LEIA Safety Information Sheet

Electricity at Work Regulations

Prepared by the LEIA Safety and Environment Committee

Contents

PREAMBLE

This Information Sheet is one of a series produced by the LEIA Safety and Environment Committee on topics relevant to the Lift and Escalator Industry. Whilst every effort has been taken in the production of these sheets, it must be acknowledged that they should be read in conjunction with the relevant legislation, codes of practice etc. They should not be taken as an authoritative interpretation of the law but guidance to it.

INTRODUCTION

Most electrical accidents occur because individuals are working on or near equipment:

a) Which is thought to be dead but which is in fact live;
b) Which is known to be live but those involved are without adequate training or appropriate equipment, or they have not taken adequate precautions.

The HSE Guidance to the Electricity at Work Regulations 1989 (HSR25 Third Edition 2015) were made under the provisions of the Health and Safety at Work Act 1974 (HASWA) and apply to all work associated with electricity where HASWA applies.

In addition to the Electricity at Work Regulations 1989 (EAWR), the Management of Health and Safety at Work Regulations 1999 (MHSWR) require employers to carry out a risk assessment of all risks to their employees and others at work.

The Guidance on EAWR produced by the HSE is intended to assist duty holders in meeting the requirements of the Regulations by achieving high standards of electrical safety and compliance with the duties involved.

Duty Holder

Duties under the regulations are placed on employers, employees and the self-employed where the requirements of the Regulations are "*within his control*".

It is therefore important to note the duty on the *employee* is equivalent to those placed on employers and the self-employed.

Regulation 29 provides a defence for a duty holder who can establish that he took all reasonable steps and exercised all due diligence to avoid committing an offence under certain Regulations.

Application of the Regulations

The format of the regulations is different to the previous regulations they replace, in that they contain general principles for electrical safety rather than stating detailed requirements.
The Regulations state principles of electrical safety in a form which may be applied to any work activity on or near electrical equipment. They apply to all electrical equipment and systems whenever manufactured, purchased, installed or taken into use and are concerned with the prevention of danger from:

- electric shock;
- electrical burns;
- electrical explosion or arcing;
- fire or explosion initiated unintentionally by electrical energy.

Some of the duties in the Regulations are subject to the qualifying term 'reasonably practicable'. Where such qualifying terms are absent the requirement is said to be absolute and must be met regardless of cost or any other consideration. Other terms such as isolation, danger and systems are defined in the Regulations.

Assessments

Assessments, carried out in accordance with the MHSWR, must identify in the first instance if work on or near electrical equipment can be carried out with the equipment 'dead'.

Lock Off – Tag Out (LOTO)

To improve operational safety for effective isolation of the electrical supply, careful design of electrical equipment should include a locking off facility or other means of securing the isolator in the OFF position. The isolation device must be in a suitable location with safe access to it, it must clearly and reliably indicate its isolated position (ON or OFF) and it must identify the equipment it controls.

Where a number of people are working on a system, the use of multiple LOTO Equipment may be appropriate, ensuring all locks are removed before the equipment can be re-energised.

Checks must be carried out at the point of work in order to prove the equipment and equipment near the point of work is dead. For a three phase supply, all supply conductors must be checked to ensure they are dead.

Live Working

Where work on live conductors is necessary EAWR Regulation 14 states

> *"No person shall be engaged in any work activity on or so near any live **conductor** that danger may arise unless:-*
>
> *a) It is unreasonable in all the circumstances for it to be dead; and*
> *b) It is reasonable in all the circumstances for him to be at work on or near it while it is live; and*
> *c) Suitable precautions (including when necessary the provision of suitable protective equipment) are taken to prevent injury.*

These duties are absolute and all three conditions must be met for live working to be permitted. In every occasion there must be sound justification for live working.

Where work is to be carried out 'live' the regulations are concerned with the competence of workers in potentially dangerous situations;

> *"No person shall be engaged in any work activity where technical knowledge or experience is necessary to prevent danger or, where appropriate, injury, unless he possesses such knowledge or experience, or is under such degree of supervision as may be appropriate having regard to the nature of the work."*

(EAWR Regulation 16)

Where necessary to prevent danger, suitable means should be available for

(a) cutting off the supply of electrical energy to any electrical equipment,

(b) the isolation of any electrical equipment.

Permit to Work

In certain circumstances a Permit to Work, detailing the precautions and steps taken to ensure safety has been achieved may be appropriate.

Employers should establish clear policies relating to permits to work and safe working procedures. If live working must be carried out the risk assessment must consider the following:-

- Assessments should include identifying the presence of tripping hazards inadequate headroom or other obstructions which can restrict a person's ability to move safely in the workplace.

- There must be adequate space and lighting when working on or near electrical equipment or where there is a risk of danger.
- A clear working space of 915mm is recommended from live parts at 415 volts, the space should be at least 1375mm if there are parts live on both sides, although this situation should be avoided whenever possible, e.g. by protective screening.
- Construction of electrical systems should consider the likely or reasonably foreseeable conditions in which the equipment or apparatus will be used.
- All systems should be of such construction as to prevent so far as is reasonably practicable, danger (terms such as systems and danger are defined in the Regulation).

Other Considerations

There is a link between the EAWR and the Provision and Use of Work Equipment Regulations 1998 (PUWER) which requires all electrical equipment provided for work to meet the general requirements of PUWER.

- Any protective equipment provided for the purpose of EAWR should be appropriate, and be maintained in a condition suitable for that use. Furthermore it must be properly used.
- No electrical equipment should be put into use where its strength and capability may be exceeded in such a way as may give rise to danger when under operating conditions.
- Adverse conditions where danger could arise if the equipment was not properly constructed or protected for the environment it was to be foreseeably used in e.g.
  - Mechanical damage - impact, stress, abrasion, vibration
  - Effects of weather, natural hazards, temperature and pressure
  - Liquids, chemicals, condensation, corrosion, dirty conditions
  - Flammable or explosive substance, including dust, gas and vapours
- All conductors in a system which may give rise to danger should be suitably covered with insulating material or have precautions taken in respect of them in order to prevent danger.

Where insulated conductors are required to be protected from mechanical damage, this may include the need for trunking or conduit. Control panels should be designed with insulated conductors and shrouded terminals so that commissioning tests, calibration and fault finding can be carried out with a minimum of risk.

SUMMARY

Complying with EAWR therefore entails:-

- A detailed assessment of the workplace for potential safety hazards.
- The establishment and maintenance of safe working practices?
- The identification and implementation of recognised codes of safe working practice appropriate to the work.
- Training to ensure appropriate levels of staff competence.
- The provision and maintenance of safety equipment (where needed).
- A regular programme of testing inspection and maintenance for electrical systems and equipment. For portable appliances refer to the LEIA Information Sheet on Portable Appliance Testing.
- The systematic documentation of all the above provisions.

For any clarification of this information sheet contact your company Safety Advisor or the LEIA Safety and Training Manager.

References:

LEIA Information Sheet 'Electrical – Live Working'
LEIA Information Sheet 'Portable Appliance Testing'
Electricity at Work Regulations 1989
http://www.legislation.gov.uk/

HSR25 *Guidance on The Electricity at Work Regulations*
HSE Books Third edition 2015
http://www.hse.gov.uk/pubns/books/hsr25.htm

GS38 (rev) *Electrical test equipment for use by electricians*
HSE Books Fourth edition 2015
http://www.hse.gov.uk/pubns/books/gs38.htm

HSG 85 *Electricity at Work and Safe Working Practices*
HSE Books Third edition 2013
http://www.hse.gov.uk/pubns/books/hsg85.htm

Guidance on the Management of Electrical Safety and Safe Isolation Procedures for Low Voltage Installation
Electrical Safety Council
https://www.electricalsafetyfirst.org.uk/mediafile/100370766/Best-Practice-Guide-2-Issue-3-.pdf