

OPERATIONAL MAINTENANCE PROCEDURE			 UNIVERSITY OF LINCOLN
Subject: WORKING SAFELY WITH ELECTRICITY	E&CS22	Rev. 5	
	Page 1 of 6	Issue Date: 20/10/16	
	Owner: P Lawson		

TO BE READ IN CONJUNCTION WITH E&CS18 WORK ON FIRE ALARM SYSTEMS, E&CS21 PERMIT TO WORK, AND E&CS23 AUTHORISING PERSONS PROCEDURES

1.0 PURPOSE

The Electricity at Work Regulations 1989 imposes legal duties specific to electrical safety which is applicable to all work activities involving electricity.

There are no voltage limits and the scope of the regulations extends from the smallest simplest battery systems such as torches etc, to the national electrical transmission distribution network voltages.

The aim of the regulations is to prevent injury from any source of electrical energy. The below listed publications have been used for guidance purposes.

- “Memorandum of Guidance on the Electricity at Work Regulations 1989” ISBN Code 9780717662289, HSR25.
- “Electricity at Work, Safe Working Practices” ISBN Code 9780817621644, HSG85.

Both are available to purchase or download from the HSE website.

2.0 GENERAL

The duties are set out in the Electricity at Work Regulations, some of which are absolute (in other words they **MUST** be done). No leeway or tolerance is allowed on these types of duties and some must be carried out “as far as is reasonably practicable” (in other words there is some tolerance available) for further clarifications regarding these duties the University Health & Safety Department are available on the following extension number:

- Morgan Foster ext 6169
- Chris Harrison ext 7062

To interpret these regulations correctly they require knowledge of the legislation, clarity as to which level of duty is imposed and the ability to carry out a Risk Assessment, for the latter, there is also a need to understand the risk and then with appropriate knowledge (this document owner is the University specialist for electrical items) and he is available on:

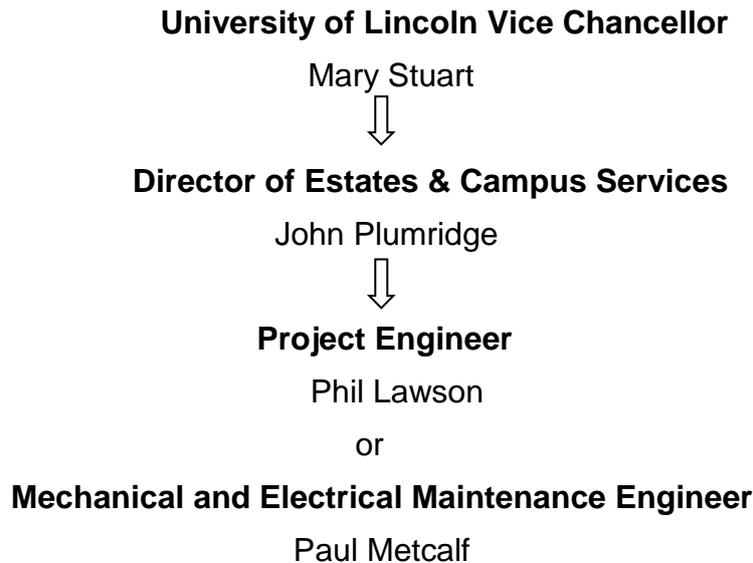
- Phil Lawson ext 6479

With appropriate knowledge, evaluate the measures necessary to control it. This involves weighing the likelihood of injury and severity of injury against the measures needed to avert the danger and, amongst other things it will be necessary to consider the implications of lone working as part of the process. It must be recognised that in the case of an electrical accident there is often a fine line between a near miss and a fatality. Often an incident between electricity and humans will end with the muscular reaction that shortens the tendons in the arms and hands causing the person to grip the electrical terminal tighter. This reaction gets stronger up to a certain voltage threshold. Risk Assessments must be carried out by those with the specialist knowledge to recognise that fact and must always be suitable and sufficient and commensurate with the risk.

OPERATIONAL MAINTENANCE PROCEDURE			 UNIVERSITY OF LINCOLN
Subject: WORKING SAFELY WITH ELECTRICITY	E&CS22	Rev. 5	
	Page 2 of 6	Issue Date: 20/10/16	
	Owner: P Lawson		

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In terms of the Electricity at Work Regulations the Duty Holder is clearly defined and in our case is shown below in a simple diagram format.



The University of Lincoln Vice Chancellor is the Duty Holder. However she delegates the operational responsibility to ensure compliance to the Director of Estates Campus Services who in part delegates responsibilities to the Project Engineer – Electrical within the department. Current names for post as shown; (these must be changed as the person leaves or moves elsewhere).

In terms of the Electricity at Work Regulations the legal “Duty holder” is clearly defined and interpreted as shown above. However the legislation states that where an EMPLOYEE is in CONTROL of electrical danger, the duties imposed on the INDIVIDUAL are equivalent to the duties placed on the employer and the self-employed.

The Electricity at Work Regulations 1989 requires Heads of Departments/Colleges to ensure that electrical systems and the equipment for which they are ultimately responsible are designed, operated, maintained, modified and extended in a way which avoids danger, if they are in any doubt about this then they should contract the Project Engineer – Electrical, Phil Lawson on ext 6479.

3.0 DEFINITIONS

‘An electrical system’ is a system which all the electrical equipment is, or may be, electrically connected to a common source of electrical energy.

‘Electrical equipment’ includes anything used or installed for use, to generate, provide, transmit, transform, rectify, convert, conduct, distribute, control, store, measure or use electrical energy.

OPERATIONAL MAINTENANCE PROCEDURE			 UNIVERSITY OF LINCOLN
Subject: WORKING SAFELY WITH ELECTRICITY	E&CS22	Rev. 5	
	Page 3 of 6	Issue Date: 20/10/16	
	Owner: P Lawson		

TO BE READ IN CONJUNCTION WITH E&CS18 WORK ON FIRE ALARM SYSTEMS, E&CS21 PERMIT TO WORK, AND E&CS23 AUTHORISING PERSONS PROCEDURES

'The person in control of Electrical Danger' this person MUST be competent by formal training and experience and with sufficient knowledge to avoid electrical danger from low voltage battery systems through to High voltage systems across the University campuses.

4.0 **RESPONSIBILITIES**

4.1

Heads of Departments/Colleges are responsible for all electrical equipment & associated works within their respective departments. Examples could include but are not restricted to the following:

- Any electrical equipment not fitted as part of the buildings structure such as workshop and specialist laboratory equipment, computers and printers, monitors, portable desk lighting, portable electrical heaters and fans and temporary extension leads.

Except for those systems described above the following paragraph 4.2 lists items that would normally fall under the jurisdiction of the Director of Estates and Campus Services.

4.2

The Director of Estates and Campus Services would generally be recognised as being responsible for the following items:

- 1) All approved/notified hard wired electrical installations within a University building, including both electrical sockets and electrical lighting as supplied in the ceilings, floors or walls and non-specialist fixed equipment e.g. water heaters, air conditioning units etc.
- 2) All street lighting installations within the Campuses including car parking areas, cycle and footpaths leading onto main roads.
- 3) All electrical lifts and electrical operated doors.
- 4) All sub-stations and switch rooms (other than those provided by statutory authorities) including mains supplies, lightning conductors, general and specialist earthing.
- 5) All University owned High & Low Voltage electrical distribution Infrastructure.

OPERATIONAL MAINTENANCE PROCEDURE			 UNIVERSITY OF LINCOLN
Subject: WORKING SAFELY WITH ELECTRICITY	E&CS22	Rev. 5	
	Page 4 of 6	Issue Date: 20/10/16	
	Owner: P Lawson		

TO BE READ IN CONJUNCTION WITH E&CS18 WORK ON FIRE ALARM SYSTEMS, E&CS21 PERMIT TO WORK, AND E&CS23 AUTHORISING PERSONS PROCEDURES

4.3

The Project Engineer (currently Phil Lawson) and Communications Officer will liaise with departments, particularly in respect of timing, access, isolation of supplies and notification of intended works so that departments are aware of essential maintenance and compulsory electrical testing to be carried out.

4.4

Departments other than Estates & Campus Services must not carry out any modifications or extensions to the systems defined previously in 4.2 without prior knowledge and written approval of the Project Engineer (Phil Lawson).

4.5

In areas where electrical switchgear is installed within a department, these areas must be kept clean, tidy and unobstructed at all times. Dedicated switchgear space must not be used as storage space.

4.6

When work is undertaken on the electrical distribution systems, Heads of Department/college must exercise their responsibilities as the persons in general control of the workplace, to ensure that in-house personnel and contractors are provided with a (general) safe working area and supply suitable and sufficient information to enable induction training to be carried out covering hazards specific to that environment at that time to enable them to all work safely.

4.7

Heads of Departments must ensure that electrical systems and equipment for example portable appliances are properly recorded, tested and maintained.

4.8

Heads of Department must liaise with Estates and Campus Services regarding any electrical works they require.

The Estates Department have an approved register of electrical contractors who can carry out electrical works on the University electrical systems. It is not permitted to employ an electrical contractor not on the current approved register. In the event that a department need to employ a specialist electrical contractor that is not included on the approved register they must contact the Estates department and provide satisfactory evidence of competency, whereon they may be added to the approved register. NICIEC approved contractors are only used by the University.

OPERATIONAL MAINTENANCE PROCEDURE			 UNIVERSITY OF LINCOLN
Subject: WORKING SAFELY WITH ELECTRICITY	E&CS22	Rev. 5	
	Page 5 of 6	Issue Date: 20/10/16	
	Owner: P Lawson		

TO BE READ IN CONJUNCTION WITH E&CS18 WORK ON FIRE ALARM SYSTEMS, E&CS1 PERMIT TO WORK, AND E&CS23 AUTHORISING PERSONS PROCEDURES

Any electrical contractors engaged by University departments must be controlled as if they were working directly for the Estates and Campus services following our SMT approved procedures.

4.9

Electrical items borrowed or on loan from other institutions/facilities or electrical items designed or amended from their original certified design prior to being plugged into University of Lincoln electrical hard wired circuits must receive approval from the Project Engineer Phil Lawson.

5.0 LIVE WORK AND LIVE TESTING

It is University policy that live work on electrical systems should not be carried out, with the specific exception of testing and diagnostic work. In these cases Regulation 14 of the Electricity at Work 1989 Regulations require ***the person in control of danger to:***

- a) Confirm that It Is unreasonable in all the circumstances for the conductors to be dead.
- b) Determine in all circumstance that it is reasonable to work live.
- c) Suitable precautions are taken including the provision of suitable protective equipment.

5.1

Electrical Installation Condition Testing is carried out on a 5 year cycle, except for places of public entertainment (such as LPAC, the Engine shed or the shed) which will be annually.

5.2

When the testing is carried out, any Code 1 faults that are identified must be rectified by the electrician at the time or the circuit identified must be made safe.

6.0 ISOLATION OF SUPPLY

All circuits or electrical equipment to be worked on shall be isolated, proved dead and suitably locked off with safety locks & safety signs displayed, prior to exposing or working on any conductors.

7.0 PURCHASE OR DISPOSAL OF ELECTRICAL EQUIPMENT

Electrical equipment that is to be sold on, or which is donated by a department must also be safe and meet legal safety requirements in relation to its design and construction and this must be verified before being offered for sale or donated. Written instructions for safe operation of the equipment must be provided for the intended recipient. Electrical equipment that is hired out is also within the scope of these regulations.

OPERATIONAL MAINTENANCE PROCEDURE			 UNIVERSITY OF LINCOLN
Subject: WORKING SAFELY WITH ELECTRICITY	E&CS22	Rev. 5	
	Page 6 of 6	Issue Date: 20/10/16	
	Owner: P Lawson		

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End of life disposals of electrical equipment must be in accordance with the European Unions Waste Electrical and Electronic Equipment Directive (WEEE Directive*) this minimises the impact on the environment by re-using, recycling and reducing the amount of WEEE going to landfill. Hazardous WEEE should be disposed of via the below mentioned person.

NB* - Alan Blackham on ext 6649 can provide you with the latest University policy information regarding this.

8.0 TEACHING AND RESEARCH ACTIVITIES

The Electricity at Work Regulations must be taken into account when preparing Risk Assessments for teaching and research activities. Particular attention must be paid to the competent supervision of students and others involved in electrical work. Adequate forethought must be given to the safety of other persons who may be affected by the activities.

The regulations are specific in that no persons may be engaged in any work activities where technical knowledge or experience is necessary to prevent electrical danger, or injury, unless he/she possesses such knowledge or experience, or is under such a degree of supervision as may be appropriate in relation to the nature of the work.

The supervisors of academic and similar work must be aware of these requirements and compliance must be ensured.

9.0 HIGH VOLTAGE

All substations and distribution boards handling >1000volts alternating current are deemed as High Voltage and as such a specific Safe System of Work has been developed and adhered to.

For any works shutting down, re-energising, altering or amending the high voltage electrical systems within our infrastructure, it is undertaken and managed by our HV contractors EME Power systems.

For maintenance work within a HV environment a Limitation of Access form can be issued by The University Authorised Persons - Phil Lawson, Paul Metcalf, Mark Skinner, Simon Crampton, Claire Collier or Chris Broome (Imtech Inviron).