



MJL

ELECTRICITY AT WORK

SAFETY POLICY

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Section 1. Summary

1.1.0 Introduction

1.1.1 This policy sets out the commitment of Michael J. Lonsdale Group to provide a safe and secure environment for workers and clients.

1.1.2 It is important that electrical services function safely and correctly, have adequate protection and do not exceed their design limits. The assurance of safe and reliable operation can only be achieved through a regime of regular inspection and testing of such systems and equipment and the implementation of appropriate maintenance works.

1.1.3 MJL has a responsibility to ensure all electrical low voltage (LV) networks and systems are safe. All relevant safe working practices are followed and adequate precautions are taken to prevent the risk of personal injury or death from electrical shock.

1.1.4 The Policy also provides guidance and references to assist staff in implementing the requirements set out within this policy.

1.2.0 Scope

1.2.1 This Policy applies to all persons who may be affected by the use of electricity arising from the occupation of buildings and the use of electrical equipment. It also applies to all activities associated with electricity when employees and/or contractors undertake works.

1.2.2 This Policy must be read in conjunction with Handbook for Electrical Safety and Handbook for HV Working.

1.3.0 Equality and Diversity

1.3.1 Michael J Lonsdale is committed to building a work force which is valued and whose diversity reflects the community which we serve. MJL is also committed to ensuring that its policies, services and procedures are adhered to.

1.4.0 Legal Requirements

1.4.1 The Health & Safety at Work Act 1974 requires all those concerned with an undertaking to do all that is reasonable to ensure the Health & Safety of all those who may be affected by

work undertaken by a business. It imposes duties on employers and employees:

Employers' duties to provide:

- A safe system of work
- All necessary tools and equipment
- Training and adequate supervision
- Ensure the health, safety and welfare of all those affected by their business.

Employees' duties:

- To take reasonable care for the health and safety of himself and of other persons who may be affected by his acts or omissions at work.
- Co-operate with employer to achieve safety.

1.5.0 Electrical Safety Policy

1.5.1 Responsibilities for Application

1.5.1.1 As part of the duty to manage, MJL will:

- Appoint Authorised Persons and Designated persons in writing.
- Identify and complete adequate risk assessments / method statements for electrical systems including all foreseeable risks. Assessments are to be reviewed as recommended by the available guidance.
- Ensure a regime is in place to record, test, operate, monitor and ensure that all electrical services, distribution and control systems operate in a safe condition.
- Ensure all works on electrical distribution systems are undertaken by competent staff or approved contractors.
- Maintain all LV networks, electrical systems and equipment in accordance with the current Regulations where practicable to do so.
- Ensure that only Competent Persons who are properly trained are allowed to work on or near to any electrical system or apparatus.
- Provide adequate information, instruction and training to all staff and ensure they are conversant with current regulations and safe working practice as necessary.
- All work activities, systems operation, and maintenance is to be completed and



controlled by a safe system of work so as not to give rise to any danger.

- Work on the LV electrical network and systems except final sub circuits is completed under a Permit to Work system.



- Maintain on each site an electrical operating record kept up to date by AP or SAP

Time and Date	Location and SW REF	Event or Operation + Reason	Name	Sign
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- Ensure no live working is allowed to take place unless deemed absolutely necessary and only then under a strict safe system of work.
- Maintain written documentation, drawings and records for inspections, testing, of risk assessments, training etc. as proof that any risks from electrical distribution systems and equipment are adequately controlled and effectively managed.
- Establish clear lines of communication and management responsibilities.

1.5.1.2 Whenever there is a division of responsibilities between Michael J Lonsdale management and others, the Project Manager or H&S Manager will issue instructions to others as necessary to prevent danger.

1.5.1.3 Where a specialist contractor has been appointed under contract by the contractor shall be required to comply with:

- a) The requirements of Electrical Safety Handbook.
- b) Any instruction issued by MJL authorised personnel in accordance with the Electrical Safety Rules for High or Low Voltage Systems.

1.5.1.4 Co-operation of Managers is required as follows:

- a) Ensure any electrical equipment delivered has been tested and cleared for use i.e. equipment must be tested before use.
- b) The Institute of Electrical Engineering document 'Code of Practice for in service Inspection and testing of electrical Equipment' both require that accurate records shall be kept of all electrical equipment.

1.5.2.2 Risk assessments are to be undertaken by either a technically qualified Project Engineer or Project Manager or designated competent professional company or consultant. All risks assessments are to be recorded in writing and must identify the potential for danger or personal injury and or any other foreseeable risk.

1.5.2.3 The Risk assessments will identify:

- The danger of electric shock, or personal injury.

- Any remaining foreseeable risks.
- The condition, suitability, strength and installation of existing systems for specific tasks.
- Adverse weather or environmental conditions where appropriate.
- Any specialist or necessary precautions due to the siting of a system or equipment (e.g. explosive atmosphere).
- Provision of suitable and adequate safety protection, tools and equipment, earthing and precautions.
- Security or isolation of electrical systems and equipment.(Lock off, Tag off)
- All documentation and recording arrangements.
- Monitoring and audit arrangements.

1.5.3 Control Measures

1.5.3.1 The control measures for the prevention of injury or death from electrical services will be dependant on the potential risk to employees or patient groups. Where the risk is high or unacceptable, control measures will be implemented to ensure a safe environment is maintained.

Other control measures will include:

- Good management and safety procedures which will be strictly followed and recorded.
- Periodic inspection, testing and maintenance of electrical systems and equipment.
- Compliance with Manufacturer's recommended procedures or instructions.
- Ensuring only competent staff are allowed to work on specified electrical systems or equipment.
- Tools and equipment used by trade staff or contractors is certified safe to use.
- Equipment is suitable for the environment in which it is used.
- Request for energisation system



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- Site Energisation Plan



- Ensuring all staff work with electrical equipment have received basic First Aid training.
- The operation of safe written systems of work, including the use of Permit to Work Systems.
- The operation of a locking policy for electrical sub circuits and distribution boards.
- Restricting access and securing areas to only Authorised and Competent personnel.
- The display and fixture of adequate hazard warning signs.
- Ensuring refresher and training updates are carried out on a regular basis.
- Developing and maintaining adequate, sufficient and robust recording systems.
- Clearly defined accountability arrangements, which detail areas of responsibility and lines of communication. These protocols will be recorded within the procedures adopted as part of this policy.

1.5.4 Information, Instruction and Training of Employees

1.5.4.1 It is the responsibility of project management to inform clients, employees and visitors of any danger that may exist, when work or operation, testing of electrical systems or equipment is being undertaken in areas under their control.

1.5.4.2 Site management will provide appropriate advice and guidance to building users in respect of the disruption of the electrical service, dangers from electrical shock, entanglement and any other dangers from electricity that building users may not normally be familiar with when carrying out their normal duties.

The information given will include:

- The nature and type of risks to health where applicable.
- Control measures employed.
- Working procedures/policies.



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- Use of PPE and/or specialist safety equipment.



1.6.0 Implementation and Compliance

1.6.0 Qualifying Manager

1.6.0.1 The Authorising Engineer will ideally be a Chartered Electrical Engineer, who is appointed in writing by the Designated Person, to advise on safety arrangements for defined low voltage electrical systems.

1.6.1 Authorised Person – LV

1.6.1.1 The Authorised Persons for Electrical services must possess adequate knowledge, sufficient experience and has received the necessary training within this field. The Authorised Persons should be appointed in writing by the Authorising Engineer to control and manage LV Electrical services including standby generator sets. This will involve the practical implementation of maintaining, testing and inspecting all LV electrical services. They are to liaise with all necessary parties and provide any information to enable the Policy to be fully implemented.

1.6.2 Competent Person

1.6.2.1 A Competent Person is an individual who in the opinion of the Authorised Person – Electrical has sufficient technical knowledge and relevant experience to prevent danger to himself and others, whilst carrying out work on defined LV electrical services, equipment or standby generator sets and associated systems. Electricians are to be deemed as competent due to their experience and qualifications. All Competent Persons are to be provided with adequate training so they can become familiar with the electrical systems and equipment upon which they are required to work.

1.6.3 Employee Responsibilities

Employees are required to:

- Co-operate with managers in order to meet statutory requirements.
- Work in a safe manner, making full and proper use of any control measures provided.
- Report faults and or defects and any failure of control measures to managers immediately.
- Report all accidents.



- Wear all relevant PPE and use all safety equipment as supplied by the Trust.
- All to receive electrical safety induction and handbook for electrical safety

1.7.0 Safety Standards

- 1.7.0.1 All persons concerned with work to which these Safety Rules (high voltage or low voltage) apply, must make themselves conversant with the requirements of the Rules.
- 1.7.0.2 It is expected that all electrical contractors or other persons authorised to work on electrical systems or equipment, shall not put themselves or others at risk. Contractors whose work is considered to be unsatisfactory or unsafe will be instructed to cease work whilst an investigation is undertaken by the Authorised Person – Electrical.

1.7.1 Objections

- 1.7.1.1 When any person receives instructions regarding the operation of or work upon the 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 for a decision before proceeding.



Section 2. Arrangements

2.1 DEFINITIONS (alphabetically listed)

Competent – having with the skills, understanding and experience to be able to carry out a task correctly and safely

Conductor – part of an electric circuit along which current flows

ECA – Electrical Contractors Association

ECP – Electrically Competent Person (for name see organisation section)

Electrical installation, system or circuit – An assembly of associated electrical equipment supplied from a common origin to fulfil a specific purpose and having certain coordinated characteristics

Extra Safety Person – Not directly involved in the work, but has ability, knowledge and experience to avoid danger

Extra low voltage – less than 50 volts

High voltage – 500 volts and higher

MCB – miniature circuit breaker

NICEIC – national Inspection Council for Electrical Installation Contracting

PAT – portable appliance testing

PET – Portable Equipment Tester (for name see organisation section)

Portable equipment - any electrical equipment that is or may be connected to an electricity supply via a plug and socket

RCD – residual current device

Safety extra low voltage – an extra-low voltage system which is electrically separated from Earth and from other systems in such a way that a single fault cannot give rise to the risk of electric shock

SHVAP - Senior HV Authorised Person – A person nominated in writing by the Director, and who coordinates all HV works carried out by the company.

The SHVAP duties include:



- Allocating HVAP to a project
- Ensure that the HVAP is competent to undertake such works
- Reviewing HV works & systems for all jobs where such works are to be carried out, and signing them off
- Countersign switching schedules as prepared by HVAPs

No HV works will be carried out on any MJL site without the express permission of SHVAP.

HVAP - HV Authorised Person, site specific – A person nominated on a project-by-project basis, in writing by the Director, on the advice of the SHVAP, to be eligible to be a HVAP the person must have a following qualifications and experience:

- Time served electrician with minimum of 5 years post qualification experience
- Formal, valid and in-date HV training
- First aid qualified
- HV experience

Switch gear – an assembly of main and auxiliary switching apparatus for the operation, regulation, protection or other control of an electrical installation

Switch room – a suitably sized enclosure, normally within a building and protected from the elements, housing HV and LV

Uninterrupted Power Supply - a specialised power system designed and installed within a circuit to support equipment during an interruption of the mains supply

2.2 GENERAL

NB Specific requirements for the following may also be given further on in this document:

2.2.1 All electrical equipment must be suitable for purpose, i.e. the use to which it may be put and the environment it may be used in.

2.2.2 All electrical equipment shall have a satisfactory means to ensure the equipment can be isolated

2.2.3 All electrical work must be done by trained and competent persons

2.2.4 Every electrical system must be inspected and tested at regular intervals

2.2.5 All electrical equipment must be regularly examined to make sure it is safe by the equipment user

2.2.6 The exposed metalwork of all electrical equipment likely to become electrically charged must be earthed unless the equipment is:

2.6.1 Supplied via an isolating transformer; or

2.6.2 Double insulated; or





2.6.3 Only supplied power at extra low voltage or safety extra low voltage

2.3. COMPETENCY AND AUTHORISATION

2.3.1 COMPETENCY FOR INTERNAL STAFF

2.3.1.1 All electricians employed will be qualified with correct JIB Grade Card
Electrical inspection of electrical installations.

2.3.1.2 In addition to holding this qualification electricians will be competent in the
task they are undertaking.

2.3.1.3 Any other person working on electrical installations will be competent in the task they are
undertaking **and** be under the instruction or someone who has the appropriate training
and qualification.

2.3.1.4 Trainee electricians, for instance working towards an NVQ, carrying out any
electrical work will be competent in the task they are undertaking.

2.3.1.5 Only persons who have received specific training on high voltage systems may be
authorised to work on systems above 500 volts.

2.3.2 COMPETENCY FOR CONTRACTORS

2.3.2.1 All electrical contractors carrying out electrical work must be able to demonstrate that
they are qualified to NVQ3 and are competent to carry out the task they are
undertaking.

2.3.2.2 In addition to this their employer must be affiliated to either the NICEIC or the
ECA.

2.3.2.3 Contractors working on systems above 500 volts must hold an appropriate and
current certificate showing competence on high voltage systems (Jointers, Cable
Pullers, Testers etc.)

2.4. AUTHORISATION

2.4.1 Commence Electrical Work

2.4.2 Entry into Switchrooms, Plant rooms, Risers and Ducts

2.4.2.1 Specific authorisation by any person is required to enter any switchroom.

2.4.2.2 The only persons authorised to enter any HV switchroom or operate high



voltage switchgear are those trained in HV work and authorised in writing by the SAP. All other persons may only enter HV switchrooms when accompanied by such an authorised person.

- 2.4.2.3 An Electrical Permit to Work must be received before the isolation of any transformers supplied from a LV switchroom may be commenced.
- 2.4.2.4 All entry into any switchroom, plantroom, riser is only permitted under the control of permit or limitation of access.
- 2.4.2.5 Authorisation for all persons to enter such areas alone must be provided in writing, to include the following:
 - 2.4.2.5.1 The specific areas where entry is authorised;
 - 2.4.2.5.2 Exactly what work can be carried out in the areas, if any;
 - 2.4.2.5.3 What materials or equipment are permitted to be stored and where;
 - 2.4.2.5.4 Information about any known hazards and general safety precautions that relate to the specified areas.



2.5. NEW INSTALLATIONS

- 2.5.1 Detailed standards about the installation of new systems, including handover, commission and test certificates, should be included in work specifications.
- 2.5.2 All works must be carried out in accordance with the current edition of BS7671 IEE Wiring Regulations and other relevant European standards.
- 2.5.3 On completion of works the installation shall be subjected to a test as detailed in Guidance Note 3 of BS 7671 and the following test certificates issued:

Type of work	Test Certificate
Small jobs on part of a system	Minor works
Inspection of existing installation	Full Periodic Inspection and Test
New installations	Electrical Installation Certificate

2.5.4 All test certificates shall be NICEIC approved.

2.6. ALL WORK ON OR ADJUSTMENT TO EXISTING INSTALLATIONS

- 2.6.1 All work on existing installations must be carried out in accordance with sections 2 – 10 of this policy.
- 2.6.2 All work on electrical systems must be subject to a specific order or job request and a method statement and risk assessment should be available for the work before work commences.

2.7 ELECTRICAL PERMIT TO WORK

2.7.1 The following work cannot be commenced until a valid Electrical Permit to Work has been issued:

- All isolations on a sub-mains
- All work within an HV switchroom
- All work on a HV system
- All live work

2.7.2 Electrical Permits to Work may only be issued by operative who has been authorised to issue Electrical Permits. A list of these people is displayed on the Permits Notice Board.

2.7.3 Any person receiving and accepting an Electrical Permit to Work must abide by the conditions of the permit and by the rules printed on the reverse of the permit. Failure to do this will cause the work to be stopped and may result in disciplinary



2.8 LONE WORKING

2.8.1 In general and where the isolation procedures outlined under Heading 6 are followed, lone working does increase the risk of harm. However, the following tasks are not permitted to be carried out alone and require electricians to work in pairs:

- Removing distribution board covers to expose live parts regardless of duration
- Work within a high voltage sub-station
- Live work

2.8.2 Lone working system must be set up by Main Contractor

2.9 PURCHASING AND USING ELECTRICAL EQUIPMENT

2.9.1 PURCHASING AND SELECTING EQUIPMENT

2.9.1.1 **All** tools purchased, whether new or second hand, by the Division must be 110 volt or less with power supplied through an isolating centre tapped to earth if available. It is prohibited to introduce new 240 volt equipment unless there is no safer alternative available.

2.9.1.2 The safest available tool should always be selected for the task – it may be possible to eliminate the risk of electric shock from the equipment by selecting a battery operated tool, and where this is not possible by using the lowest voltage equipment available.

2.9.2 USER CHECKS

2.9.2.1 Users must check their electrical equipment for obvious defects before each use, including general computer equipment and portable electric tools. The check should include:

Checking cables to ensure there are no defects in the insulation

Checking any extension leads and multi-point adaptors are in good condition

Checking the plug to ensure there are no loose parts and the join between plug and flex is in good condition

2.9.3 EXTENSION LEADS

2.9.3.1 Extension leads and multi-point adaptors are discouraged since their use introduces a safety hazard. Such expansion devices should never be used in conjunction with each



other, i.e. only one expansion device may be used between the socket outlet and the equipment.

2.9.4 REPORTING DEFECTS

- 2.9.4.1 All defects must be reported immediately to the user's line manager who will take appropriate action

2.9.5 PORTABLE ELECTRIC EQUIPMENT

- 2.9.5.1 Full details requirements for PATesting are given in the Electrical Rules
- 2.9.5.2 PATesting must be carried out for all equipment that is or may be connected via a plug and socket to a source of electricity
- 2.9.5.2 Equipment should not be used if it does not display a current testing label. This is usually, but not always, displayed on the plug.
- 2.9.5.4 User checks must be carried out before use.
- 2.9.5.5 Equipment manufacturers maintenance and usage instructions must be followed where appropriate.
- 2.9.5.6 Battery powered or 110 voltage tools with power supplied through an isolating centre tapped to earth should be used if practicable.
- 2.9.5.7 An RCD or ELCB must be used with existing 240 volt equipment where there is no safer alternative. Such devices must be tested by operating the in-built test button every 3 months and inspected by a PET every year as a minimum
- 2.9.5.8 The supply voltage to portable electric tools must be within the operating range marked on the tool.
- 2.9.5.9 Tools must be either earthed or double-insulated
- 2.9.5.10 Trailing cables should not be in the path of other workers, students and staff
- 2.9.5.11 Temporary electrical repairs on portable electric tools are not permitted
- 2.9.5.12 If adjustments or changes need to be made, tools must be disconnected from the supply
- 2.9.5.13 Appropriate personal protective equipment (PPE) should be worn as required for the risk assessment for the tasks being carried out, to include:
 - Eye protection to BS EN 166 when using impact tools or grinding/cutting tools
 - Hearing protection when noise levels of over 85dB(A) are likely, i.e. if it is difficult to hear someone talking from a distance of around 2 metres



- Respiratory protection if airborne dust is created
- Gloves when using grinding/cutting tools will reduce the effects of hand-arm vibration
- Safety shoes should be worn at all times

2.9.6 ELECTRICALLY DRIVEN EQUIPMENT (not including portable electric tools)

- 2.9.6.1 Equipment manufacturers maintenance and usage instructions must be followed where appropriate.

2.9.7 REPORTING DEFECTS

- 2.9.7.1 All defects must be reported immediately to the user's supervisor who will take appropriate action

2.9.8 CONTRACTORS EQUIPMENT

- 2.9.8.1 Contractors must apply the same principles as MJL to their electrical equipment, ensuring all the safest type of electrical equipment is chosen and that all equipment is appropriate for the task it is used for and the environment it is used in
- 2.9.8.2 All external supplies must be approved by the MJL project manager and must be protected by the use of an RCD protected supply of no more than 30mA tripping current
- 2.9.8.3 All portable equipment belonging to contractors that is used on site must display a current PATest pass label.

2.10. FIXED INSTALLATION TESTING

- 2.10.1 Following inspection and testing of a fixed electrical installation a certificate will be issued showing details of the installation and the results of the tests. This will be held in the site file and a copy will be given to the client.
- 2.10.2 A label will be fixed to the installation indicating the result and the date of the inspection and test.

2.11. UNINTERRUPTIBLE POWER SUPPLY (UPS)

- 2.11.1 All equipment fed from an UPS must be clearly identified.
- 2.11.2 Large UPS supplying to significant power distribution systems feeding socket outlets, lighting and equipment, which are complete with normal isolators, switchgear and circuit protection should be labelled at the switchgear giving information about the supply including a statement that it is supplied from a UPS
- 2.11.3 A notice should be placed at the entry to every room containing smaller UPS units such as local computer servers, which are powered from a local socket on the normal power distribution



system explaining where power is derived from and how total isolation may be achieved

2.12. OVERHEAD POWER LINES

- 2.12.1 Overhead power lines are bare conductors supported via insulators on wooden poles or metal structures. It is easy to mistake a power line for a telephone wire, particularly those on wooden poles, which are typically 230v cables.
- 2.12.2 Contact with any overhead power line can be fatal whatever voltage it is carrying.
- 2.12.3 Work near any overhead power line must only be undertaken where there is a horizontal safe distance of 15 metres from wires on metal structures and 6 metres from wires on wooden structures. The safe distance must be measured in addition to the length of any equipment being used.

2.13. WORK WITH PORTABLE ELECTRICAL TOOLS

WORK WITH PORTABLE ELECTRICAL TOOLS
<i>Scope/Description</i> Use of portable electrical tools including hand-held saws, routers, sanders, grinders, cutters and drills.
Specific Statutory Regulations, Codes etc. The Provision and Use of Work Equipment Regulations 1998 The Electricity at Work Regulations 1989 The Personal Protective Equipment at Work Regulations 1992 The Noise at Work Regulations 1989 The Control of Substances Hazardous to Health Regulations 1999
WORK WITH PORTABLE ELECTRICAL TOOLS
Hazards <ul style="list-style-type: none">(i) Electric shock/burns(ii) Moving machine parts(iii) Torque/sudden movement of the tool(iv) Flying particles from the tool(v) Noise(vi) Dust(vii) Trailing cables
Training/Competence Appropriate selection and training of personnel is required for the following: <ul style="list-style-type: none">(i) Pre-use safety checks(ii) Safe use of equipment
Procedures <ul style="list-style-type: none">1. Maintenance schedules must be kept up to date.2. Equipment manufacturer's maintenance instructions must be followed where appropriate.3. Equipment must be maintained in efficient working order and in good repair.

4. Equipment should be inspected by the user before each period of use to ensure that the equipment is undamaged, appropriate guards are in place and that controls are working correctly.
5. Battery powered or 110 voltage tools with power supplied through an isolating centre tapped to earth should be used if practical.
6. Where use of mains voltage tools is unavoidable, a residual current device (RCD) or an earth leakage circuit breaker (ELCB) is required. When environmental conditions or wet weather exist, the use of 240 volt tools must be avoided.
7. The supply voltage must be within the operating range marked on the tool.
8. Tools should be either earthed or double-insulated.
9. Trailing cables should not be in the path of other workers, students and staff.
10. Temporary electrical repairs are not permitted.
11. If adjustments or changes need to be made, tools must be disconnected from the supply.
12. Eye protection to BS EN 166 should be worn when using impact tools or grinding/cutting tools.
13. Safety shoes must be worn at all times.
14. Gloves are advisable when using grinding/cutting tools or tools generating hand/arm vibration.
15. Respiratory protection must be worn when necessary if airborne dust is created.
16. Hearing protection should be worn when noise levels of over 85 dB (A) are likely. Noise levels are likely to be over 85 dB (A) if it is difficult to hear someone talking from a distance of approximately 2 metres.



References.

Electrical Safety Guidance for High Voltage Systems
ISBN 978-0-11-322760-0

Acts and Regulations

Construction (Design and Management)(Amendment) Regulations 2000

Electricity at Work Regulations 1989

Health and Safety at Work etc Act 1974.

Management of Health and Safety at Work Regulations 1999

Other publications.

Institute of Electrical Engineering 'Code of Practice for in service Inspection and testing of electrical Equipment' 3rd Edition, ISBN 978-0-86341-833-4,

Glossary of Terms

a.c. Alternating Current

Authorising Engineer. Authorising Engineer is appointed in writing by the Designated Person to take responsibility for the effective management of the safety guidance.

Authorised Person. An authorised person is appointed in writing by the management on the recommendation of the Authorising Engineer in accordance with HTM 06-02. and is responsible for the implementation and operation of HTM

06-02 with regard to work on, or the testing of, defined electrical equipment. BS, British

Standard.





d.c. Direct Current.

Designated Person, The Designated Person is an individual appointed by a healthcare organisation (a board member or a person with responsibility to the board) who has overall authority and responsibility for the low voltage electricity systems within the healthcare premises.

Earth The conductive mass of the Earth, whose electrical potential at any point is conventionally taken as zero.

Electrical equipment (abbr: Equipment). Any item for such purposes as generation, conversion, transmission, distribution, or utilisation of electrical energy.

Final sub circuit, a circuit connected directly to current using equipment or to a socket outlet or other outlet points for the connection of such equipment.

FMC, Facilities Management Centre. HTM,

Health Technical Memorandum. IEE,

Institute of Electrical Engineers.

Live, a conductor or conductive part energised in normal use, including a neutral conductor but by convention not a PEN conductor.

LV, See low voltage.

Low Voltage. Not exceeding 1000 V a.c. or 1500 V d.c. between conductors, or 600 V a.c. or 900 V d.c. between conductors and Earth. PPE,

Personal Protective Equipment.

RCD, Residual current device, A mechanical switching device or association of devices intended to cause the opening of the contacts when the residual current attains a given value under specified conditions.

Switchgear, An assembly of main and auxiliary switching apparatus, for operation, regulation, protection, or other control of an electrical installation.