

WEST LoTHIAN COUNCIL

Electrical Safety Management Plan

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1.0 INTRODUCTION

The guidance contained with this document should be read in conjunction with the council's Electrical Safety Policy in respect of Roles and Responsibilities.

Electricity is present in the majority of council workplaces and is used by all employees. This document outlines the council's policy and the arrangements in place to ensure that all electrical systems and equipment are safe by ensuring that:

- The risks associated with electricity are adequately controlled.
- All fixed electrical systems are tested within the specified frequency.
- Electrical appliances are used safely and tested at suitable intervals.

2.0 ELECTRICITY AND THE LAW

The Electricity at Work Regulations 1989 applies wherever electricity may be encountered. The Regulations are primarily concerned with the prevention of danger from electric shock, electric burns, electrical explosion or arcing, or from fire or explosion initiated by electrical energy. The Regulations are supported by a Memorandum of Guidance (ISBN 0 11 883963 2) and where the use of electrical systems and electrical equipment forms a major part of any work a copy of the Memorandum should be available for relevant staff to consult.

The Regulations do not distinguish between systems of different voltages; they apply equally at all voltages and are constrained only by what might be appropriate to prevent danger or injury.

3.0 GENERAL SAFETY PRECAUTIONS

The risk of sustaining an electric shock can be reduced by adopting the following practices:

- A suitable 'Permit-to-Work' system shall be in place and operated to ensure the effective isolation of equipment before repair or maintenance work commences.
- Due care must always be exercised when switching off main power supplies to ensure that only the intended circuits are isolated. Lock-off systems must be used where necessary.
- Switch off the equipment and withdraw the plug on items of portable electrical equipment prior to making any alterations or modifying any circuitry.
- Do not handle any equipment with wet hands and do not work in close proximity to water supplies or other earthed metalwork where there may be a risk of putting one hand on earthed metal and the other on live equipment. If equipment is suspected of being live, switch off, and have its electrical status tested by a 'skilled person'. Record the test.
- The external metal casing of electrical apparatus and associated cables and conduits must be earthed as a legal requirement. Water and gas pipes, however, must not be used as earth points. Such pipes must be effectively bonded, to ensure that they remain at an equal electrical potential. Checks should be carried out every 5 years, as a minimum, to ensure that this continues to be the case.
- Where electrical equipment is used in an industrial workshop, an industrial environment, on a building site or externally all socket outlets shall be to

BS4343 (e.g. MK 'Commando' brand). BS1362 (13A) outlets are not designed or suitable for site or workshop use.

- Standard types of electrical fittings, such as 3-pin plugs, sockets and switches, should always be used as specified by manufacturers and in accordance with good practice (e.g. switches must not be mounted upside down and single-pole switches must not be wired into the neutral.)
- If it is possible to do so, always use battery powered or low voltage (110V or less) power tools and similar equipment.

4.0 ELECTRICAL APPLIANCES

Earthed Equipment:

Class 1 electrical equipment is provided with one layer of insulation over the live conductors, and exposed metalwork is bonded to earth so that it cannot become live in the event of an insulation failure. The external metal casing of any Class 1 item of electrical equipment must be earthed.

The external casings or screens of all Class 1 electrical equipment must be secured so that it is impossible to touch electrically live parts.

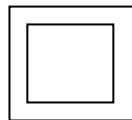
Residual Current Devices (RCD):

As a general rule an RCD will prevent a person from being subjected to a lethal shock from a fault current to earth. The application of a Residual Current Device (also known as an Earth Leakage Circuit Breaker) to a conventionally earthed system shall be considered where it is vital to provide an additional back-up protection.

RCD units are either part of fixed installations or in the form of a 'Power-breaker' 13 Amp fused plug or adaptor. Every RCD unit is fitted with a test button that should be operated regularly to prove correct breaker operation.

Double-Insulated Equipment:

Class II electrical equipment has all exposed metalwork separated from the conductors by two layers of insulation, so that the metalwork cannot become live. There is no earth connection.



British double-insulated equipment is marked with the CE symbol shown above.

Plugs:

Plugs that are incorrectly wired, or in which the connections have been broken, can cause serious accidents. All plugs must be wired by a 'skilled person'.

Equipment that is double-insulated, or has an insulated exterior, is connected by 2-core cable.

Fuses & Circuit Breakers;

Fuses and circuit breakers (MCBs) are intended to protect equipment against current overload. Other measures are necessary to protect against electric shock (see Residual Current Devices).

The fuse or circuit breaker must be located in the live conductor and must be of the correct rating. Fuses in distribution boards must only be replaced by competent qualified electricians.

The reason for a fuse 'blowing', or a circuit breaker tripping, must always be investigated by a skilled person and replacement fuses must always be of the correct rating.

Adaptors and Extension Sockets;

The use of adaptors or multi-way extensions indicates an insufficiency of provision of socket outlets and should be discouraged and where found to be used should be reported to the Services Team Principal in Construction Services

Cables and Extension Cables;

Flexible leads to portable equipment should be as short as possible; they should not cross gangways either to be walked on or run over by trolleys. Under no circumstances are flexible leads to be taken under doors. Wherever possible, trailing cables should be located within an appropriate cable duct, in order to achieve good housekeeping standards. Cables should be kept well away from hot surfaces.

The use of extension leads also indicates an insufficiency of provision of socket outlets and should be discouraged and the use of these should be kept to an absolute minimum. Never use a coiled extension cable without first fully un-reeling the cable. If there is no alternative to taking cables across a floor, then they should be protected with a suitable cable guard. All circuits supplying extension leads shall have RCD protection.

Safeguards Against Fire;

Fires can be caused by overloaded or defective electrical circuits but, if equipment is wired properly, with the cable adequately rated and protected, the risk is minimised.

Explosions and fire can, however, result from sparking contact in the presence of highly flammable gases and vapours, and specially designed flameproof and explosion proof electrical equipment, allied to adequate and proper ventilation, must be used in areas where these risks are present.

Switching off equipment with the proper switch is preferred but if there is no switch then pull out the plug.

5.0 INSPECTION AND TESTING OF ELECTRICAL EQUIPMENT

5.1 Fixed Installations

The periodic maintenance of hard wired electrical equipment should be undertaken by professionally qualified maintenance engineers, either West Lothian Council staff or a

contract engineer. Guidance on maintenance is given in the IEE Wiring Regulations. The engineer or manufacturer responsible for a piece of equipment will normally be in a position to specify what periodic inspection and maintenance (including tests for electrical safety) is required and which of these functions, if any, can be carried out by the user. Careful consideration must always be given to the means of isolating such equipment from the supply system prior to testing.

5.2 Portable Equipment

The term 'portable' is not restricted to equipment which is normally moved around; it refers to all equipment which can be connected to an electrical system by a cable and plug.

A Term Maintenance Contractor will undertake the inspection and testing of all items of West Lothian Council 'portable' electrical equipment in accordance with current HSE & IET Guidance and Requirements.

Persons using items of privately-owned electrical equipment in a West Lothian Council building shall ensure that each item is inspected, tested and labelled for electrical safety.

5.3 Inspection of Portable Equipment

Inspections are visual checks of parts of the equipment and are mainly concerned with the cables and plugs.

Hand held power tools shall be checked before each use. It is recommended that, wherever possible, this type of equipment is battery powered or 'low voltage' or operated from a '*Power-Breaker*' residual current protected safety plug, or similar device.

5.4 New Equipment

There is no requirement to carry out tests or formal visual inspections on new items of electrical equipment prior to the equipment being put into service; however a user check should be carried out to identify any obvious visual evidence of damage. Further details on user checks can be found in Appendix I. If there are any signs of damage, the equipment must not be used and referred back to the supplier/manufacturer, and/or thoroughly tested for electrical safety.

5.5 Recording the Results

The Electricity at Work Regulations requires that the results of electrical safety tests are recorded. The production of the Asset Database will be undertaken by the appointed PAT Testing Term Maintenance Contractor.

6.0 COLD ROOMS

Cold rooms present special problems. Whilst the atmosphere in a cold room is frequently very dry, condensation can occur on equipment when it is removed from the room. Permanent wiring within cold rooms shall be waterproof and power sockets protected by Residual Current Devices.

7.0 FLAMMABLE / EXPLOSIVE ATMOSPHERES

Hazardous areas where flammable or explosive atmospheres may exist require specially selected electrical equipment to take account of the particular hazard, e.g. flameproof, explosion proof, etc. Adequate earth protection is essential. Normal electrical apparatus must never be used under such operating conditions. Any work within these defined areas must take account of the following:

- Installations should be designed and constructed in accordance with British Standard 5501:1977 entitled, "Electrical Apparatus for Use in Potentially Explosive Atmospheres".
- Precautions must always be taken to prevent the ignition of flammable atmospheres by the discharge of static electricity.
- Most electrical equipment is unsuitable for use in oxygen enriched atmospheres. Selection of equipment for use in these areas must only be carried out by skilled personnel.

8.0 RISK AUDIT & ASSESSMENT

8.1 Identifying the Risk

The Responsible Person for the Property shall review the potential issues of electrical safety including taking into consideration the following:

- Is it known already that electrical safety issues are present?
- Will there be people present who may be exposed, especially in premises where occupants are particularly vulnerable?

8.2 Assessing the Risk

All potential sources of electrical hazards will be risk assessed and preventive or precautionary measures to avoid or control electrical hazards will be identified.

The risk assessment will be carried out by a 'skilled person' with suitable experience and accredited qualification.

8.3 Review of Risk Assessments

Risk assessments will be reviewed annually, as per Council Policy or where circumstances would suggest control measures are inadequate, for example:

- There are changes to the electrical system or its use;
- There are changes in the use of the building in which the electrical system is installed;
- New information is available about risks or control measures;
- The results of checks indicate that control measures are no longer effective
- There are changes to legislation regarding Electricity at Work
- There are changes to the British Standards in respect of Electricity

The Mechanical & Electrical (M&E) Services Team Principal will ensure that the reviews of risk assessments take place annually and that risk assessments are recorded centrally.

9.0 MANAGEMENT CONTROLS

9.1 Monitoring & Testing

All electrical systems must be subject to ongoing monitoring and testing in accordance with BS7671 (and all amendments), to ensure preventive and precautionary measures are effective.

A specialist electrical insurance inspection company, appointed by the Risk and Insurance section within the Council, will carry out regular testing of all electrical systems.

At the same time the electrical insurance inspection company will check the electrical system for any obvious defects, alterations, or changes in use liable to affect the electrical risk.

The M&E Services Team Principal will ensure that appropriate records are kept.

9.2 Unsatisfactory Results

Unsatisfactory results of monitoring and testing, along with any recommendations, will be reported by the electrical insurance inspection company to the appropriate personnel at West Lothian Council.

Maintenance staff with electrical responsibility will identify the most appropriate course of action and issue all necessary instructions and work orders to allow the work to proceed.

In certain circumstances it may be necessary to review the risk assessment.

9.3 Corrective action

When high levels of electrical safety risk have been reported, immediate corrective action shall be undertaken to ensure that the risk from electricity is reduced.

9.4 Contractor Management and Competency

The person with managerial responsibility for electrical services will check that selected contractors have adequate risk assessment and health & safety procedures in place appropriate to the work they are to carry out.

All contractors will be assessed as part of the procurement process prior to appointment.

Contractors shall be members of trade associations, for example, the NICEIC, SELECT or equivalent.

Contractors must not sub-contract work unless with the permission of the Council. The main contractor is responsible for passing on information from the Council and checking the competency of any sub-contractors.

9.5 Design Control

The M&E Services Team Principal shall ensure that there is adequate design control of consultants in order to comply with WLC Employers Design Requirements when designing electrical systems.

The provision of new works and all upgrades shall be designed and verified in accordance with the provisions of BS7671 by 'skilled persons' and erected by 'skilled persons'.

All new electrical works and all minor works shall, on completion, be inspected and tested in accordance with BS7671 and an Electrical Installation or Minor Works Certificate completed.

The Council appointed Insurance Inspection Company will then carry out the first inspection to ensure the electrical system meets the safety standards required and will issue a notice of any defects.

The installing contractor will then be responsible for the immediate rectification of any such defects

9.6 Remedial Works to Electrical Systems

Remedial works may be identified either as part of a Risk Assessment or as part of the management and monitoring regime.

Works of this type must be recorded in the Electrical repairs database.

10.0 RECORDS

10.1 Records to be Kept

The following records shall be kept; where records do not exist the Services Team Principal shall put in hand their provision.

- Copy of electrical risk assessments
- Plans and schematics of all electrical systems
- Results of regular monitoring and testing
- Details of any alterations
- Details of any remedial action taken in response to unsatisfactory test results
- Details of any precautionary measures carried out.

The M&E Services Team Principal will ensure that these records are kept.

10.2 Record Retention Periods

West Lothian Council has adopted the policy that all records relating to electrical risk will be retained whilst they are current plus a minimum of 5 years thereafter.

10.3 Record Repositories

Copies of reports, certificates and sampling results will be:

- Stored electronically in the electronic records and document management system.
- Subject to suitable date back-up scheme where held electronically.

11.0 EXPOSURE TO ELECTRICAL HAZARDS

11.1 Action on Becoming Aware of Human Exposure to Electrical Hazard

Investigation by enforcing authorities:

In the event of an investigation, West Lothian Council and all employees must co-operate with the enforcing authorities.

Shut down procedures:

Building Services or an appointed specialist electrical contractor will ensure that the electrical systems are isolated. The Person in Control of the Premises (Responsible Officer) must ensure that the area/system/equipment is not used.

Business continuity:

Shutting down electrical systems in operational premises may disrupt their use as a workplace or disrupt the ability to continue to provide services. Construction Services will be able to provide advice on the consequences and duration of shutdowns. Dependent upon the severity of disruption, unit/service managers will require to judge whether they should invoke Business Continuity Plan Procedures or if local arrangements will suffice.

If electrical supply for housing properties is interrupted, Housing Services staff will need to make alternative arrangements for tenants in accordance with their service standards and legal obligations.

11.2 Protocol for Emergency Incident Notification;

When Emergency Incidents take place within West Lothian, it is important that the following procedure is put in place when informing Chief Executive, Depute Chief Executives, Heads of Service, HR Manager (Health and Safety) and Elected Members of the Council.

Identifying when elected members should be informed:

It is not possible to give a complete list of the issues that Elected Members should be informed of however, the following examples can be considered as a guide: -

- Acts of vandalism resulting in theft or damage to cable or equipment causing failure of power and danger to members of staff or public

Identifying which elected members to inform:

When an emergency incident takes place, Elected Members may require to be informed. Each service area is responsible for informing Elected Members of such incidents by email or any other appropriate permanent form.

Identifying which elected members should be informed:

Heads of Service should apply discretion in determining which Elected Members require to be informed of certain matters. However, as stated in the present Officer's Protocol for multi-member ward working, when officers provide information to members or residents regarding matters of general concern in a ward, copies should be provided to all the local members e.g. traffic calming measures, bin collection information etc.

12.0 COMPETENCIES

Those undertaking work on fixed electrical installations shall, in accordance with the current version of BS7671 and any amendments be 'skilled persons' who have undertaken formal electrical training and are conversant with current electrical installation practice and hold a current qualification in BS7671. Definitions of relevant terms are set out below.

Ordinary person

A person who is neither a 'skilled person' nor an 'instructed person'.

Instructed person (electrically)

A person adequately advised or supervised by 'electrically skilled persons' to enable him or her to perceive risks and to avoid dangers hazards which electricity may create.

Skilled person (electrically)

A person with technical knowledge or sufficient relevant education and experience to enable him or her to perceive risks and to avoid dangers or hazards which electricity may create.

13.0 AUDIT & REVIEW

13.1 External Audit

The Council will appoint an External auditor who will carry out an audit of the management systems in place once every four years. This audit will inform the review of the Management Policy and Management Plan

13.2 Review

Managerial Review

A review will be carried out by the M&E Services Team Principal of the electrical control measures in place every two years or where there have been changes to the Electrical standards.

Policy and Management Plan Review

This policy and management plan will be reviewed as necessary by the M&E Services Team Principal in consultation with the HR Manager (Health and Safety), recognised trade unions and other relevant parties as determined by the Council.

- Full reviews of this plan shall be carried out at least once every 3 years.
- Interim reviews will be carried out when appropriate and, in particular, when there are:
 - Changes to the underlying legislation;
 - Significant change in the use of premises;
 - Significant changes in the design, use and demand on electrical systems.