Electrical Safety Policy

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Approved by : **Jerome Mathias**

Managing Director

Revision History

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27/06/18		**N/A**		
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0.0 TERMS AND DEFINITIONS

- Charged: **the item has acquired a charge either because it is live or because it has become charged by other means such as by static or induction charging, or has retained or regained a charge due to capacitance effects even though it may be disconnected from the rest of the system;**
- Dead: **not electrically 'live' or 'charged';**
- A Competent Person: **The person must be competent by way of training, qualifications and/or experience and knowledge of the system to be worked on;**
- Disconnected: **equipment (or a part of an electrical system) that is not connected to any source of electrical energy;**
- Equipment: **electrical equipment including anything used, intended to be used or installed for use, to generate, provide, transmit, transform, rectify, convert, conduct, distribute, control, store, measure or use electrical energy (as defined in the EAW Regulations);**
- High voltage: **a voltage in excess of 1000 V ac or 1500 V dc. Voltages below these values are 'low voltage';**
- Isolated: **equipment (or part of an electrical system) which is disconnected and separated by a safe distance (the isolating gap) from all sources of electrical energy in such a way that the disconnection is secure i.e., it cannot be re-energised accidentally or inadvertently;**
- Live: **equipment that is at a voltage by being connected to a source of electricity. Live parts that are uninsulated and exposed so that they can be touched either directly or indirectly by a conducting object are hazardous if the voltage exceeds 50 V ac or 120 V dc in dry conditions – see BSI publication PD 65193 – and/or if the fault energy level is high;**
- Live work: **work on or near conductors that are accessible and 'live' or 'charged'. Live work includes live testing, such as using a test instrument to measure voltage on a live power distribution or control system.**
- Integrated Management Systems **– Company system for storing documents Internally**
- Alcumus ISOQAR **- National Electricity Registration Scheme (NERS)**
- NICEIC **– National Inspection Council for Electrical Installation Contracting.**
- HEA **– Highway Electrical Association**
- HERS **- Highway Electrical Registration Scheme**
- CHAS **- Safety Schemes in Procurement.**
- ECA **– Electrical Contractors' Association.**
- C&G **– City and Guilds.**
- HSE **– The Health and Safety Executive.**
- PAT **– Portable Appliance Testing.**
- KPI **– Key Performance Indicators.**
- Code C1 **– "Danger present". Risk of injury. Immediate remedial action required.**

- Code C2 **– "Potentially dangerous" – urgent remedial action required.**
- Code C3 **– "Improvement recommended".**
- Code FI **– "Further investigation required".**

1.0 GENERAL

1.1 COMPANY PROFILE

ERH Communications provides modern efficient plant, equipment and experienced operatives who are able to undertake all work associated with Highways Technology Infrastructure; Design, Supply, Installation, Testing, Commissioning and Maintenance and electrical systems.

ERH has been operating within the highway technology and maintenance industry for over 25 years, and successfully installs repairs and maintains electrical, signage and other street furniture for local authorities, highway agencies, civil engineering companies and private clients. Our current range of contracts crosses the spectrum of highway technology infrastructure works, from the provision and installation of smart road cameras, lighting and signs for major highway maintenance contracts to small individual projects and maintenance works for NWTRA & SWTRA.

ERH places enormous emphasis on the quality of its product, holding accreditations including Quality, Environmental & Health & Safety Assurance ISO 9001, 14001 & 18001 and also holding affiliations with a number of leading industry bodies

1.2 INTRODUCTION.

This document sets out the policy, and outlines the protective and preventative measures to be implemented by ERH Ltd. to ensure safety while inspecting, testing and working on or near to electricity.

The Electricity at Work Regulations 1989 (EAW Regulations) apply to all places of work within the Council. The Memorandum of guidance on the Electricity at Work Regulations 1989 has been referenced within this policy to assist ERH meet the requirements of the Regulations. Other legislation and industry standards which have been referenced within this policy include:-

- **Management of Health and Safety at Work Regulations 1999**
- **HSG 85 Electricity at Work Safe Working Practices**
- **BS 7671:2008 Requirements for electrical installations IET Wiring Regulations. Seventeenth Edition, and amendments.**
- **Dangerous Substances and Explosive Atmospheres Regulations 2002. Approved Code of Practice and Guidance**
- **HSG230 Keeping Electrical switchgear safe**
- **GS6 2013 Avoiding danger from overhead power lines**
- **Construction (Design and Management) Regulations 2015**
- **GS38 Electrical test equipment for use on low voltage electrical systems**
- **Guide to Highway Electrical Street Furniture - This Guide addresses the electrical safety considerations and requirements relating to all electrical street furniture that may be expected to be found within the public realm.**

Please refer to the IET Standards Guide

1.3 SCOPE

This policy applies to all electrical work undertaken within ERH by employees or contractors. Relevant sections of the policy address testing and inspection of fixed electrical installations.

This policy will be reviewed at least every year to ensure it is in line with current legislation and guidance and remains fit for purpose.

The effective date of the policy is December 2020

2.0 POLICY STATEMENT

ERH will ensure that all work on electrical services undertaken by employees and contractors is undertaken in a safe manner in line with legal requirements and industry standards. Fixed electrical installations will be maintained in a safe condition and inspected and tested at appropriate frequencies, to the required standards. All electrical works to fixed installations will be carried out.

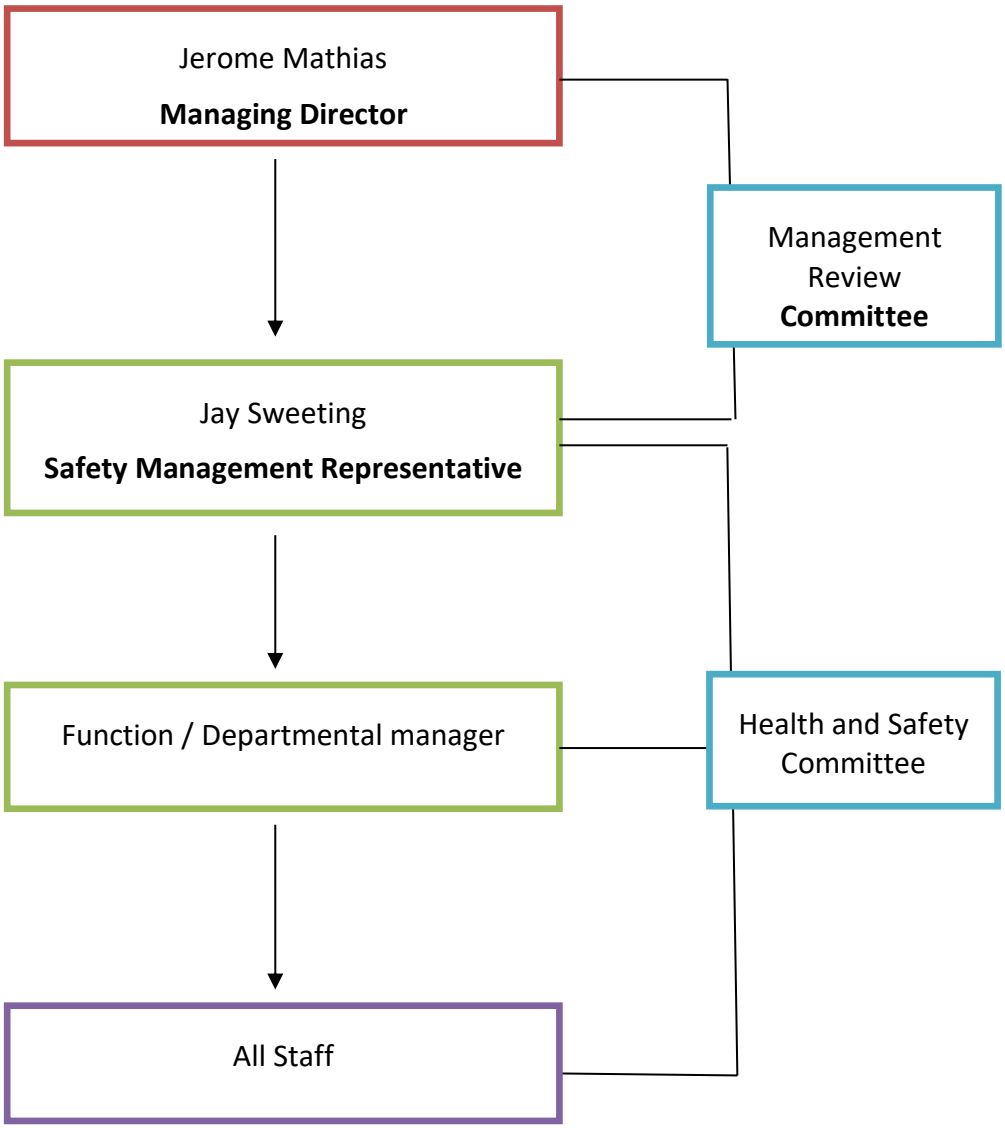
2.1 LEGISLATION

This policy, along with its supporting procedures, is designed to ensure the Authority meets its legal obligations under the following legislation and technical standards:-

- **Management of Health and Safety at Work Regulations 1999**
- **HSG 85 Electricity at Work Safe Working Practices**
- **BS 7671:2008 Requirements for electrical installations IET Wiring Regulations, Eighteenth Edition, and amendments.**
- **Dangerous Substances and Explosive Atmospheres Regulations 2002. Approved Codes of Practice and Guidance**
- **HSG230, Keeping Electrical switchgear safe**
- **GS6 2013 Avoiding danger from overhead power lines**
- **Construction (Design and Management) Regulations 2015 (CDM 15)**
- **GS38 Electrical test equipment for use on low voltage electrical systems**

3.0 ORGANISATION

Organisation Chart



3.1 RESPONSIBILITY

The Managing Director will:

Seek assurance from Directors and Responsible Officers that this policy is being applied and that appropriate arrangements are in place to ensure ongoing compliance with this policy within ERH Receive and scrutinise compliance statistics for electrical Safety and ensure that arrangements are regularly reviewed.

Senior Management Team will:

Receive and scrutinise compliance statistics in relation to electrical testing and review proactive and reactive reports in relation to compliance with this policy.

Ensure that appropriate resources are made available for the safe management of electrical safety.

Relevant Operational Managers will:

Take responsibility for electrical safety within their service areas including electrical work undertaken by employees and the safety of electrical installations

Ensure appropriate technical resources are in place, both internal and external to support the organisation to effectively implement the policy and meet legal requirements to ensure ongoing safe work on electrical installations and safety of fixed electrical systems.

Managers/Supervisors will:

Managers/Supervisors, responsible for staff undertaking work on or near to electrical equipment, will ensure that work is undertaken in line with the requirements of this policy.

Managers/Supervisors will ensure that everyone has appropriate training to enable them to work safely and without risk to health how to work safely and without risk to their health. All employees must follow safety rules and control measures identified in risk assessments.

Managers/Supervisors will:

- **Be involved in planning the work and the risk assessment process, coordinating the work where more than one group is involved, and discussing the necessary precautions and emergency procedures with employees;**
- **Clearly define roles and responsibilities of the supervisors and employees, including those of any contractors who may be employed;**
- **Ensure that supervisors are competent to supervise the work and the level of supervision is appropriate to the danger, the competence of those carrying out the work, and the complexity of the task.**
- **Identify people with appropriate skills, knowledge and experience of the electrical system to be worked on. Anyone without appropriate competence will be subject to a greater level of supervision and/or receive adequate training so as to ensure safe working. Managers/Supervisors must prevent unauthorised, unqualified or untrained people from working on electrical systems.**

Health and Safety will:

- **Assist with monitoring compliance with the policy.**
- **Direct appropriate investigations of any incidents/accidents involving electricity, liaising with relevant officers as appropriate.**
- **Senior Management Team will receive performance reports against the requirements of appendix 1.**

4.0 COMPETENCY OF EMPLOYEES WORKING ON OR NEAR TO ELECTRICAL EQUIPMENT

Highways Electrical, require the following staff competencies:

Electrical Installation - Electricians / Supervisor

- **NVQ Level 3 Lantra Diploma in Servicing Highway Electrical Systems**
- **G39 Cat 4 Working in the vicinity of DNO/IDNO equipment**
- **HEA 714 Certificate – Initial and periodic electrical inspection and testing (Public Lighting)**
- **HEA 210 – Work in the vicinity of Electrical Company Equipment**
- **HEA 214 – Safe Isolation**
- **302.1 Temporary Traffic Management**
- **C&G or Equivalent – Electrical Qualification**
- **Emergency First Aid**
- **Manual Handling**

Electrical Installation – Installation Operative

- **Level 2 NVQ Lantra Diploma in Servicing Highways Electrical Systems**
- **HEA 210 – Work in the vicinity of Electrical Company Equipment**
- **HEA 214 – Safe Isolation**
- **302.1 Temporary Traffic Management**
- **202 Avoiding Danger From Underground Services**
- **CAT/Genny Training**
- **Emergency First Aid**
- **Manual Handling**
- **Power Tool Training**

Electrical Installation – Maintenance Operative

- **Level 2 NVQ Lantra Diploma in Servicing Highways Electrical Systems**
- **HEA 210 – Work in the vicinity of Electrical Company Equipment**
- **HEA 214 – Safe Isolation**
- **302.1 Temporary Traffic Management**
- **Emergency First Aid**
- **Manual Handling**
- **Power Tool Training**

5.0 ELECTION OF ELECTRICAL TESTING PERSONNEL:

All employees are selected in accordance with ERH's training policy, to undertake electrical testing

ERH are members of the NICEIC and HEA and deploy competent approved electricians to carry out inspection and testing. NICEIC membership is mandatory for Electrical Installation testing

Please refer to the company IMS for ERH Training Policy, Electrical Installation Condition Report and Inspection Schedule

6.0 DECIDING WHETHER TO WORK DEAD OR LIVE

Work on or near live exposed conductors should rarely be permitted. Work should be planned to allow all jobs to be carried out where possible with the equipment dead. Three conditions must be met for live working to be permitted where danger may arise. If just one of these conditions cannot be met, live working must not be permitted and dead working is essential. **The assessment procedure (Figure 1) illustrates this.**

The conditions are described in the Electricity at Work Regulations 1989, Regulation 14:

- **It is unreasonable in all the circumstances for the conductor to be dead; and**
- **It is reasonable in all the circumstances for the person to be at work on or near that conductor while it is live; and**
- **Suitable precautions (including, where necessary, the provision of personal protective equipment) have been taken to prevent injury.**

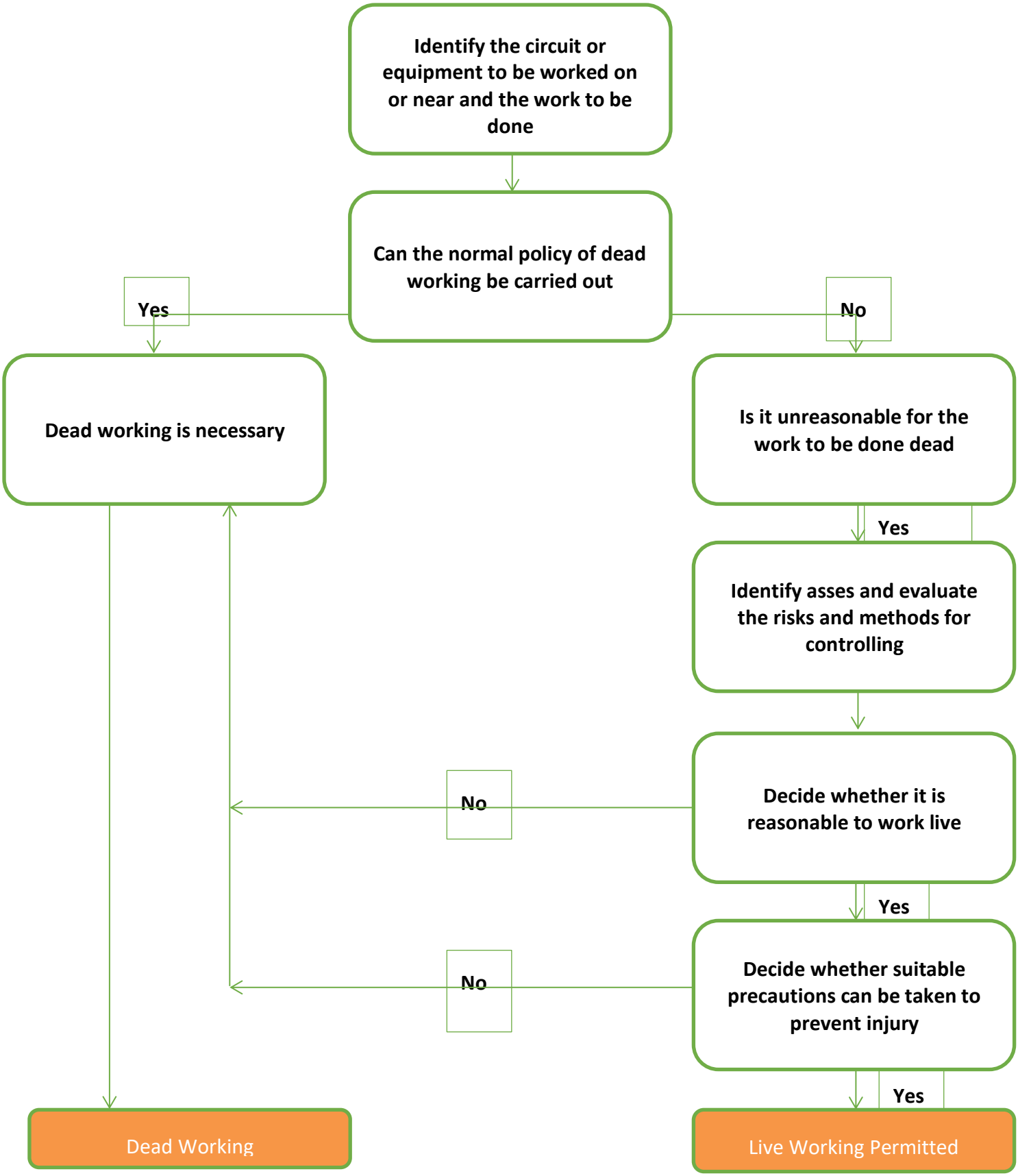
Examples of live working where there is a requirement to determine the Earth Loop Impedance of a new installation.

There are some circumstances where it is unreasonable to make equipment dead because of the difficulties it would cause. For example:

- **It may be difficult, if not impossible, to commission a complex control cabinet without having it energised at some time with parts live (but not exposed so that they may be easily touched);**
- **It may not be technically feasible to monitor the operation and performance of a control system or to trace a malfunction of such equipment with it dead, i.e. fault-finding;**

Where it has been determined that it is unreasonable for the work to be done dead, a specific risk assessment must be undertaken. The risk assessment must cover the work on or near the specific equipment and it must be carried out by someone with comprehensive knowledge and experience of the type of work and the means of controlling the risks.

Figure 1. Deciding To Work Dead Or Live



Is it reasonable to work live?

ERH's policy on electrical work is that it should only be undertaken when power is isolated. If live working is required, this should be following a detailed risk assessment and only then approved by a Manager/Supervisor or in the case of contract work approved, by a Contract Manager who has been trained and understands this policy.

ERH share the view of the HSE in this matter, in that minor inconveniences arising from working dead will very rarely outweigh the risks associated with live work.

7.0 CAN SUITABLE PRECAUTIONS BE TAKEN TO PREVENT INJURY

Providing the requirements above have been met, live working can still only be justified if suitable precautions are taken to prevent injury arising from the hazards identified in the risk assessment. The precautions should have been identified in the risk assessment by a competent person and might include:

- **Installing temporary insulation, protective enclosures, or screens to prevent parts at different potentials being touched at the same time;**
- **Using temporary barriers with warning notices affixed to keep unauthorised people away from the work area;**
- **Ensuring that adequate clearances are established and maintained when working near to live equipment (see section 729 of BS 7671:2008 for advice on clearances). For work near overhead power lines see *GS6 2013 Avoiding danger from overhead power lines.***
- **Making sure that workers understand the task and the system to be worked on (clarity of instructions is essential), are trained and experienced, and follow the correct procedures. They must be competent to realise their own limitations and know when to seek help;**
- **Providing lighting and working space that is adequate and free from trip hazards. Further details on lighting at work in HSG38 *Lighting at work*;**
- **Using robust and properly insulated tools (see BS EN 60900);**
- **Using test instruments with insulated probes and fused leads (see GS38 *Electrical test equipment for use by electricians*);**
- **Maintaining tools and test equipment in good condition and replacing them if damaged;**
- **Storing tools correctly – horizontal surfaces and projections inside control cabinets should not be used – and ensuring that objects such as tools and bolts cannot fall onto exposed live parts;**
- **No-one should undertake lone live working. Quick action is needed in the event of an electric shock to disconnect the supply and give assistance, so it will be necessary to be accompanied by someone who is competent to make the system safe and avoid injury;**
- **Providing and using correct personal protective equipment (PPE) to reduce the risk of contact with live parts or earth, e.g. insulating gloves, insulating matting and insulated wellington boots. If there is a risk of burns from arcing or flashover that cannot be avoided, consider the use of adequately rated, thermally insulating, flame-resistant PPE (including face/eye protection). PPE should be frequently inspected and replaced if damaged.**

8.0 PLANNING AND PREPARATION FOR BOTH DEAD AND LIVE WORKING

Identify the circuit or equipment to be worked on or near and the work that needs to be done

These tasks should be carried out before the work starts. Factors that may affect the safe system of work should also be taken into account. In many cases, actual physical identification will be necessary and this may be aided by the use of appropriate drawings, diagrams and other written information.

Plan the work

Electrical accidents are mainly due to a failure to plan ahead. Planning should consider the management, supervision, implementation and completion of the work, and should lead to a formal system of work based on information in the safety rules and a task-specific risk assessment. In some instances, the planning requirements of the Construction (Design and Management) Regulations 2015 will apply, please check. You should consider the following:

- **The work to be done;**
- **The hazards of the system or equipment to be worked on and the risks associated with the work;**
- **The people doing the work, their competence and the level of supervision**
- **The precautions to be taken and the system of work to be employed;**
- **The possibility that the nature of the work may change, e.g. a testing job may turn into fault finding.**

There must be adequate information available about the electrical system and the work to be completed. All information about the electrical system will be supplied by the employer to ERH for planning of the works. Job packs complete with Risk Assessments & Cable records are distributed amongst the operatives to in order for the work to be planned properly.

For our Electrical Installation activities drawings, schematics and test data will be stored electronically and in paper copy form. For any network changes, the information is fed back to the network operator to update their records.

Specify level of supervision

The planning process will have indicates the level of supervision required, which will be adhered to in line with our Electrical Safety Policy.

Selection of Competent Persons

Our selection procedure will be in line with our Training Policy, and only those operatives who meet the criteria defined in the planning procedure will be deployed to undertake the work.

Managers/Supervisors and Contractors in control of the work should:

- **Assess the degree of competence of individual workers against the** specific **type of work to be done;**
- **Provide clear instructions, information and adequate training for employees on:**
- **The risks they may face;**
- **The measures in place to control the risks, emphasising the safe system of work to be used;**
- **How to follow emergency procedures;**
- **Arrange for those being trained or those newly trained to be accompanied and supervised. The duty holder will determine when such persons have the required skills, knowledge and experience to work unsupervised.**

Ensure correct working methods

Managers and supervisors should ensure that operatives understand the correct working methods, related to the specific work in hand. People doing the work should be aware of the limitations of that work and any constraints associated with the works.

Provide and ensure use of appropriate protective equipment

Managers, supervisors and contractors have a responsibility to provide the protective equipment identified in the task-specific risk assessment and make sure that it is:

- **Suitable for the use for which it is provided;**
- **Maintained in a condition suitable for that use; and**
- **Used properly.**

Information, tools and instruments and ensure workers are fully instructed

Operatives must be supplied with and use correct equipment and appropriate information, such as electrical drawings, tools, instruments etc.

Management checks and supervision of work

ERH will undertake monitoring of employees and contractors to ensure they are following the rules and correct safe working procedures. We will retain written records of regular inspections of electrical testing and maintenance work. These inspections will be undertaken by a suitably qualified Supervisor or Manager.

9.0 WORKING DEAD

Identification

Adequate information will made available to allow ERH to identify equipment correctly. For Electrical Installation circuits and equipment it should never be assumed that cable records are correct, and that work will not be started without having first followed the correct Electrical Isolation procedure. In some special cases, e.g. underground cables, cable-locating techniques using specialised scanning instruments may be necessary and it may also be necessary to identify the cable both before and after switching operations.

Disconnection

Disconnect the equipment from every source of electrical energy before working on, or near, any part which has been live or is likely to be live. On equipment that is capable of storing charge, such as capacitors and high-voltage cables, ensure that any stored charge has been safely discharged.

Secure Isolation

The Electricity at Work Regulations 1989 definition of 'isolation' is given in regulation 12 and means the disconnection and separation of the electrical equipment from every source of electrical energy in such a way that this disconnection and separation is secure.

Please refer to the ERH Electrical Isolation Procedure

Proving dead

Having isolated the circuit or equipment, and before working on it, employees and contractors should check that the parts to be worked on or near are dead, even if the isolation has been achieved automatically through an interlocking system. If it is a three-phase system or equipment with more than one supply, prove that all supply conductors are dead.

The instrument to do this should be properly constructed to protect against electric shock and designed to prevent short circuits occurring during use. For low voltages, proprietary, voltage detectors such as two-pole voltage detectors, test lamps, or voltmeters with insulated probes and fused leads can be used (see HSE Guidance Note GS38). The use of multi-meters, which can be set to the wrong function, is not recommended for proving dead on low-voltage systems, neither is the use of non-contact devices such as "volt sticks".

It will be necessary to test the instrument before and after use. This may be done by means of a proving unit with a low power output. If live circuits are used to prove instruments, adequate precautions against electric shock and short circuits should be taken. Training in the correct use of voltage detectors is essential to avoid risk in the event of unexpected use on a live conductor. All instruments used for checking circuits should be maintained and inspected following manufacturer's instructions.

Earthing

The risk to people if the previous precautions fail can be minimised by securely earthing all the conductors using properly designed earthing devices or earthing leads, usually applied to all points where the circuit or equipment is isolated from the supply. Additional, local earths at the point of work may also be necessary if this is remote from the point of isolation, but these should be applied only after proving dead at the point of work. This procedure is essential for high-voltage apparatus and stored energy equipment (e.g. capacitors). The earthing conductors and their connections should be suitable for the energy that may flow in the event of a failure of the above precautions.

Earthing low-voltage equipment is desirable if there is a risk of re-energisation, e.g. from a generator under someone else's control. In other low-voltage equipment, however, it may be physically impractical to apply earths, or the risk of short circuit from introducing an earth near adjacent live parts may outweigh the benefit of earthing the apparatus being worked on.

Adjacent parts

When the circuit or equipment to be worked on has been made dead or where the work is non-electrical, you must still protect against danger from inadvertent contact with other live parts nearby. This should preferably be done by erecting physical barriers and/or the use of temporary insulation and posting 'danger' notices. The requirements regarding adequate working space, access and lighting must also be considered and planned for.

Signed Jerome Mathias

29.05.2025
(Managing Director)
Review period: 12 Months