

Electrical Safety Policy



1 Introduction

- 1.1 This policy forms part of, and should be read in conjunction with the University's Health and Safety Management Policy.
- 1.2 A breach of this policy may be addressed via the University's disciplinary and code of conduct policies.
- 1.3 This policy will be reviewed by Estates and Campus Services on a 3-year basis or amended in response to changes in future legislation and/or case law.

2 Ownership

- 2.1 Estates and Campus Services owns and manages this policy on behalf of The University of Northampton.

3 Organisational Scope

- 3.1 This policy is intended to ensure compliance with the University's statutory requirements as set out primarily in ***The Electricity at Work Regulations 1989, The Health and Safety at Work Act 1974, and The Management of Health and Safety Regulations 1999.***
- 3.2 This Policy applies to all electrical equipment, systems and supply of electricity across the University of Northampton's campuses, and any other premise under its control.
- 3.3 All external agents, contractors and employers operating on the University's premise or engaged in activities on its behalf, will be expected to provide suitable and sufficient risk assessments and method statements which identify how they meet the minimum requirements as set out in the regulations.
- 3.4 Electrical supply assets within the University and belonging to the District Network Operator remain their own property, under their control, and this policy does not apply.
- 3.5 Consideration will be given to all electrical systems and equipment, regardless of its voltage.

4 Definitions

- 4.1 **Voltage**
Electromotive force or potential difference expressed in volts.

High voltage

A voltage that is in excess of 1000 Volt **alternating current** or 1500 Volt **direct current**. Voltages below these values are considered "low" voltage

Low voltage

Voltages that are between 50-1000 Volt **ac** or 120-1500 Volts **dc**

Risk

The term used to describe the likelihood that a hazard is realised, taking into account the severity of the outcome

Competent person

A competent person is someone who has ability to undertake responsibilities and perform activities to a recognised standard on a regular basis. It combines practical and thinking skills, knowledge and experience. For the purpose of this policy we are referring in reference to electrical safety only.

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.

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;

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.

Electrical 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)

Dead

Not electrically live or charged

5 Policy Statement

- 5.1 The University of Northampton recognises the risks that are present, or may occur from electrical systems or electrical equipment within the University
- 5.2 This policy outlines the University's policy and the arrangements in place to ensure that electrical systems and equipment comply with statutory legislation and are safe and free from risk-as much is reasonably practicable.
- 5.3 The University accepts the benefits that accrue from the use of the principals and practices relating to risk assessment, when determining suitable and sufficient arrangements for the prevention or control of the hazards created by the use of electrical systems and equipment.
- 5.4 The University of Northampton intends to:
- Ensure electrical installations and equipment are installed in accordance with IET Wiring Regulations, and in accordance with BS7671;
 - Maintain the fixed installations in a safe condition by carrying out routine safety testing;
 - Inspect and test portable and transportable equipment as frequently as required;
 - Promote and implement a safe system of work for maintenance, inspection or testing;
 - Ensure that no live working takes place unless absolutely necessary, in which case a permit to work must be issued before work begins;

- Ensure that employees who carry out electrical work are competent to do so.
- Exchange safety information with contractors, ensuring that they are fully aware of (and prepared to abide by) the University's health and safety arrangements;
- Retain detailed records of safety inspections and testing.

6 Responsibilities of Duty Holders

6.1 **Deans, Directors and Heads of Departments** will be responsible for the implementation of this policy within their respective areas insofar as it relates to the activities and equipment within their own department, and for its communication to their staff and students as appropriate.

6.2 **Estates and Campus Services** on behalf of the University will be responsible for the implementation of this policy insofar as it relates to the activities and equipment associated with or organised by the University and for the communication to all its staff as appropriate.

6.3 **Estates and Campus Services** have a duty to:

- Manage this policy on behalf of the University;
- Ensure that the fixed supply installation up to and including the socket outlets for socket fed equipment is appropriately tested, inspected and maintained;
- Organise the safety inspections of electrical equipment and fixed wire circuits;
- Provide a system for portable appliance testing;
- Appoint competent persons to undertake regular maintenance and safety testing of the electrical systems and equipment within the scope of the University;
- Provide technical advice on electrical safety and the purchasing of electrical equipment;
- Ensure an appropriate Permit to Work scheme is in place for work on the University's electrical systems;
- Retain detailed records of safety inspections and maintenance;
- Issue permits to work where required.

6.4 **1st Degree Facilities** have a duty to:

- Assist the University in appointing competent persons to undertake regular maintenance and safety testing of the electrical systems and equipment within the scope of the University;
- Organise appropriate action to rectify defects which have been identified through inspection or report;
- Retain detailed records of safety inspections and maintenance.

6.5 **Managers and Supervisors must:**

- Be conversant with this policy and associated procedures;
- Report any concerns in relation to defective electrical equipment or electrical systems immediately to helpdesk@1stdegreefacilities.co.uk;
- Notify 1st Degree Facilities of electrical equipment that may require a PAT safety test before use.

6.6 **Staff, students and other individuals must:**

- not put themselves in danger as a result of any lack of competence to carry out the tasks they are attempting;
- be responsible for the safety of themselves and others whilst at the University;
- report any known or suspected concerns with electrical equipment to their line manager, or appropriate person with that faculty/department.

6.7 **Authorised/Competent persons**

- No person shall be engaged in any work activity for which they do not possess the appropriate technical knowledge or experience necessary to prevent danger;
- Only Authorised or Competent Persons shall undertake work on the University's electrical system;
- Any Authorised or Competent Person carrying out work on an electrical system shall adopt safe systems of working so as not to give rise to danger;
- Authorised or competent persons will provide detailed records of their works.

7 Procedures

7.1.1 **Correct selection of electrical equipment and installations**

Standard electrical equipment procured or leased by the University shall be CE marked for use, compatible with the UK supply voltage and frequency, and comply with the Electrical Equipment Safety Regulations 1994. Equipment must be properly designed, constructed, installed and maintained so that it does not present a risk of electric shock, burns, or fire when properly used.

7.1.2 The main standard for low-voltage electrical installations is BS 7671. It describes how systems and equipment can be designed, constructed and installed so that they can be used safely. The standard covers installations that operate at low voltage (up to 1000 V ac). Meeting the requirements of this standard is likely to achieve compliance with the relevant parts of the EAW Regulations.

7.1.3 When selecting equipment, you must consider the environment it is to be used. For example, excessively damp or humid conditions will increase the risk of injury because of reduced effectiveness of insulation, which may undermine the effectiveness of devices used for isolation or increase the severity should an electric shock occur. Equipment that has corroded may not function as intended. Certified explosion-protected equipment must be used in places where there could be potentially explosive atmospheres, for example in chemical stores where fumes could be ignited by an electric spark.

7.1.4 **Checking, Inspecting and Testing of Electrical equipment**

All electrical equipment that is within the University and is classed as '**In use**', must be maintained in a safe condition to prevent risk from electric shock and fire. Effective maintenance of electrical equipment will be achieved by a combination of:

- Checks by the user;
- Formal visual inspections by a competent person;
- where necessary a combined inspection and test, also known as a portable appliance test (PAT), by an electrically competent person.

7.1.5 The aim of these checks is to determine whether the equipment is fully serviceable or whether remedial action is necessary to make sure it is safe to use. Managers should follow up these procedures by monitoring the effectiveness of the system and taking action where faults are found, particularly when faults are frequent.

7.1.6 **User checks.**

The person using the equipment should be encouraged to look at it before use and check for signs that it may not be in sound condition, for example:

- Damage (apart from light scuffing) to the supply cable, including fraying or cuts;

- Damage to the plug or connector, e.g. the casing is cracked, or the pins are bent;
- Inadequate joints, including taped joints in the cable;
- The outer sheath of the cable is not effectively secured where it enters the plug or the equipment. Evidence would be if the coloured insulation of the internal cable cores were showing;
- The equipment has been subjected to conditions for which it is not suitable, e.g. it is wet or excessively contaminated;
- Damage to the external casing of the equipment;
- Loose parts or screws;
- Evidence of overheating (burn marks or discolouration).

7.1.7 These checks also apply to extension leads, plugs and sockets. A user check should be made when the equipment is taken into use and during use. Any faults should be reported to the relevant manager and the equipment taken out of use immediately. Managers should take effective steps to ensure that the equipment is not used again until it is repaired by a person competent to carry out the task (e.g. the defective equipment could be labelled as 'faulty' and if it has a re-wireable plug this could be removed). Faulty equipment should be reported via the 1st Degree Facilities Helpdesk: helpdesk@1stdegreefacilities.co.uk

7.1.8 **Formal visual inspections**

An important part of a maintenance regime is the formal visual inspection. Such inspections are necessary because they can reveal most potentially dangerous faults. They can normally be carried out by a competent member of staff at the University, who has sufficient information and knowledge of what to look for, what is acceptable, and who has been given the task of carrying out the inspection (that is, they are competent to do the task). To avoid danger, trained people should know when the limit of their knowledge and experience has been reached.

7.1.9 These inspections can help to control the risks and to monitor the user checks. A competent person should carry out regular inspections that include checks similar to those in **user checks** but undertaken in a more formal and systematic manner

As part of the visual inspection, you must consider whether:

- The electrical equipment is being used in accordance with the manufacturer's instructions;
- The equipment is suitable for the job;
- There has been any change of circumstances;
- Any issues with the equipment have been reported.

Additional checks could include removing the plug cover to ensure:

- There are no signs of internal damage, overheating or water damage to the plug;
- The correct fuse is in use and it is a proper fuse, not a piece of wire, nail etc.;
- The wires including the earth, where fitted, are attached to the correct terminals;
- The terminal screws are tight;
- The cord grip is holding the outer part (sheath) of the cable tightly; and
- No bare wire is visible other than at the terminals.

For moulded plugs the fuse can be checked. The formal visual inspection should not include taking the equipment apart. This should be confined, where necessary, to the combined inspection and testing.

7.2.0 The formal visual inspections should be carried out at regular intervals. The period between inspections can vary considerably, depending on the type of equipment, the conditions of use and the

environment. Any pattern of faults can help managers and 1st Degree Facilities decide what action to take, depending on whether the faults show:

- The wrong equipment is being selected for the job;
- Further protection may be necessary in a harsh environment;
- The equipment is being misused.

7.2.1 **Combined inspection and test (PAT)**

The checks and inspections outlined in the previous paragraphs should reveal most potentially dangerous faults. However, some faults, such as loss of earth integrity (e.g. broken earth wire within a flexible cable), deterioration of insulation integrity, or contamination of internal and external surfaces, cannot be detected by visual examination alone. Such faults can only be reliably detected by a combined visual inspection and test. This should be carried out periodically to back up the checks and inspections and is likely to be justified:

- Whenever there is reason to suppose the equipment may be defective and this cannot be confirmed by visual examination;
- After any repair, modification or similar work;
- At periods appropriate to the equipment, the manner and frequency of use and the environment.

The inspection carried out in conjunction with testing should usually include checking:

- The correct polarity of supply cables;
- The correct fusing;
- Effective termination of cables and cores;
- That the equipment is suitable for its environment.

7.2.2 Combined inspection and testing requires a greater degree of competence (in terms of knowledge, training and experience) than for inspection alone, because appropriate electrical knowledge is needed to undertake the tests and interpret the test results.

7.2.3 People testing portable electrical equipment should be appropriately trained. It is the University's duty to make sure that any person carrying out inspections and testing are competent to do so. There are two levels of competency:

- **Level 1:** A person not skilled in electrical work routinely uses a simple 'pass/fail' type of portable appliance tester where no interpretation of readings is necessary. The person would need to know how to use the test equipment correctly. Providing the appropriate test procedures are rigorously followed and acceptance criteria are clearly defined, this routine can be straightforward.
- **Level 2:** A person with appropriate electrical skills uses a more sophisticated instrument that gives readings requiring interpretation. Such a person would need to be competent through technical knowledge or experience related to this type of work.

7.2.4 **Frequency of examinations**

Determining the frequency of inspection and testing is a matter of judgement by the University and will be kept under constant review. The frequency of inspection will be based on several factors including:

- Legislation and codes of practice;
- A thorough assessment of risks;
- Accident and incident reporting;
- Recommendations from competent persons.

- 7.2.5 Currently all portable electrical work equipment at the University is subject to portable appliance testing (PAT) which will be carried out at regular intervals by First Degree Facilities or an appointed competent person. The equipment tested must display a test label indicating the test date
- 7.2.6 New equipment must be visually inspected before being used for the first time to check for any obvious defects or signs of damage. The equipment must also be checked for the appropriate certification markings, and labelling. The equipment must be subject to a combined inspection and test within 1 year of entering service at the University.

110v / 230v Construction and maintenance portable work equipment must be subject to shorter intervals of inspection and testing due to the nature of the work, and the environments they may be used in.

- 7.2.7 The University has set out a table (contained with a separate guidance document) for recommended intervals for user checks, visual inspections and combined inspection and testing of portable electrical equipment. The frequency of examinations in the guidance document are in line with the HSE's own guidance and will be kept under constant review.

7.2.8 **Repair and replacement (electrical equipment and appliances)**

The repair of most portable electrical equipment and appliances requires specialist knowledge and expertise if the faulty or damaged equipment is to be restored to the necessary safe condition. The University will only use competent persons to undertake these works. In some instances, it may be preferable to replace the items altogether rather than repair them.

7.2.9 **Fixed wire testing (EICR)**

An EICR report works by testing the existing state of the electrical wiring, circuits and anything connected to the electrical system throughout the premises.

This is a thorough inspection, and everything electrical will be tested for wear and tear, as well as more obvious visual damage. The University will arrange for a competent person to check the electrical systems including the main incoming supply point, through to sockets, light fittings and other wiring accessories by injecting test voltages. This shows the true functionality of cables and connections.

- 7.3.0 The University will organise EICR test for all of the buildings under its control and will be undertaken within 5 years of the last test. These tests will be arranged by Campus services.

7.3.1 **Live or dead working**

Rarely should live working be carried out at the University. Many serious accidents happen to electricians whilst they are working with electricity that could have been isolated. All jobs must be planned to allow for works to be carried out when the equipment is 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 risk assessment procedure illustrates this. The conditions are:

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

7.3.2 **Students electrical items in the halls of residence**

The University recognises that students bring their own laptop computers, tablets and phone chargers onto the campus. There is no objection to sensible use of personal equipment, providing it conforms to EU standards and is compatible with the UK 230v, 50Hz power electrical supply. Other household items including heaters, kettles, toasters, microwaves, fridges and other items will not normally be permitted.

The requirements for portable appliances brought into the University Halls of Residence are set out in the University of Northampton Terms and Conditions of Residency.

- 7.3.3 Students electrical items will be subject to safety checks in line with the University Policy, which will require combined testing which will need to be arranged by the student themselves, or during a pre-arranged testing date organised by 1st Degree Facilities in the first part of the academic year.

Any prohibited or untested electrical equipment that are discovered within the student's flats will either be subject to a PAT test or will be removed from the halls of residence entirely.

7.3.4 **Disposal**

All University waste electrical equipment must be disposed of in accordance with the EU Waste Electrical and Electronic Equipment (WEEE) directive, and where applicable the Hazardous Waste Directive.

The University will maintain a WEEE disposal procedure in line with these regulations.

8 Associated Documents and references

- 8.1 Procedures and references that should be used in conjunction with this policy.

- Health and Safety at work act 1974
- The Management of Health and Safety Regulations 1999
- The Provision and Use of Work Equipment Regulations 1998
- The Electricity at Work regulations 1989
- The Waste Electric and Electronic Equipment (WEEE) Regulations 2013
- The University PUWER policy and procedures
- HSG85 <http://www.hse.gov.uk/pUbns/priced/hsg85.pdf>

9 Information, Instruction and Training

- 9.1 Continuous staff development including information, instruction and training will be provided by the University as appropriate, and where any requirements have been identified. For more information, contact the Safety Health and Environment Department: safety@northampton.ac.uk
- 9.2 Students will be provided with information, instruction and training on electrical safety whilst they are at the University which will include risks within their halls of residence and prohibited electrical equipment.

10 Approval Process

- Trade Union Liaison Group
- Occupational Health, Safety, Welfare and Environment Committee

11 Equality Analysis

An Equality Impact Assessment must accompany this document.

12 Version Control

Version Control			
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