractor must continue the work until completed and must not be diverted to other work
- a written risk assessment and safe system of work is agreed by all relevant parties and signed off by the Authorised Engineer for Low Voltage at Shared Services Partnership.
- all personal protective equipment (PPE) necessary is used
- live working tools are used

- at least a minimum of two competent persons are deployed to the task
- if a “live functional test” or ‘certificate of authorisation’ for live working is required, it must be issued by the authorised engineer at Shared Services Partnership. They **must** sign the appropriate permit prior to commencement of work.
- that the appropriate infrastructure is available i.e., residual current device (RCD) protection, emergency stops etc.

5.11. Permit-to-Work

The permit-to-work is a documented procedure that authorises certain people to carry out specific work within a specified time frame. It sets out the precautions required to complete the work safely, based on a risk assessment. It describes what work will be done and how it will be done in the form of a declaration, which is signed and issued by an Authorised Person to a Competent Person 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.

The following works carried out on electrical equipment on Trust Premises are subject to a permit-to-work system and shall be carried out only as directed by the Authorised Person:

- switching off any switch fuse, distribution board, or mains circuit board that may affect clinical or safety critical systems, the safety of any member of staff, service user or any other person working on or visiting the Trust premises
- work on live electrical apparatus (which will only be for testing purposes under the authority of the AP)
- work on remote and automatically controlled low voltage switchgear (which will only be for testing purposes under the authority of the AP)
- work on standby generators
- whenever the AP deems it necessary to ensure a safe system of work.

A Permit-to-Work is not required for the following work if it is carried out by Competent Person or authorised contractor:

- isolation of electrical distribution systems and equipment to make them safe
- replacement of electrical outlets, fittings, equipment and fuses where the supply has been made safe
- installation of new electrical fittings, outlets and equipment (Final circuits only)

5.12. Defective Equipment

Anyone discovering a faulty item of electrical equipment must ensure that the equipment is not used again until made safe. This may require the equipment to be locked away, the plug being removed, and the item labelled to show that it is faulty. Individuals identifying an item as faulty equipment should ensure that details and remedial action taken is reported to their line manager, the Estates, Health and Safety Division or another appropriate nominated person. The equipment must remain out of service until the necessary repairs and associated tests have been carried out. Any condemned item of electrical equipment must be disposed of in line with the organisations Waste Management Policy on the disposal of electrical items and in accordance with The Waste Electrical and Electronic Equipment (WEEE) Regulations 2013.

5.13. Disposal of Electrical Equipment (The Waste Electrical & Electronic Equipment (WEEE) Regulations 2013

The Waste Electrical and Electronic Equipment (WEEE) Regulations 2013 became law in the UK in January 2014 and puts a legal obligation on the organisation to dispose of all waste electrical items in accordance with strict guidance. Wherever possible the waste must be re-used or recycled. Where Waste electrical goods cannot be re-used or recycled, they now need to be segregated from domestic waste. Any items not held at an organisations premise for disposal must be returned to one of the organisations premises for correct disposal, which is particularly important for any equipment that holds data, i.e. expired VPN tokens, old or broken mobile phones etc. Items must be clearly labelled 'electrical goods for disposal' to ensure they are segregated out before disposal. For further information and guidance please refer to Waste Management Procedure PHW63-TP01:

<https://phw.nhs.wales/about-us/policies-and-procedures/policies-and-procedures-documents/risk-management-health-and-safety-and-estates-supporting-documents/phw-63-tp01-waste-management-procedures-v1/>

5.14. Prohibited Equipment and Practices

The use of extension leads, multi sockets adaptors or trailing sockets is to be discouraged on the organisation's premises. In cases where and when the use is absolutely necessary, all sockets and extension leads must bear an approval mark, e.g. UKCA conformity marking (following exit from the European Union in December 2020) or CE marking (until 31st December 2021). , BS 1363A or BS4343 marks and must be tested for electrical safety and suitability of application by the Estates, Safety and Facilities Division. Organisations can use the CE marking and reversed epsilon marking on the

GB (Great Britain) market until 31 December 2024. Only surge protected extension leads should be used and not be connected to other extension leads ('daisy chained') under any circumstances.

The use of toasters is strictly prohibited. Tea and coffee making facilities (kettle, coffee machine) are only to be used within the organisation's designated kitchen area and tea points. The use of these appliances is not permitted in any other area under any circumstances.

6. Record Keeping

Where working in hosted premises, suitable records must be kept locally and will be provided by the Estates, Health and Safety Division for:

- inspections, tests and maintenance of all electrical equipment
- information, instruction and training provided to staff

Records are also held centrally by the Estates, Health and Safety to ensure the organisation complies with all relevant legislation.

7. Information, Instruction and Training

Any staff or competent person(s) who are required to use, install, maintain, inspect or test electrical equipment must be provided with the appropriate information, instruction and training to enable them to carry out their work in a safe manner and to recognise potential electrical hazards.

Managers are required to record all information, instruction and training given to staff and others who may be affected by work on the organisations premises and share this information with the Estates and Health & Safety Division to ensure compliance with this Procedure.

The Estates and Health & Safety Division will ensure any competent person(s) who undertake work, servicing or testing on organisation premises have received the required information, instruction and training to do so before proceeding.

8. Monitoring and Audit

Managers shall as part of their daily duties and during inspections ensure that staff are using electrical equipment safely and in the correct manner.

The Estates, Health and Safety Division will issue the Formal Visual Checklist electronically every 6 months and monitor compliance with this procedure by reviewing submitted individual returns (Appendix D). In

addition, keeping a record of all portable electrical equipment within the organisation that have been PAT tested, new electrical installations and the 5 yearly tests of existing electrical installations at all organisation premises.

Further adherence to this procedure will be monitored during the undertaking of health and safety inspection audits at each premise.

The Estates, Health and Safety Division will review the operation of this Procedure as necessary and at least every 3 years.

9. Failure to comply with terms of this Procedure

Disciplinary action under the terms of Public Health Wales disciplinary policy will be taken against any member of staff, regardless of position, who shows wilful disregard with the terms of this procedure. Where a total disregard affects the health or safety of themselves or that of any other employees, the employee may be dismissed, following an investigation and disciplinary hearing, in line with the disciplinary policy.

10. Legislation, Guidance and References

- Health and Safety at Work etc Act 1974
- Management of Health and Safety at Work Regulations 1999
- Electricity at work Regulations 1989
- Provision and Use of Work Equipment Regulations 1998
- The Waste Electric and Electronic Equipment (WEEE) Regulations 2013
- WHTM 06-01 Electrical services supply and distribution
- HTM 06-02 Electrical services: electrical safety guidance for low voltage systems
- HTM 06-02 Electrical services: electrical safety handbook
- INDG354(rev1) Safety in electrical testing at work
- HSG107 (Third edition) Maintaining portable electrical equipment
- British Standard BS7671:2018 Requirements for Electrical Installations

11. Appendix A - Definitions

<p>Electrical Equipment</p>	<p>Anything used, intended to be used or installed for use, to generate, provide, transmit, rectify, convert, conduct, distribute, control, store, measure or use electrical energy</p>
<p>Fixed Electrical Installation or Electrical Infrastructure</p>	<p>The whole of the electrical distribution system of a building up to the point of supply to the "end-user". This installation will usually be terminated by means of socket outlets for connection of Portable Electrical Equipment or local isolators for the connection of Fixed Electrical Equipment.</p>
<p>Fixed Electrical Equipment</p>	<p>Any electrical equipment of a "permanent" nature connected to a mains supply by any means other than a conventional plug top (even if the equipment was designed to be portable or transportable).</p>
<p>Portable Electrical Equipment</p>	<p>Any electrical equipment connected to its mains supply by means of a plug top and capable of being transported or moved. Items of electrical equipment weighing in excess of 18kg that are not regularly moved should be treated as fixed electrical equipment. (With exception of EBME Medical Equipment)</p>
<p>Class I Electrical Equipment</p>	<p>Equipment having only basic (functional) insulation, and which rely for safety on exposed metalwork having a permanent connection to earth. This connection to earth is normally provided by the equipment's mains cord or flexible cable. In the event of a fault occurring, the earth conductor (wire) will carry the excess (fault) current and cause</p>

	the mains fuse to “blow” thus disconnecting the equipment from the mains supply. Equipment of this type is dependent for its safety on the “fixed” installation providing a suitable earth return path.
Class II Electrical Equipment	Equipment that relies for its safety on additional insulation, this being applied as either reinforced insulation or double insulation. This additional insulation ensures that in the event of a fault, the person using the equipment does not come into contact with hazardous or dangerous voltages. This type of equipment is identified by the markings, Class II, Class 2 and will normally carry the double insulated symbol of two concentric squares. Equipment of this type is not dependent for its safety on the “fixed” installation.
Extra Low Voltage	Electrical energy supplied at a voltage of less than 50 volts
Low Voltage	Electrical energy supplied at a voltage of between 50 and 1,000 volts.
High Voltage	Electrical energy supplied at a voltage in excess of 1,000 volts
Live Working	Maintenance, repair, installation or testing/inspection work on electrical systems plant or equipment when the electrical energy supply remains connected
Dead Working	Maintenance, repair, installation or testing/inspection work on electrical systems plant or equipment when the electrical energy supply has been disconnected

12. Appendix B - Typical user inspection checklist for fixed electrical equipment fitted with/without Residual Current Device

Check the test date has not expired.

Then check for signs of:

- Damage to the local isolator or service switch;
- Damage to plastic or metal conduits, armoured cables
- The flexible conduit or cable not being firmly gripped where it enters the local isolator or service switch and the equipment. Look to see if the coloured insulation of the internal wires is visible.
- Damage to the flexible conduit or cable outer sheath, for example, cuts, crushing, and slight abrasion – scuffing is acceptable.
- Damage to the outer case of the equipment, for example cracks in the outer cover, loose switches, loose parts and screws.
- Overheating, for example burn marks, staining and pungent acid smells.

In addition, check that:

- The on/off switch or stop/start buttons function correctly.
- Any warning devices, for example, lamps and indicators are operational.
- Mechanical levers operate correctly and without excessive force being required.
- The equipment works correctly and efficiently.

The following additional inspection should be made if the equipment is protected by an RCD (Residual Current Device) or connected by a plug conforming to BS4343.

Checking for RCDs that:

- The RCD can be manually switched on and off.
- The RCD trips when the TEST button is pressed.
- Checking for plugs conforming to BS4343 that:
- Any interlock provided ensures that the plug cannot be removed whilst the outlet is switched on.
- The wires, including the earth wire when fitted, are connected to the correct terminals.
- No bare wire is visible except at the terminals.
- The terminal screws are tight.
- There is no sign of internal damage, for example cracks, overheating, excess dirt, oil or dust.
- The sealing gland, if fitted, is intact and the gland nut tightened.

13. Appendix C -Typical user inspection checklist for portable electrical equipment fitted with/without Residual Current Device

First, check that the test date has not expired.

Then check for signs of:

- Damage to the mains plug, for example burnt, cracked or loose casing or bent pins.
- Non-standard joints including taped joints in the flexible cable.
- The outer covering (sheath) of the flexible cable not being firmly gripped where it enters the mains plug or the equipment. Ensure that the coloured insulation of the internal wires is not visible.
- Damage to the flexible cable outer sheath, for example cuts, abrasions – slight scuffing is acceptable.
- Damage to the outer case of the equipment, for example cracks in the outer cover, loose switches, loose parts and screws.
- Overheating, for example burn marks, staining and pungent acid smells.
- Check for signs of possible water ingress.

In addition, check that:

- The on/off switch functions correctly.
- Any warning devices, for example lamps, audible indicators are operational.
- Mechanical levers/interlocks operate correctly and without excessive force being required.
- The equipment works correctly and efficiently.

The following additional inspection should be made if the equipment is protected by an RCD (Residual Current Device) or connected by a plug conforming to BS4343.

Checking for RCDs that:

- The RCD can be manually switched on and off.
- The RCD trips when the TEST button is pressed.
- Checking for plugs conforming to BS4343 that:
- Any interlock provided ensures that the plug cannot be removed whilst the outlet is switched on.
- The wires, including the earth wire when fitted, are connected to the correct terminals.
- No bare wire is visible except at the terminals.
- The terminal screws are tight.

- There is no sign of internal damage, for example cracks, overheating, excess dirt, oil or dust.
- The sealing gland, if fitted, is intact and the gland nut tightened.

14. Appendix D Checklist - Portable electrical equipment (Formal Visual Inspection)

To carry out a formal visual inspection you don't need to be an electrician, but you do need to know what to look for and you must also have sufficient knowledge to avoid danger to yourself and others. If you are in any doubt, please advise your Line Manager.

Formal Visual inspections should be carried out before most electrical equipment is used, with the equipment disconnected and, as part of the visual inspection, you should consider whether:

- The electrical equipment is being used in accordance with the manufacturer's instructions
- The equipment is suitable for the job
- There has been any change of circumstances; and any other user has reported any issues.

Name:	
Equipment Checked:	
Date:	

Check criteria	Condition of Equipment		Comments
	Ok	Not Ok	
1. Check for cuts through outer covering in electrical cabling.			
2. Check for unauthorised repairs of electrical cabling or equipment.			
3. Check for any damage caused by heat, cut or crushing on electrical cabling.			
4. Check electrical cabling is not exposed at connection point on plug.			
5. Check electrical cable connection to equipment body is not exposed.			
6. Check that the plug is not loose.			

7. Check for exposed wiring and fraying or a deterioration of insulation coverings.			
8. Check for any damage/scorching to plug casing.			
9. Check equipment/appliance for damage, switches & buttons operate correctly, and equipment/appliance is free from dust/dirt.			

Important: Should you identify any issues with any of the kit provided you should immediately stop using it and report it to the Facilities team via this form, returning to the following address PHW.Facilities@wales.nhs.uk so that arrangements can be made to replace equipment as necessary.